VERSION 2

11/19/2018

REGIONAL PAVEMENT MAINTENANCE

SAFETY DATA SHEETS

FOR HAZARDOUS CHEMICALS

REGIONALPAVEMENT MAINTENANCE OF ARIZONA
2435 SOUTH 6TH AVENUE | PHOENIX, ARIZONA 85003

SAFETY DATA SHEETS

Safety data sheets provide useful information on chemicals, describing the hazards the chemical presents, and giving information on handling, storage and emergency measures in case of an accident.

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SAFETY DATA SHEET

Issuing Date 9-April-2015 **Revision Date** 3-AUG-2016 **Revision Number** 2

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

GHS Product Identifier
Product Name: **Asphalt Binder**

Other Means of Identification
Product Code(s): **M1140**
Synonyms None

Recommended Use of the Chemical and Restrictions on Use
Recommended Use: No Information Available
Uses Advised Against: No Information Available

Manufacturer's Details
Manufacturer Address
ThorWorks Industries, Inc.
2520 S. Campbell St.
Sandusky, OH 44870
www.sealmaster.net
1-800-326-1994

Emergency Telephone Number Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification
This product is not considered hazardous according to the OSHA Hazard Communication Standard 2012 (29 CFR 1910.1200).

GHS Label Elements, Including Precautionary Statements

Emergency Overview

Signal Word **Warning**

●Harmful if swallowed
●May cause skin irritation

Appearance: Black **Physical State:** Mastic **Odor:** Asphaltic

Precautionary Statements

Prevention	**Inhalation:**	May cause irritation of respiratory tract.
	Eye Contact:	Contact with eyes may cause irritation.
	Skin Contact:	May cause irritation.
	Ingestion:	Ingestion may cause stomach discomfort.
General Advice	●None	
Storage	● Keep container tightly closed	
Disposal	●Dispose of material/containers in accordance with the appropriate state, regional, or local regulations.	

Hazard Not Otherwise Classified (HNOC)
Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight %	Trade Secret
Asphalt	8052-42-4	50-70	*

**The exact percentage of composition has been withheld as a trade secret.*

4. FIRST AID MEASURES

Description of Necessary First-Aid Measures

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.

Skin Contact Wash off immediately with soap and plenty of water. In the case of skin irritation or allergic reactions, see a physician.

Inhalation Move to fresh air. If symptoms persist, call a physician.

Ingestion Drink plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

Most Important Symptoms/Effects, Acute and Delayed

Most Important Symptoms/Effects No information available

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary

Notes to Physician Treat Symptomatically. May cause sensitization by skin contact.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Carbon Dioxide (CO_2). Dry Chemical. Foam. Water Fog.

Unsuitable Extinguishing Media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical

No information available

Explosion Data

Sensitivity to Mechanical Impact None

Sensitivity to Static Discharge None

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure- demand MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Personal Precautions: Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Use personal protective equipment.

Environmental Precautions

Environmental Precautions: See Section 12 for additional Ecological Information

Methods and Materials for Containment and Cleaning Up

Methods for Containment: Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up: Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Handling: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes, and clothing. Wear personal protective equipment. Avoid breathing vapors or mists. Do not eat, drink, or smoke when using this product. Wash thoroughly after handling.

Conditions for Safe Storage, Including Any Incompatibilities

Storage: Keep container tightly closed

Incompatible Products: Strong oxidizing agents. Acids.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Asphalt 8052-42-4	TWA: 0.5 mg/m³ benzene soluble aerosol fume, inhalable fraction	-	Ceiling: 5 mg/m³ fume 15 min.

Appropriate Engineering Controls

Engineering Measures: Showers
Eyewash Stations
Ventilation Systems

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection: If splashes are likely to occur, wear: Safety glasses with side shields.

Skin and Body Protection: Impervious gloves.

Respiratory Protection: No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State: Liquid
Appearance: Black
Odor: Asphaltic
Odor Threshold: No Information Available

Property	Values	Remarks/Method
pH	No data available	None known
Melting Point/Range	No data available	None known
Boiling Point/Boiling Range	100° C	None known
Flash Point	No data available	None known
Evaporation Rate	1.8	None known
Flammability (solid, gas)	No data available	None known
Flammability Limits in Air		
Upper flammability limit	No data available	
Lower flammability limit	No data available	
Vapor Pressure	No data available	None known
Vapor Density	<1	None known
Specific Density	1.03 @ 77 F	None known
Water Solubility	Easily dispersible	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition Temperature	No data available	None known
Decomposition Temperature	No data available	None known
Viscosity	No data available	None known
Flammable Properties	Not Flammable	
Explosive Properties	No data available	
Oxidizing Properties	No data available	

Other Information

VOC Content No data available

10. STABILITY AND REACTIVITY

Reactivity: No data available
Chemical Stability: Stable under recommended storage conditions.
Possibility of Hazardous Reactions: None under normal processing.
Hazardous Polymerization: Hazardous polymerization does not occur.
Conditions to Avoid: None known
Incompatible Materials: Strong oxidizing agents. Acids.
Hazardous Decomposition Products: Carbon Monoxide (CO), Carbon Dioxide (CO^2), Hydrogen Sulfide, Nitrogen Dioxide

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation: May cause irritation of respiratory tract.
Eye Contact: Contact with eyes may cause irritation.
Skin Contact: May cause irritation.
Ingestion: Ingestion may cause stomach discomfort.

Chemical Name	LD50 Oral	LD50 Dermal	LD50 Inhalation
Asphalt	5000 mg/kg (Rat)	>2000 mg/kg (Rabbit)	-

Symptoms Related to the Physical, Chemical, and Toxicological Characteristics

Symptoms: No information available.

Delayed and Immediate Effects and also Chronic Effects from Short and Long Term Exposure

Sensitization: No information available.
Mutagenic Effects: No information available.
Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen. The IARC, NTP, and OSHA do not list asphalt as a carcinogen. In general, the oxidation of polycyclic aromatic hydrocarbons destroys their carcinogenic potential. Petroleum asphalt, shale oil asphalts, and coal tars show distinct variation in their relative carcinogenicity for experimental animals.

Chemical Name	ACGIH	IARC	NTP	OSHA
Asphalt	A3	Group 2B	Reasonably Anticipated	X

ACGIH: (American Conference of Governmental Industrial Hygienists)
A3 – Animal Carcinogen
IRAC: (International Agency for Research on Cancer)
Group 2B – Possibly Carcinogenic to Humans
NTP: (National Toxicity Program)
Reasonably Anticipated – Reasonably Anticipated to be a Human Carcinogen

OSHA: (Occupational Safety & Health Administration)
X – Present

Reproductive Toxicity: No information available.
STOT - Single Exposure: No information available.
STOT – Repeated Exposure: No information available.
Aspiration Hazard: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Persistence and Degradability: No information available.
Bioaccumulation

Chemical Name	Log Pow
Asphalt	6..006

Other Adverse Effects: No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging: Do not re-use empty containers.

14. TRANSPORTATION INFORMATION

DOT: Not regulated

ICAO/IATA Not regulated as a hazardous material or dangerous goods for transportation.

15. REGULATORY INFORMATION

International Inventories
TSCA – Complies
DSL/NDSL – Complies

Legend
TSCA – United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL – Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS Number	Weight %	SARA 313 – Threshold Values %
Asphalt	8052-42-4	20-40	0.1

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations
California Proposition 65: This product does not contain any Proposition 65 chemicals.

U.S. State Right-To-Know Regulations

"X" designates that the ingredients are listed on the state right to know list.

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Illinois	Rhode Island
Asphalt	X	X	X		X

U.S. EPA Label Information

EPA Pesticide Registration Number: Not applicable

16. OTHER INFORMATION

NFPA	**Health Hazard:** 1	**Flammability:** 0	**Instability:** 0	**Physical and Chemical Hazards-**
HMIS	**Health Hazard:** 1	**Flammability:** 0	**Physical Hazard:** 0	**Personal Protection: X**

Revision Date: 3-AUG-2016
Revision Note: Supersedes 4-JAN-2016.

General Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

Section 1: Identification of the substance/mixture and of the company/undertaking

Product form:	Liquid
Substance name:	Guard Top Seal Coat
Synonyms:	Asphalt Emulsion

Manufacturer

Guardtop. L.L.C.
Three Monarch Bay Plaza, Suite 210
Dana Point, CA 92629
Phone: (949) 248-8020

Emergency telephone number

CHEMTREC (800) 424-9300

Section 2: Hazards identification

Classification of the substance or mixture:

Eye Irritant	Category 2A
Skin Corrosion/Irritation	Category 2
Respiratory/Skin Sensitizer	Category 1

Signal Word: WARNING

Hazard Statements

- May cause skin and eye irritation.
- Fumes from heated material may be irritating.
- Aspiration hazard if swallowed.
- Substance may be harmful if swallowed irritating mouth, throat and/or stomach.
- Prolonged or excessive inhalation may cause respiratory tract irritation.
- Vapors may have a strong offensive odor which may cause headaches, nausea and vomiting.
- Symptoms of overexposure include: fatigue, tearing of eyes, burning sensation in the throat, cough, chest discomfort and skin irritation.

Precautionary Statements

- Obtain and read instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Exposure to hot material may cause thermal burns.

Section 3: Composition/information on ingredients

Chemical Name	Amount	CAS Number
Asphalt	<20%	8052-42-4
Water	<45%	7732-18-5
Aggregate Blend	>30%	14808-60-7
Carbon Black	2.0%	1333-86-4
Hydrogen Sulfide	<0.05%	7783-06-4
Cellulose Fiber	<2.0%	Mixture

Section 4: First aid measures

First-aid measures general: Get prompt medical attention. Dilute with water. If solidified, treat as neat asphalt.

First-aid measures after inhalation: At elevated temperatures, may cause irritation of the respiratory tract. Although this product is not known to cause respiratory problems, if breathing is difficult, safely remove victim to fresh air and provide oxygen. Get immediate medical attention.

First-aid measures after skin contact: Wash skin with soap and water. Wear protective gloves to minimize skin contamination. For hot material exposure, DO NOT attempt to remove solidified material from the skin. DO NOT attempt to dissolve with solvents or thinners.

First-aid measures after eye contact: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists. Burns due to contact with heated material require immediate medical attention.

First-aid measures after ingestion: Get immediate medical attention. Do not induce vomiting due to danger of aspirating liquid into lungs. Gastric lavage may be required.

Most important symptoms and effects, both acute and delayed

Eyes: Irritation

Skin: Irritation

Inhalation: Irritation

Chronic Effects: No known hazards in normal industrial use.

Section 5: Firefighting measures

Extinguishing media

Suitable extinguishing media: Use alcohol foam, carbon dioxide or water spray when fighting fires involving this material.

Unsuitable extinguishing media: Exercise care when using water as contact with hot asphalt products - may produce steam and violent foaming.

Special hazards arising from the substance or mixture

Fire hazard: Product is an aqueous solution. Heated product may produce hazardous fumes, decomposition products or residues. Small quantities of hydrogen sulfide may be released upon heating.

Explosion hazard: None

Reactivity: Avoid contact with strong bases.

Advice for firefighters

Firefighting instructions: Decomposition may produce fumes, smoke, oxides of carbon, hydrocarbons and possible small quantities of hydrogen sulfide. Avoid breathing vapors from heated material. Combustion may produce CO, NOx, Sox and reactive hydrocarbons.

Protection during firefighting: As in any fire, wear self-contained breathing apparatus pressure-demand MSHA/NIOSH approved and full protective gear.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

General measures: Clean up spills immediately using appropriate personal protective equipment.

For non-emergency personnel

Protective equipment: Gloves, safety glasses, boots.

Emergency procedures: Absorb spills with absorbent material. Contain spilled liquid with sand or earth.

For emergency responders

Protective equipment: Gloves, safety glasses, boots.

Emergency procedures: Stop the source of the leak or release. Clean up releases as soon as possible.

Environmental precautions

Prevent contamination of soil, surface water or groundwater.

Methods for containment/clean up

Absorb spills with inert material. Contain spilled liquid with sand or earth. Contain liquid to prevent contamination of soil, surface water or groundwater. Large spillage should be dammed-off and pumped into containers.

Section 7: Handling and storage

Precautions for safe handling

Shelf Life:	30 Days @ 77 degrees C (in original, sealed containers).
Additional hazards when processed:	When handling hot material, use protective clothing impervious to this material.
Precautions for safe handling:	Use good Hygiene measures: wash exposed areas with mild soap and water before eating, drinking or smoking and again when leaving work.
Storage conditions:	Do not store at temperatures above 82 degrees C.

Section 8: Exposure controls/personal protection

Engineering Controls:	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Eye/Face Protection Requirements:	Where contact with this material is likely, eye protection is recommended.
Skin Protection Requirements:	Selection of specific items such as gloves, boots, apron or full-body suit will depend on operation and potential exposure.
Respiratory Protection Requirements:	Where there is potential for airborne exposure in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

Exposure Guidelines:

Hydrogen Sulfide:	NIOSH REL	C 10 ppm, 15 mg/m3 (10 min.)
	OSHA PEL	C 20 ppm, 50 ppm (10 min.)

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state:	Liquid
Appearance:	Brown to Black
Odor:	Asphalt Odor
pH:	10-11.5
Melting point:	0 C
Freezing point:	0 C
Specific Gravity:	1.4-1.7 (Water=1)
Boiling point:	100 degrees C @ 760 mm Hg
Flash point:	None
UEL:	N/A
LEL:	N/A
Vapor pressure:	Same as water mm Hg @ 21 degrees C
Solubility:	Soluble in water
%Volatiles:	<35% @ 21 degrees C @ 760 mm Hg
VOC:	<1

Section 10: Stability and reactivity

Reactivity:	Low
Chemical stability:	This compound is stable at ambient conditions.
Possibility of hazardous reactions:	Low
Conditions to avoid:	Avoid extreme temperatures.
Incompatible materials:	Avoid contact with strong bases.
Hazardous decomposition product:	Decomposition will not occur if handled and stored properly.
Polymerization:	Hazardous polymerization will not occur.

Section 11: Toxicological information

Skin corrosion:	May cause irritation and a rash with prolonged or repeated contact with skin.
Serious eye damage/irritation:	Irritating, may injure eye tissue if not removed promptly.
Respiratory or skin sensitization:	Repeated contact may cause skin irritation, prolonged inhalation may cause respiratory tract irritation.
Germ cell mutagenicity:	None
Carcinogenicity:	IARC has determined Hydrochloric acid may be carcinogenic in humans.
Reproductive toxicity:	This product contains one or more chemicals known to cause reproductive harm.
Specific target organ toxicity (single exposure):	Skin and/or respiratory irritation, mild.
Specific target organ toxicity (repeated exposure):	Skin, respiratory, kidney and liver.
Aspiration hazard:	Respiratory distress as a result of aspiration.
Symptoms/injuries after inhalation:	Respiratory tract irritation, cough, chest discomfort.
Symptoms/injuries after eye contact:	Eye tearing, irritation, burns if contact made with heated material.
Symptoms/injuries after ingestion:	Harmful if swallowed, irritating to mouth, throat and stomach.

Section 12: Ecological information

Environmental Hazards

This material should be prevented from uncontrolled applications to soil or earth. This material should be prevented from entering storm water, sewage drainage systems and bodies of water.

Section 13: Disposal considerations

Waste Disposal:	This product, as supplied, when discarded or disposed of, may be a hazardous waste according to Federal regulations (40 CFR 261). Under the Resource Recovery Act (RCRA), it is the responsibility of the user of the product to determine whether the material is a hazardous waste subject to RCRA. Treat or dispose of waste material in accordance with all local, state/provincial and national requirements. Avoid disposal into wastewater treatment facilities.
Contaminated Materials:	Treat as product waste.
Container Disposal:	Unclean empty containers should be disposed of in the same manner as the contents.

Section 14: Transport information

Product Label:	Guard Top Parking Lot Sealer
UN Number:	Non-hazardous, no UN number
DOT Shipping Name:	Non Regulated, Water Based Asphalt Emulsion
DOT Hazard Class:	Non-Hazardous

Section 15: Regulatory information

EEC Symbols and Indications of Danger:	Irritant (Xi)
R-Phrases:	R36/37/38 – Irritating to eyes, respiratory system and skin.
WHMIS Hazard Symbols:	Class D – Irritant
CERCLA Hazardous Substances:	HYDROGEN SULFIDE (CAS 7783-06-4) – RQ 100 lb.
California Proposition 65:	This product contains one or more chemicals known to the State of California to cause cancer and/or reproductive harm.
Clean Air Act – Section 112:	
Title V:	HYDROGEN SULFIDE (7783-06-4)
SC Toxic Air Pollutants List:	HYDROGEN SULFIDE (7783-06-4)
Sara Title II – Section 313:	There are no known ingredients subject to reporting.
TSCA Inventory Status:	All ingredients of this product are listed.

Section 16: Other information

Indication of changes

NFPA health hazard:	1
NFPA fire hazard:	0
NFPA reactivity:	0
Personal Protection Index:	1

HMIS III Rating

Health:	1
Flammability:	0
Reactivity:	0
Special Hazard:	None

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

GuardTop® Ultra High Performance Sealcoat Safety Data Sheet

Section 1: Identification of the substance/mixture and of the company/undertaking

Product form: Liquid
Substance name: GuardTop Ultra
Synonyms: Polymer Modified Asphalt Based Emulsion

Manufacturer
GuardTop LLC
32834 Pacific Coast Highway, Suite 210
Dana Point, CA 92629
(877) 948-2738

Emergency telephone number
CHEMTREC (800) 424-9300

Section 2: Hazards identification

Classification of the substance or mixture:

Eye Irritant	Category 2A
Skin Corrosion/Irritation	Category 2
Respiratory/Skin Sensitizer	Category 1

Signal Word: WARNING

Hazard Statements

- May cause skin and eye irritation.
- Fumes from heated material may be irritating.
- Aspiration hazard if swallowed.
- Substance may be harmful if swallowed irritating mouth, throat and/or stomach.
- Prolonged or excessive inhalation may cause respiratory tract irritation.
- Vapors may have a strong offensive odor which may cause headaches, nausea and vomiting.
- Symptoms of overexposure include: fatigue, tearing of eyes, burning sensation in the throat, cough, chest discomfort and skin irritation.

Precautionary Statements

- Obtain and read instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Exposure to hot material may cause thermal burns.

Section 3: Composition/information on ingredients

Chemical Name	Amount	CAS Number
Asphalt	<20%	8052-42-4
Water	<45%	7732-18-5
Aggregate Blend	>30%	14808-60-7
Carbon Black	2.0%	1333-86-4
Hydrogen Sulfide	<0.05%	7783-06-4
Cellulose Fiber	<2.0%	Mixture
Latex	1-10%	Trade Secret

Section 4: First aid measures

First-aid measures general: Get prompt medical attention. Dilute with water. If solidified, treat as neat asphalt.

First-aid measures after inhalation: At elevated temperatures, may cause irritation of the respiratory tract. Although this product is not known to cause respiratory problems, if breathing is difficult, safely remove victim to fresh air and provide oxygen. Get immediate medical attention.

First-aid measures after skin contact: Wash skin with soap and water. Wear protective gloves to minimize skin contamination. For hot material exposure, DO NOT attempt to remove solidified material from the skin. DO NOT attempt to dissolve with solvents or thinners.

First-aid measures after eye contact: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists. Burns due to contact with heated material require immediate medical attention.

First-aid measures after ingestion: Get immediate medical attention. Do not induce vomiting due to danger of aspirating liquid into lungs. Gastric lavage may be required.

Most important symptoms and effects, both acute and delayed

Eyes: Irritation

Skin: Irritation

Inhalation: Irritation

Chronic Effects: No known hazards in normal industrial use.

Section 5: Firefighting measures

Extinguishing media

Suitable extinguishing media: Use alcohol foam, carbon dioxide or water spray when fighting fires involving this material.

Unsuitable extinguishing media: Exercise care when using water as contact with hot asphalt products - may produce steam and violent foaming.

Special hazards arising from the substance or mixture

Fire hazard: Product is an aqueous solution. Heated product may produce hazardous fumes, decomposition products or residues. Small quantities of hydrogen sulfide may be released upon heating.

Explosion hazard: None

Reactivity: Avoid contact with strong bases.

Advice for firefighters

Firefighting instructions: Decomposition may produce fumes, smoke, oxides of carbon, hydrocarbons and possible small quantities of hydrogen sulfide. Avoid breathing vapors from heated material. Combustion may produce CO, NOx, Sox and reactive hydrocarbons.

Protection during firefighting: As in any fire, wear self-contained breathing apparatus pressure-demand MSHA/NIOSH approved and full protective gear.

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

General measures: Clean up spills immediately using appropriate personal protective equipment.

For non-emergency personnel

Protective equipment: Gloves, safety glasses, boots.

Emergency procedures: Absorb spills with absorbent material. Contain spilled liquid with sand or earth.

For emergency responders

Protective equipment: Gloves, safety glasses, boots.

Emergency procedures: Stop the source of the leak or release. Clean up releases as soon as possible.

Environmental precautions

Prevent contamination of soil, surface water or groundwater.

Methods for containment/clean up

Absorb spills with inert material. Contain spilled liquid with sand or earth. Contain liquid to prevent contamination of soil, surface water or groundwater. Large spillage should be dammed-off and pumped into containers.

Section 7: Handling and storage

Precautions for safe handling

Shelf Life:	30 Days @ 77 degrees C (in original, sealed containers).
Additional hazards when processed:	When handling hot material, use protective clothing impervious to this material.
Precautions for safe handling:	Use good Hygiene measures: wash exposed areas with mild soap and water before eating, drinking or smoking and again when leaving work.
Storage conditions:	Do not store at temperatures above 82 degrees C.

Section 8: Exposure controls/personal protection

Engineering Controls:	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Eye/Face Protection Requirements:	Where contact with this material is likely, eye protection is recommended.
Skin Protection Requirements:	Selection of specific items such as gloves, boots, apron or full-body suit will depend on operation and potential exposure.
Respiratory Protection Requirements:	Where there is potential for airborne exposure in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

Exposure Guidelines:

Hydrogen Sulfide:	NIOSH REL	C 10 ppm, 15 mg/m3 (10 min.)
	OSHA PEL	C 20 ppm, 50 ppm (10 min.)

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state:	Liquid
Appearance:	Brown to Black
Odor:	Asphalt Odor
pH:	10-11.5
Melting point:	0 C
Freezing point:	0 C
Specific Gravity:	1.4-1.7 (Water=1)
Boiling point:	100 degrees C @ 760 mm Hg
Flash point:	None
UEL:	N/A
LEL:	N/A
Vapor pressure:	Same as water mm Hg @ 21 degrees C
Solubility:	Soluble in water
%Volatiles:	<35% @ 21 degrees C @ 760 mm Hg
VOC:	<1

Section 10: Stability and reactivity

Reactivity:	Low
Chemical stability:	This compound is stable at ambient conditions.
Possibility of hazardous reactions:	Low
Conditions to avoid:	Avoid extreme temperatures.
Incompatible materials:	Avoid contact with strong bases.
Hazardous decomposition product:	Decomposition will not occur if handled and stored properly.
Polymerization:	Hazardous polymerization will not occur.

Section 11: Toxicological information

Skin corrosion:	May cause irritation and a rash with prolonged or repeated contact with skin.
Serious eye damage/irritation:	Irritating, may injure eye tissue if not removed promptly.
Respiratory or skin sensitization:	Repeated contact may cause skin irritation, prolonged inhalation may cause respiratory tract irritation.
Germ cell mutagenicity:	None
Carcinogenicity:	IARC has determined Hydrochloric acid may be carcinogenic in humans.
Reproductive toxicity:	This product contains one or more chemicals known to cause reproductive harm.
Specific target organ toxicity (single exposure):	Skin and/or respiratory irritation, mild.
Specific target organ toxicity (repeated exposure):	Skin, respiratory, kidney and liver.
Aspiration hazard:	Respiratory distress as a result of aspiration.
Symptoms/injuries after inhalation:	Respiratory tract irritation, cough, chest discomfort.
Symptoms/injuries after eye contact:	Eye tearing, irritation, burns if contact made with heated material.
Symptoms/injuries after ingestion:	Harmful if swallowed, irritating to mouth, throat and stomach.

Section 12: Ecological information

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Waste Disposal:	This product, as supplied, when discarded or disposed of, may be a hazardous waste according to Federal regulations (40 CFR 261). Under the Resource Recovery Act (RCRA), it is the responsibility of the user of the product to determine whether the material is a hazardous waste subject to RCRA. Treat or dispose of waste material in accordance with all local, state/provincial and national requirements. Avoid disposal into wastewater treatment facilities.
Contaminated Materials:	Treat as product waste.
Container Disposal:	Unclean empty containers should be disposed of in the same manner as the contents.

Section 14: Transport information

Product Label:	GuardTop Ultra Asphalt Based Emulsion
UN Number:	Non-hazardous, no UN number
DOT Shipping Name:	Non Regulated, Water Based Asphalt Emulsion
DOT Hazard Class:	Non-Hazardous

Section 15: Regulatory information

EEC Symbols and Indications of Danger:	Irritant (Xi)
R-Phrases:	R36/37/38 – Irritating to eyes, respiratory system and skin.
WHMIS Hazard Symbols:	Class D – Irritant
CERCLA Hazardous Substances:	HYDROGEN SULFIDE (CAS 7783-06-4) – RQ 100 lb.
California Proposition 65:	This product contains one or more chemicals known to the State of California to cause cancer and/or reproductive harm.
Clean Air Act – Section 112:	
Title V:	HYDROGEN SULFIDE (7783-06-4)
SC Toxic Air Pollutants List:	HYDROGEN SULFIDE (7783-06-4)
Sara Title II – Section 313:	There are no known ingredients subject to reporting.
TSCA Inventory Status:	All ingredients of this product are listed.

Section 16: Other information

Indication of changes

NFPA health hazard:	1
NFPA fire hazard:	0
NFPA reactivity:	0
Personal Protection Index:	1

HMIS III Rating

Health:	1
Flammability:	0
Reactivity:	0
Special Hazard:	None

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SAFETY DATA SHEET

Issuing Date 23-June-2014 **Revision Date** 29-July-2015 **Revision Number** 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

GHS Product Identifier

Product Name: **MasterSeal Pavement Sealer**

Other Means of Identification

Product Code(s): **S1010**

Synonyms None

Recommended Use of the Chemical and Restrictions on Use

Recommended Use: No Information Available

Uses Advised Against: No Information Available

Supplier's Details

Supplier Address
SealMaster
Locations Nationwide
www.sealmaster.net
1-800-341-7325

Manufacturer Address
SealMaster
Locations Nationwide
www.sealmaster.net
1-800-341-7325

Emergency Telephone Number

Emergency Telephone Number Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

This chemical is not considered hazardous according to the OSHA Hazard Communication Standard 2012 (29 CFR 1910.1200).

GHS Label Elements, Including Precautionary Statements

Emergency Overview

Signal Word **Warning**

- Harmful if swallowed
- May cause skin irritation

Appearance: Black **Physical State:** Liquid **Odor:** Asphaltic

Precautionary Statements

Prevention	**Inhalation:**	May cause irritation of respiratory tract.
	Eye Contact:	Contact with eyes may cause irritation.
	Skin Contact:	May cause irritation.
	Ingestion:	Ingestion may cause stomach discomfort.
General Advice	●None	
Storage	● Keep container tightly closed	
Disposal	●Dispose of material/containers in accordance with the appropriate state, regional, or local regulations.	

Hazard Not Otherwise Classified (HNOC)

Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight %	Trade Secret
Limestone	1317-65-3	20-40	*
Asphalt	8052-42-4	20-40	*
Kaolin	1332-58-7	<10	*
Bentonite	1302-78-9	<10	*

**The exact percentage of composition has been withheld as a trade secret.*

4. FIRST AID MEASURES

Description of Necessary First-Aid Measures

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.

Skin Contact Wash off immediately with soap and plenty of water. In the case of skin irritation or allergic reactions, see a physician.

Inhalation Move to fresh air. If symptoms persist, call a physician.

Ingestion Drink plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

Most Important Symptoms/Effects, Acute and Delayed

Most Important Symptoms/Effects No information available

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary

Notes to Physician Treat Symptomatically. May cause sensitization by skin contact.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Carbon Dioxide (CO_2). Dry Chemical. Foam. Water Fog.

Unsuitable Extinguishing Media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical

No information available

Explosion Data

Sensitivity to Mechanical Impact	None
Sensitivity to Static Discharge	None

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure- demand MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Personal Precautions: Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Use personal protective equipment.

Environmental Precautions

Environmental Precautions: See Section 12 for additional Ecological Information

Methods and Materials for Containment and Cleaning Up

Methods for Containment: Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up: Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Handling: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes, and clothing. Wear personal protective equipment. Avoid breathing vapors or mists. Do not eat, drink, or smoke when using this product. Wash thoroughly after handling.

Conditions for Safe Storage, Including Any Incompatibilities

Storage: Keep container tightly closed
Incompatible Products: Strong oxidizing agents. Acids.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Limestone 1317-65-3	-	TWA: 15 mg/m³ TWA: 5 mg/m³ (vacated) TWA: 15 mg/m³ (vacated) TWA: 5 mg/m³	TWA: 5 mg/m³ respirable dust TWA 10 mg/m³ total dust
Asphalt 8052-42-4	TWA: 0.5 mg/m³ benzene soluble aerosol fume, inhalable fraction	-	Ceiling: 5 mg/m³ fume 15 min.
Kaolin 1332-58-7	-	TWA: 15 mg/m³ total dust TWA: 5 mg/m³ respirable fraction (vacated) TWA: 10 mg/m³ total dust (vacated) TWA 5 mg/m³ respirable fraction	TWA: 15 mg/m³ total dust TWA: 5 mg/m³ respirable dust
Bentonite 1302-78-9	TWA 1 mg/m³ respirable fraction	-	-

Appropriate Engineering Controls

Engineering Measures: Showers
Eyewash Stations
Ventilation Systems

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection: If splashes are likely to occur, wear: Safety glasses with side shields.
Skin and Body Protection: Impervious gloves.
Respiratory Protection: No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State: Liquid
Odor: Asphaltic
Appearance: Black
Odor Threshold: No Information Available

Property	Values	Remarks/Method
pH	No data available	None known
Melting Point/Range	No data available	None known
Boiling Point/Boiling Range	100° C	None known
Flash Point	No data available	None known
Evaporation Rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limits in Air		
Upper flammability limit	No data available	
Lower flammability limit	No data available	
Vapor Pressure	No data available	None known
Vapor Density	No data available	None known
Specific Density	1.24 @ 77 F	None known
Water Solubility	Easily dispersible	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition Temperature	No data available	None known
Decomposition Temperature	No data available	None known
Viscosity	No data available	None known
Flammable Properties	Not Flammable	
Explosive Properties	No data available	
Oxidizing Properties	No data available	

Other Information
VOC Content Less than 15 g/l

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: None under normal processing.

Hazardous Polymerization: Hazardous polymerization does not occur.

Conditions to Avoid: None known

Incompatible Materials: Strong oxidizing agents. Acids.

Hazardous Decomposition Products: Carbon Monoxide (CO), Carbon Dioxide (CO^2), Hydrogen Sulfide, Nitrogen Dioxide

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information
Inhalation: May cause irritation of respiratory tract.
Eye Contact: Contact with eyes may cause irritation.
Skin Contact: May cause irritation.
Ingestion: Ingestion may cause stomach discomfort.

Chemical Name	LD50 Oral	LD50 Dermal	LD50 Inhalation
Asphalt	5000 mg/kg (Rat)	>2000 mg/kg (Rabbit)	-
Bentonite	>5000 mg/kg (Rat)	-	-

Symptoms Related to the Physical, Chemical, and Toxicological Characteristics

Symptoms: No information available.

Delayed and Immediate Effects and also Chronic Effects from Short and Long Term Exposure

Sensitization: No information available.
Mutagenic Effects: No information available.
Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen. The IARC, NTP, and OSHA do not list asphalt as a carcinogen. In general, the oxidation of polycyclic aromatic hydrocarbons destroys their carcinogenic potential. Petroleum asphalt, shale oil asphalts, and coal tars show distinct variation in their relative carcinogenicity for experimental animals.

Chemical Name	ACGIH	IARC	NTP	OSHA
Asphalt	A3	Group 2B	Reasonably Anticipated	X

ACGIH: (American Conference of Governmental Industrial Hygienists)
A3 – Animal Carcinogen
IRAC: (International Agency for Research on Cancer)
Group 2B – Possibly Carcinogenic to Humans
NTP: (National Toxicity Program)
Reasonably Anticipated – Reasonably Anticipated to be a Human Carcinogen
OSHA: (Occupational Safety & Health Administration)
X – Present

Reproductive Toxicity: No information available.
STOT - Single Exposure: No information available.
STOT – Repeated Exposure: No information available.
Aspiration Hazard: No information available.

Numerical Measures of Toxicity – Product
The following values are calculated based on Chapter 3.1 of the GHS document

LD50 Oral: 12542 mg/kg; Acute toxicity estimate
LD50 Dermal 6181 mg/kg, Acute toxicity estimate

12. ECOLOGICAL INFORMATION

Ecotoxicity
The environmental impact of this product has not been fully investigated.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Bentonite 1302-78-9		LC50 96 h: 8.0-19.0 g/L (Salmo gairdneri) LC50 96 h: = 19000 mg/L static (Oncorhynchus mykiss)		

Persistence and Degradability: No information available.

Bioaccumulation

Chemical Name	Log Pow
Asphalt	6..006

Other Adverse Effects: No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging: Do not re-use empty containers.

14. TRANSPORTATION INFORMATION

DOT: Not regulated

15. REGULATORY INFORMATION

International Inventories
TSCA – Complies
DSL/NDSL – Complies

Legend
TSCA – United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL – Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS Number	Weight %	SARA 313 – Threshold Values %
Asphalt	8052-42-4	20-40	0.1

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations

California Proposition 65: This product does not contain any Proposition 65 chemicals.

U.S. State Right-To-Know Regulations

"X" designates that the ingredients are listed on the state right to know list.

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Illinois	Rhode Island
Limestone	X	X	X		X
Asphalt	X	X	X		X
Kaolin	X	X	X		X
Carbon Black	X	X	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number: Not applicable

16. OTHER INFORMATION

NFPA	**Health Hazard:** 1	**Flammability:** 0	**Instability:** 0	**Physical and Chemical Hazards-**
HMIS	**Health Hazard:** 1	**Flammability:** 0	**Physical Hazard:** 0	**Personal Protection: X**

Revision Date: 29-July-2015
Revision Note: Supersedes 23-June-2014.

General Disclaimer
The information provided on this SDS is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

SAFETY DATA SHEET

Issuing Date 23-June-2014 **Revision Date** 29-July-2015 **Revision Number** 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

GHS Product Identifier

Product Name: **Polymer Modified MasterSeal (PMM)**

Other Means of Identification

Product Code(s): **S1010**

Synonyms None

Recommended Use of the Chemical and Restrictions on Use

Recommended Use: No Information Available

Uses Advised Against: No Information Available

Supplier's Details

Supplier Address
SealMaster
Locations Nationwide
www.sealmaster.net
1-800-341-7325

Manufacturer Address
SealMaster
Locations Nationwide
www.sealmaster.net
1-800-341-7325

Emergency Telephone Number

Emergency Telephone Number Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

This chemical is not considered hazardous according to the OSHA Hazard Communication Standard 2012 (29 CFR 1910.1200).

GHS Label Elements, Including Precautionary Statements

Emergency Overview

Signal Word **Warning**

- Harmful if swallowed
- May cause skin irritation

Appearance: Black **Physical State:** Liquid **Odor:** Asphaltic

Precautionary Statements

Prevention	**Inhalation:**	May cause irritation of respiratory tract.
	Eye Contact:	Contact with eyes may cause irritation.
	Skin Contact:	May cause irritation.
	Ingestion:	Ingestion may cause stomach discomfort.
General Advice	●None	
Storage	● Keep container tightly closed	
Disposal	●Dispose of material/containers in accordance with the appropriate state, regional, or local regulations.	

Hazard Not Otherwise Classified (HNOC)

Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight %	Trade Secret
Limestone	1317-65-3	20-40	*
Asphalt	8052-42-4	20-40	*
Kaolin	1332-58-7	<10	*
Bentonite	1302-78-9	<10	*

**The exact percentage of composition has been withheld as a trade secret.*

4. FIRST AID MEASURES

Description of Necessary First-Aid Measures

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.

Skin Contact Wash off immediately with soap and plenty of water. In the case of skin irritation or allergic reactions, see a physician.

Inhalation Move to fresh air. If symptoms persist, call a physician.

Ingestion Drink plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

Most Important Symptoms/Effects, Acute and Delayed

Most Important Symptoms/Effects No information available

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary

Notes to Physician Treat Symptomatically. May cause sensitization by skin contact.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Carbon Dioxide (CO_2). Dry Chemical. Foam. Water Fog.

Unsuitable Extinguishing Media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical

No information available

Explosion Data

Sensitivity to Mechanical Impact	None
Sensitivity to Static Discharge	None

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure- demand MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Personal Precautions: Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Use personal protective equipment.

Environmental Precautions

Environmental Precautions: See Section 12 for additional Ecological Information

Methods and Materials for Containment and Cleaning Up

Methods for Containment: Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up: Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Handling: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes, and clothing. Wear personal protective equipment. Avoid breathing vapors or mists. Do not eat, drink, or smoke when using this product. Wash thoroughly after handling.

Conditions for Safe Storage, Including Any Incompatibilities

Storage: Keep container tightly closed
Incompatible Products: Strong oxidizing agents. Acids.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Limestone 1317-65-3	-	TWA: 15 mg/m³ TWA: 5 mg/m³ (vacated) TWA: 15 mg/m³ (vacated) TWA: 5 mg/m³	TWA: 5 mg/m³ respirable dust TWA 10 mg/m³ total dust
Asphalt 8052-42-4	TWA: 0.5 mg/m³ benzene soluble aerosol fume, inhalable fraction	-	Ceiling: 5 mg/m³ fume 15 min.
Kaolin 1332-58-7	-	TWA: 15 mg/m³ total dust TWA: 5 mg/m³ respirable fraction (vacated) TWA: 10 mg/m³ total dust (vacated) TWA 5 mg/m³ respirable fraction	TWA: 15 mg/m³ total dust TWA: 5 mg/m³ respirable dust
Bentonite 1302-78-9	TWA 1 mg/m³ respirable fraction	-	-

Appropriate Engineering Controls

Engineering Measures: Showers
Eyewash Stations
Ventilation Systems

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection: If splashes are likely to occur, wear: Safety glasses with side shields.
Skin and Body Protection: Impervious gloves.
Respiratory Protection: No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State: Liquid
Odor: Asphaltic
Appearance: Black
Odor Threshold: No Information Available

Property	Values	Remarks/Method
pH	No data available	None known
Melting Point/Range	No data available	None known
Boiling Point/Boiling Range	100° C	None known
Flash Point	No data available	None known
Evaporation Rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limits in Air		
Upper flammability limit	No data available	
Lower flammability limit	No data available	
Vapor Pressure	No data available	None known
Vapor Density	No data available	None known
Specific Density	1.20 @ 77 F	None known
Water Solubility	Easily dispersible	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition Temperature	No data available	None known
Decomposition Temperature	No data available	None known
Viscosity	No data available	None known
Flammable Properties	Not Flammable	
Explosive Properties	No data available	
Oxidizing Properties	No data available	

Other Information
VOC Content Less than 15 g/l

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: None under normal processing.

Hazardous Polymerization: Hazardous polymerization does not occur.

Conditions to Avoid: None known

Incompatible Materials: Strong oxidizing agents. Acids.

Hazardous Decomposition Products: Carbon Monoxide (CO), Carbon Dioxide (CO^2), Hydrogen Sulfide, Nitrogen Dioxide

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information
Inhalation: May cause irritation of respiratory tract.
Eye Contact: Contact with eyes may cause irritation.
Skin Contact: May cause irritation.
Ingestion: Ingestion may cause stomach discomfort.

Chemical Name	LD50 Oral	LD50 Dermal	LD50 Inhalation
Asphalt	5000 mg/kg (Rat)	>2000 mg/kg (Rabbit)	-
Bentonite	>5000 mg/kg (Rat)	-	-

Symptoms Related to the Physical, Chemical, and Toxicological Characteristics

Symptoms: No information available.

Delayed and Immediate Effects and also Chronic Effects from Short and Long Term Exposure

Sensitization: No information available.
Mutagenic Effects: No information available.
Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen. The IARC, NTP, and OSHA do not list asphalt as a carcinogen. In general, the oxidation of polycyclic aromatic hydrocarbons destroys their carcinogenic potential. Petroleum asphalt, shale oil asphalts, and coal tars show distinct variation in their relative carcinogenicity for experimental animals.

Chemical Name	ACGIH	IARC	NTP	OSHA
Asphalt	A3	Group 2B	Reasonably Anticipated	X

ACGIH: (American Conference of Governmental Industrial Hygienists)
A3 – Animal Carcinogen
IRAC: (International Agency for Research on Cancer)
Group 2B – Possibly Carcinogenic to Humans
NTP: (National Toxicity Program)
Reasonably Anticipated – Reasonably Anticipated to be a Human Carcinogen
OSHA: (Occupational Safety & Health Administration)
X – Present

Reproductive Toxicity: No information available.
STOT - Single Exposure: No information available.
STOT – Repeated Exposure: No information available.
Aspiration Hazard: No information available.

Numerical Measures of Toxicity – Product
The following values are calculated based on Chapter 3.1 of the GHS document

LD50 Oral: 12542 mg/kg; Acute toxicity estimate
LD50 Dermal 6181 mg/kg, Acute toxicity estimate

12. ECOLOGICAL INFORMATION

Ecotoxicity
The environmental impact of this product has not been fully investigated.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Bentonite 1302-78-9		LC50 96 h: 8.0-19.0 g/L (Salmo gairdneri) LC50 96 h: = 19000 mg/L static (Oncorhynchus mykiss)		

Persistence and Degradability: No information available.

Bioaccumulation

Chemical Name	Log Pow
Asphalt	6..006

Other Adverse Effects: No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging: Do not re-use empty containers.

14. TRANSPORTATION INFORMATION

DOT: Not regulated

15. REGULATORY INFORMATION

International Inventories
TSCA – Complies
DSL/NDSL – Complies

Legend
TSCA – United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL – Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS Number	Weight %	SARA 313 – Threshold Values %
Asphalt	8052-42-4	20-40	0.1

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations

California Proposition 65: This product does not contain any Proposition 65 chemicals.

U.S. State Right-To-Know Regulations

"X" designates that the ingredients are listed on the state right to know list.

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Illinois	Rhode Island
Limestone	X	X	X		X
Asphalt	X	X	X		X
Kaolin	X	X	X		X
Carbon Black	X	X	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number: Not applicable

16. OTHER INFORMATION

NFPA	**Health Hazard:** 1	**Flammability:** 0	**Instability:** 0	**Physical and Chemical Hazards-**
HMIS	**Health Hazard:** 1	**Flammability:** 0	**Physical Hazard:** 0	**Personal Protection: X**

Revision Date: 29-July-2015
Revision Note: Supersedes 23-June-2014.

General Disclaimer
The information provided on this SDS is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

Safety Data Sheet

1. Product Identifier and Company Identification

Product name : **Aluminum Sulfate Solution**
HBCC SDS number : CA06800
Synonym : Liquid Alum; Alum
Product use and Restrictions : Refer to label or call
Manufacturer Contact Address : Corporate Headquarters
Hill Brothers Chemical Company
1675 North Main Street
Orange, California 92867
714-998-8800 – Office
800-821-7234 – Office

Corporate Safety & Compliance
Hill Brothers Chemical Company
7121 West Bell Road, Suite 250
Glendale, Arizona 85308
623-535-9955 - Office
623-535-9944 - Fax

Emergency telephone Number (Chemtrec) : 800-424-9300
Website : http://hillbrothers.com

2. Hazard Identification

Classification : Serious Eye Damage/Eye Irritant – Category 1

Signal Word : Danger

Pictogram(s) :

Hazard Statements : H318: Causes serious eye damage

Precautionary Statements

Response : P305 + P351 + P338 + P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Immediately call a POISON CENTER or doctor.

Prevention : P280: Wear eye or face protection
P264: Wash hands thoroughly after handling

Storage : N/A

Disposal : N/A

3. Composition/Information on Ingredients

CAS Number	Ingredient Name	Weight %
10043-01-3	Aluminum Sulfate, anhydrous	<50%
7732-18-5	Water	>50%

4. First Aid Measures

Ingestion : Do Not Induce Vomiting - Dilute slowly with 1-2 glasses of water. SEEK MEDICAL ATTENTION IMMEDIATELY.

Inhalation : If inhaled in large amounts, move exposed person to fresh air. Administer artificial respiration if necessary. Have qualified medical personnel administer oxygen.

Skin : Immediately remove contaminated clothing. Wash skin in flowing water or shower, then with soap and water. Contact a physician if irritation continues. Wash contaminated clothing separately before reuse. If irritation develops, get medical attention.

Eyes : Immediate and continuous flushing with flowing water for at least 15 minutes. Prompt medical consultation is essential.

Medical Conditions : N/A

Effects of Overexposure : Irritating to skin, eyes, and mucous membranes. Accidental ingestion may cause gastrointestinal irritation, nausea and vomiting.

Summary of Acute Health Hazards : N/A

Ingestion : May cause abdominal pain, nausea, and or vomiting. Concentrated solutions (over 20%) can cause burns of the mouth, bleeding stomach, incoordination, muscle spasms, and/or kidney injury.

Inhalation : Product mists may cause irritation to the respiratory tract.

Skin : May cause irritation or burns if the product is wet or in the presence of perspiration.

Eyes : May cause irritation and inflammation of the eye. Concentrated solutions (over 20%) may cause severe eye damage or burns.

Note to Physicians : All treatment should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. Aluminum soluble salts may cause gastroenteritis if ingested. Treatment includes the use of demulcents.

Summary of Chronic Health : N/A

5. Fire Fighting Measures

Extinguishing : Not combustible. Use appropriate extinguishing media for material that is supplying fuel. Use water spray to cool the surrounding area and to maintain fire temperature below decomposition temperature.

Special Exposure Hazards : Under fire conditions greater than 650°C (1202°F), product decomposes to give off sulfur trioxide, an oxidizing agent which will support combustion. Sulfur trioxide will react with water to form sulfuric acid.

Special Protective Equipment for Firefighters : Wear a NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing. Dike area to prevent runoff and contamination of water sources.

Fire Fighting Procedures : N/A

NFPA Rating : Health - 2
Flammability - 0
Instability – 1

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

Uniform Fire Code Rating : N/A

6. Accidental Release Measures

Personal Precautions : Adequate ventilation is required if soda ash or limestone is used, because of the consequent release of carbon dioxide gas.

Emergency Procedures : Use positive pressure supplied air or self-contained breathing apparatus for emergency or other conditions where a higher level of protection is required.

Methods of Containment And Clean-Up : Dilute small spills or leaks cautiously with plenty of water. Neutralize any further residue with alkali such as soda ash, lime or limestone. Large spills: dike up with soda ash and neutralize as above. Collect liquid and/or residue and dispose of in accordance with applicable regulations.

7. Handling and Storage

Safe Handling : Do not swallow. Avoid contact with eyes, skin and clothing.

Storage : Store in a cool area in tightly closed containers.

Work/Hygienic Practices : Wash hands thoroughly with soap and water before eating, drinking, smoking, and using toilet facilities. Do NOT place food, coffee or other drinks in the area where dusting or splashing of solutions is possible.

Ventilation : Provide adequate ventilation. Use local exhaust as needed to maintain airborne exposure below control limits.

8. Exposure Controls/Personal Protection

Occupational Exposure Limits :

Chemical Name: Aluminum Sulfate Solution				
Exposure Limits (TWAs) in Air				
CAS Number	**IDLH**	**ACGIH TLV**	**OSHA PEL**	**STEL**
10043-01-3	N/A	2 mg/m³(solid)	2 mg/m³(solid)	N/A

Protective Equipment : Long-sleeved clothing, apron, rubber gloves and boots.

Eye Protection : Use chemical safety goggles.

Respiratory Protection : Where the exposure limits are or may be exceeded, use a NIOSH/MSHA approved respirator for acid dusts. Use positive pressure supplied air or self contained breathing apparatus for emergency or other conditions where a higher level of protection is required.

9. Physical and Chemical Properties

Appearance: A clear, light green or amber liquid	**Odor:** Odorless
Odor Threshold: N/A	**pH:** <3 (1% solution)
Melting Point/Freezing Point: 16° C; 3.2° F	**Initial Boiling Point/Range:** 101° C; 214° F
Flash Point: N/A	**Evaporation Rate (BuAc=1):** N/A
Flammability: N/A	**Lower/Upper Explosive Limit:** N/A
Vapor Pressure (mmHg): N/A	**Vapor Density (Air=1):** N/A
Relative Density: 11.1 lbs./gal @15.5° C	**Solubility in Water:** 100%
Partition Coefficient: N/A	**Autoignition Temperature:** N/A
Decomposition Temperature: >770° C	**Viscosity:** 25 cps @20° C (68° F)
% Volatiles: N/A	**Specific Gravity (Water=1):** 1.3
Molecular Weight: N/A	**VOC:** N/A

10. Stability and Reactivity

Reactivity : Alkalis and water reactive materials, such as oleum, cause exothermic reactions.

Chemical Stability : Stable

Possibility of Hazardous Reactions or Polymerizations : Hazardous polymerization will not occur

Conditions to Avoid : If evaporated to dryness, residue should not be exposed to elevated temperatures (above 760° C), as this will yield toxic and corrosive gases.

Incompatible Materials : Alkalis and water reactive materials such as oleum.

Hazardous Decomposition Products : At elevated temperatures, sulfur oxides may be formed. These are toxic and corrosive and are oxidizers. Sulfur trioxide is also a fire hazard. The loss of these leaves a caustic residue.

11. Toxicological Information

Acute and Chronic Effects : See Section 4

Routes of Exposure

Ingestion : Yes
Inhalation : Yes
Skin : Yes
Eyes : Yes

Symptoms related to Physical, Chemical & Toxicological Characteristics : May cause abdominal pain, nausea, and or vomiting. Product mists may cause irritation to the respiratory tract. May cause irritation or burns if the product is wet or in the presence of perspiration. May cause irritation and inflammation of the eye.

Numerical Measures of Toxicity : Aluminum Sulfate:
LD50 (oral, mouse): 6207 mg/kg.
LD50 (oral, rat): 1930 mg/kg.

Chronic Toxicity : N/A

Carcinogenicity : N/A

Product Name: Aluminum Sulfate Solution					
ACGIH	IARC	EPA	NIOSH	NTP	OSHA
No	No	No	No	No	No

TARGET ORGANS : N/A

12. Ecological Information

Ecotoxicity : Aluminum Sulfate:
14 ppm/ 36 hr/fundulus/fatal/fresh water.
240 ppm/48 hr/mosquito fish/TLm/water type not specified.
TLm Mosquito fish, 235 ppm, 96 hours
LC50 Largemouth bass, 250 ppm, 96 hours

Persistence and Degradability : N/A

Product/Ingredient	Log_{Pow}	BCF	Potential
-	-	-	-

Bioaccumulative Potential : No potential for food chain concentration

Mobility in Soil : Aluminum sulfate (solid) is sometimes used to reduce the pH of garden soil, as it hydrolyzes to form the aluminum hydroxide precipitate and a dilute sulfuric acid solution.

13. Disposal Considerations

Disposal of Container : Dispose of in accordance with federal, state and local environmental laws and regulations. The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any byproducts should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14. Transport Information

UN# : UN3264
Proper Shipping Name : Corrosive liquid, acidic, inorganic, n.o.s. (Aluminum Sulfate)
Hazard Class/Division : 8
Packing Group : III
Marine Pollutant : No
Special Provisions : IB3, T7, TP1,TP28
Emergency Response Guidebook : 2012 ERG, Guide 154, pages 246-247
Placard Advisory :

15. Regulatory Information

SARA 302 Extremely Hazardous Substances (EHS) : No chemical in this product is listed as an Extremely Hazardous Substance (EHS) under Section 302 of EPCRA.

SARA 304 Extremely Hazardous Substances (EHS) Release Notification : No chemical in this product is listed as an Extremely Hazardous Substance (EHS) which, if released to the environment in quantities at or above the substance's Reportable Quantity (RQ), would require reporting to the SERC and LEPC under Section 304 of EPCRA.

SARA 311/312 Hazards :

SARA 311/312 Hazards				
Acute	Chronic	Flammability	Pressure	Reactivity
Yes	No	No	No	No

SARA 313 Reportable Chemicals : No chemical in this product is subject to annual emissions, transfers, or waste management reporting under the Community-Right-to-Know provisions of EPCRA Section 313, also known as the Toxic Release Inventory (TRI) Report or Form R.

CERCLA Hazardous Substances : This product contains the following CERCLA hazardous substance(s) subject to the National Response Center (NRC) reporting requirements if released to the environment in quantities greater than or equal to the substance's CERCLA Reportable Quantity (RQ).
Aluminum Sulfate, CAS 10043-01-3 CERCLA RQ = 5000 lbs. (2268 kg.)

Clean Air Act (CAA) Section 112(r) Air Pollutants : No chemical in this product is listed as an air pollutant under the U.S. Clean Air Act, Section 112(r) (40 CFR 61).

California Prop 65 Chemicals : This product does not contain any chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.

Hazard Label Warning : This product requires the following hazard label warning: Corrosive, Class 8

TSCA (Toxic Substances Control Act) : All chemical substances in this product are listed on the U.S. TSCA Inventory List.

ACRONYMS:

CAS # – Chemical Abstract Services Registry Number
CFR – Code of Federal Regulations
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
EPCRA – Emergency Planning and Community Right-to-Know Act
LEPC – Local Emergency Planning Committee
SERC – State Emergency Response Commission

16. Other Information

Revision date	: 05/13/2015
Supersedes	: 05/30/2008
First Issue	: 09/12/2001
Chemical Family/Type	: Metal Salts
Section(s) changed since last revision	: MSDS to First Issue SDS Conversion

IMPORTANT! Read this SDS before use or disposal of this product. Pass along the information to employees and any other persons who could be exposed to the product to be sure that they are aware of the information before use or other exposure. This SDS has been prepared in accordance with the Globally Harmonized System of Chemical and Labeling of Chemicals (GHS) Fifth Edition and the OSHA Hazard Communication Standard [29 CFR 1910.1200]. The SDS information is based on sources believed to be reliable. Available data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse are beyond our control; **Hill Brothers Chemical Company** makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Additional information may be necessary or helpful for specific conditions and circumstances of use. It is the user's responsibility to determine the suitability of this product and to evaluate risks and exercise appropriate precautions for protection of employees and others prior to use.

Slurry

SAFETY DATA SHEET

1. Identification

Product identifier	**MSE-1**
Other means of identification	Not available.
Recommended use	Not available.
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Manufacturer:	Ergon Asphalt & Emulsions, Inc.
Address:	P. O. Box 1639 Jackson, MS 39215-1639
Website:	www.ergonasphalt.com
Telephone:	1-800-222-7122 (Customer Service)
E-mail:	sds@ergon.com
24 hour Emergency (CHEMTREC):	North America 1-800-424-9300; International 1-703-527-3887

2. Hazard(s) identification

Physical hazards	Not classified.
Health hazards	Not classified.
Environmental hazards	Not classified.
OSHA defined hazards	Not classified.

Label elements

Hazard symbol	None.
Signal word	None.
Hazard statement	The mixture does not meet the criteria for classification.
Prevention	Observe good industrial hygiene practices.
Response	Wash hands after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	Vapors containing hydrogen sulfide may accumulate during storage or transport. HYDROGEN SULFIDE (H2S) can be harmful or fatal if inhaled.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
ASPHALT		8052-42-4	55 - 75
WATER		7732-18-5	30 - 50
HYDROCHLORIC ACID		7647-01-0	< 3

Composition comments Components not listed are either non-hazardous or below the required disclosure threshold.

4. First-aid measures

Inhalation	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.
Skin contact	If clothing sticks to the skin, do not remove. Lotion or hand cream may aid in the removal of asphalt. Wash contact areas with soap and water. If needed, seek medical attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. DO NOT induce vomiting. Get medical attention immediately. If ingestion of a large amount does occur, call a poison control center immediately.

Most important symptoms/effects, acute and delayed	Direct contact with eyes may cause temporary irritation.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Water. Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection.
Fire-fighting equipment/instructions	ALWAYS stay away from tanks engulfed in flame. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do so without risk. In the event of fire, cool tanks with water spray.
Specific methods	In the event of fire and/or explosion do not breathe fumes. In the event of fire, cool tanks with water spray.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	This product is miscible in water. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Ventilate area and avoid breathing vapors or mist. For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Avoid prolonged exposure. Use only in well-ventilated areas. Hydrogen sulfide, a very highly toxic gas, may be present with this material. Keep face clear of tank and/or tank car openings. Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site.
Conditions for safe storage, including any incompatibilities	Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Do not allow material to freeze.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
HYDROCHLORIC ACID (CAS 7647-01-0)	Ceiling	7 mg/m3 5 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
ASPHALT (CAS 8052-42-4)	TWA	0.5 mg/m3	Inhalable fraction.
HYDROCHLORIC ACID (CAS 7647-01-0)	Ceiling	2 ppm	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
ASPHALT (CAS 8052-42-4)	Ceiling	5 mg/m3	Fume.
HYDROCHLORIC ACID (CAS 7647-01-0)	Ceiling	7 mg/m3 5 ppm	

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses; chemical goggles (if splashing is possible).

Hand protection Chemical resistant gloves are recommended. If contact with forearms is likely wear gauntlet style gloves.

Other Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapor contact. Plastic or rubber gloves, apron and boots.

Respiratory protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance Brown to black in color.

Physical state Liquid.

Form Liquid.

Color Black.

Odor Tar-like

Odor threshold Not available.

pH 2.1 - 4

Melting point/freezing point Not available.

Initial boiling point and boiling range 212 °F (100 °C) estimated

Flash point > 212.0 °F (> 100.0 °C) estimated

Evaporation rate < 1

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure Not available.

Vapor density Not available.

Relative density Not available.

Solubility(ies)

Solubility (water) Not available.

Partition coefficient (n-octanol/water) Not available.

Auto-ignition temperature > 700 °F (> 371.11 °C) estimated

Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	8.44 lb/gal estimated
Flammability class	Combustible IIIB estimated

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable under normal temperature conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials. Do not overheat product.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Upon decomposition, this product may yield sulfur dioxide, carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons. Hydrogen sulfide.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Expected to be a low ingestion hazard.
Inhalation	Prolonged inhalation may be harmful.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Harmful in contact with eyes.
Symptoms related to the physical, chemical and toxicological characteristics	Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity

Components	Species	Test Results
HYDROCHLORIC ACID (CAS 7647-01-0)		
Acute		
Dermal		
LD50	Mouse	1449 mg/kg
Inhalation		
LC50	Mouse	1108 ppm, 1 Hours
	Rat	3124 ppm, 1 Hours
Oral		
LD50	Rabbit	900 mg/kg
Other		
LD50	Mouse	1449 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Harmful in contact with eyes. None known.

Respiratory or skin sensitization

Respiratory sensitization	Not available.
Skin sensitization	May cause skin disorders if contact is repeated or prolonged.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	Risk of cancer cannot be excluded with prolonged exposure. IARC: occupational exposures to straight-run bitumens and their emissions during road paving are "possibly carcinogenic to humans" (Group 2B)

IARC Monographs. Overall Evaluation of Carcinogenicity

ASPHALT (CAS 8052-42-4)	2B Possibly carcinogenic to humans.
HYDROCHLORIC ACID (CAS 7647-01-0)	3 Not classifiable as to carcinogenicity to humans.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	Not classified.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not available.
Chronic effects	Prolonged exposure may cause chronic effects.
Further information	This product has no known adverse effect on human health.

12. Ecological information

Ecotoxicity Not expected to be harmful to aquatic organisms.

Components		Species	Test Results
HYDROCHLORIC ACID (CAS 7647-01-0)			
Aquatic			
Fish	LC50	Western mosquitofish (Gambusia affinis)	282 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose in accordance with all applicable regulations. No components are identified as hazardous wastes. Disposal recommendations are based on uncontaminated material.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company. Not applicable.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Avoid discharge into water courses or onto the ground.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

15. Regulatory information

US federal regulations All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

ASPHALT (CAS 8052-42-4)	Listed.
HYDROCHLORIC ACID (CAS 7647-01-0)	Listed.

US EPCRA Section 304 Extremely Haz. Subs. & CERCLA Haz. Subs.: Section 304 EHS reportable quantity

HYDROCHLORIC ACID (CAS 7647-01-0)	5000 LBS

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
HYDROCHLORIC ACID	7647-01-0	5000	500 lbs		

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

HYDROCHLORIC ACID (CAS 7647-01-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

HYDROCHLORIC ACID (CAS 7647-01-0)

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2)

HYDROCHLORIC ACID (CAS 7647-01-0)

DEA Essential Chemical Code Number

HYDROCHLORIC ACID (CAS 7647-01-0) 6545

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

HYDROCHLORIC ACID (CAS 7647-01-0) 20 %WV

DEA Exempt Chemical Mixtures Code Number

HYDROCHLORIC ACID (CAS 7647-01-0) 6545

US state regulations WARNING: This product contains a chemical known to the State of California to cause cancer.

US. Massachusetts RTK - Substance List

ASPHALT (CAS 8052-42-4)
HYDROCHLORIC ACID (CAS 7647-01-0)

US. New Jersey Worker and Community Right-to-Know Act

HYDROCHLORIC ACID (CAS 7647-01-0) 500 LBS

US. Pennsylvania RTK - Hazardous Substances

ASPHALT (CAS 8052-42-4)
HYDROCHLORIC ACID (CAS 7647-01-0)

US. Rhode Island RTK

HYDROCHLORIC ACID (CAS 7647-01-0)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

ASPHALT (CAS 8052-42-4) Listed: January 1, 1990

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 03-23-2015

Version # 01

Further information HMIS® is a registered trade and service mark of the NPCA.

References
ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

Disclaimer The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. The information in the sheet was written based on the best knowledge and experience currently available.

Vulcan Materials Company

SAFETY DATA SHEET

Effective Date: 3/01/2017
Replaces: 6/01/2015

Hot-Mix Asphalt

1. Identification

Product name:
Hot-Mix Asphalt

Other means of identification/Synonyms/Common Names:
Black Base, Blacktop, CMHB (all types), Hot Mix (all types; may contain rap), Hot-Mix Paving Material, Petroleum-derived Asphalt Concrete

Recommended use:
Hot-Mix Asphalt is used as a construction material.

Recommended restrictions:
None Known

Manufacturer/Contact info:
Vulcan Materials Company and its subsidiaries and affiliates
1200 Urban Center Drive
Birmingham, AL 35242

General Phone Number:
1.866.401.5424

Emergency Phone Number:
1.866.401.5424 (3E Company, 24hours/day, 7 Days/week)

Website:
www.vulcanmaterials.com

2. Hazard(s) Identification

Physical hazards:
Not Classified

Health hazards:
Carcinogenicity-Category 1A
Reproductive Toxicity- Category 2
Specific target organ toxicity, repeated exposure- Category 2

Signal word:

Danger

Hazard statement
May cause cancer (Inhalation)
Suspected of damaging the unborn child
Causes damage to organs (lung/respiratory system, adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus) through prolonged or repeated exposure

Precautionary statement:

Prevention

- Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
- Do not breathe dust, fume, or vapors. Use only outdoors or in a well ventilated area.
- Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Use personal protective equipment as required. Wear protective gloves, protective clothing, eye protection, and face protection.
- Product may contain or release hydrogen sulfide, which is highly toxic and is a flammable gas. Assessment of storage tanks, transport vessels and other confined spaces should be made to determine potential exposures and appropriate controls

Response

- If exposed or concerned: Immediately call a Poison Center or doctor/physician. Get medical advice/attention
- Specific treatment (see the following information on this label).
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- IF ON SKIN: Remove/Take off immediately all contaminated clothing. Rinse cautiously with water for several minutes. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention.
- IF INHALED: Remove victim to fresh air and keep at rest position comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

- Wash contaminated clothing before reuse.

Storage

- Store in a well ventilated place.

Disposal

- Dispose of contents/container in accordance with all local, regional, national, and international regulations.

Supplemental information:

Heated material can cause thermal burns. Fumes from heated asphalt may be irritating to the eye, nose and throat. Hot-Mix Asphalt contains aggregate, a naturally occurring mineral complex with varying quantities of quartz (crystalline silica). Respirable Crystalline Silica (RCS) may cause cancer. Hardened product may be subjected to various natural or mechanical forces that produce small particles (dust) which may contain respirable crystalline silica (particles less than 10 micrometers in aerodynamic diameter). Repeated inhalation of respirable crystalline silica (quartz) may cause lung cancer according to IARC, NTP; ACGIH states that it is a suspected cause of cancer.

3. Composition/information on ingredients

Chemical name	CAS number	%
Aggregate (crushed stone, sand, gravel, slag)	Mixture	>90
Quartz (crystalline silica)	14808-60-7	>1
Asphalt	8052-42-4	<10
May contain:		
Vacuum tower bottoms	64741-56-6	>0.1
Heavy naph. Petroleum distillates	64741-53-3	>0.1
Aromatic extract oil	64742-11-6	>0.1
Heavy Para. distillate solvent extract	64742-04-7	>0.1
Hydrogen sulfide	7783-06-4	<0.2
Additives	Mixture	<1

4. First-aid measures

Inhalation:

Remove person to fresh air. If lung irritation persists or later develops, contact a physician. If not breathing, initiate rescue breathing, give oxygen by trained personnel and get immediate medical attention. Do not attempt to rescue victim from confined spaces without adequate protective equipment.

Eyes:

Immediately flush eye(s) with plenty of clean water for at least 15 minutes, while holding the eyelid(s) open. Occasionally lift the eyelid(s) to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from eye(s). Contact a physician if irritation persists or later develops. Thermal burns require immediate medical attention.

Skin:

Hot Material: Remove contaminated clothing, if possible, and immediately flush skin in cool water for at least 15 minutes. Iced water or cold packs may be applied to burned area. Do not attempt to remove material from a burn. Get immediate medical attention. Cold Material: Clean exposed skin with soap or mild detergent and large amounts of water until all material is removed from the skin. Do not use solvents or thinners to remove material from skin.

Ingestion:

If swallowed, do not induce vomiting. Drink a large volume of water and get immediate medical attention. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head lower than hips to prevent aspiration.

Most important symptoms/effects, acute and delayed:

Emissions from the heated material may have an unpleasant odor and may cause moderate to severe irritation of the mucous membranes and upper respiratory tract, headaches, nausea and dizziness. Toxic hydrogen sulfide gas may be released. Do not depend upon sense of smell for warning of overexposure, since the gas causes rapid olfactory fatigue which deadens the sense of smell at levels as low as 50 ppm. Unconsciousness and asphyxiation may occur in poorly ventilated or confined spaces. See Section 11 for additional information.

Breathing respirable crystalline silica-containing dust for prolonged periods in the workplace can cause lung damage and a lung disease called silicosis. Symptoms of silicosis may include (but are not limited to) shortness of breath, difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure.

Indication of immediate medical attention and special treatment needed:
In general, emesis induction is unnecessary in high viscosity, low volatility products. Inhalation exposure of hydrogen sulfide may result in pulmonary congestion. Patients may be predisposed to pneumonia during convalescence, and should be kept under observation. Contact a Poison Center for additional treatment information.
Not all individuals with silicosis will exhibit symptoms of the disease. However, silicosis can be progressive, and symptoms can appear even years after exposures have ceased. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.
For emergencies contact 3E Company at 1.866.401.5424 (24 hours/day, 7 days/week).

5. Fire-fighting measures

Suitable extinguishing media:
Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, halogenated agents, foam, and steam) and water fog.

Unsuitable extinguishing media:
Avoid use of straight-stream water. Adding water to hot asphalt presents an explosion hazard.

Specific hazards arising from the chemical:
Do not heat above flash point.
Fumes/vapors can explode when concentrated in an enclosed environment and supplied with an ignition source. Never weld or use a cutting torch or open flame on a full, partially full or empty bin, hopper, or other container that holds or has held asphaltic material unless precautions are taken to prevent explosion. WARNING: Hydrogen sulfide (H_2S) and other hazardous gases/vapors may evolve and collect in the headspace of storage tanks or other enclosed vessels, and can create an explosive, toxic, or oxygen deficient atmosphere. H_2S gas is extremely flammable and can explode if an ignition source is provided. See Section 11 for health effects of H_2S gas.

Special protective equipment and precautions for firefighters:
Avoid breathing irritating and potentially toxic fumes, including hydrogen sulfide gas. Firefighters should wear NIOSH/MSHA approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

Fire-fighting equipment/instructions:
Adding water to hot asphalt presents an explosion hazard.

Specific methods:
Use water spray to keep fire-exposed containers cool.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:
Ventilate area and avoid emission inhalation or skin contact by using appropriate precautions outlined in this SDS (see Section 8). Keep all sources of ignition at least 50 feet away. Prevent materials from entering streams, drainages, or sewers. Spills entering surface waters or sewers entering/leading to surface waters must be reported to the National Response Center 1-800-424-8802. Based on volume and use, components of this product may be subject to reporting requirements of Title III of SARA, 1986, and 40 CFR 372.
For emergencies, contact 3E Company at 1-866-401-5424 (24 hours/day, 7 days/week).

Environmental precautions:
Stop leak and contain spilled material with sand, aggregate fines, or other inert adsorbent. Collect adsorbed product and clean up materials in appropriate container for proper disposal. Notify proper authorities.

Methods and materials for containment and cleaning up:
Contact the asphalt plant to determine feasibility of recycling material. Dispose of waste materials in accordance with applicable federal, state and local laws and regulations.

7. Handling and storage

Precautions for safe handling:
Follow personal protection and protective controls set forth in Section 8 of this SDS when handling this product. If personnel must enter a tank or other confined space that contained this material, follow the OSHA Confined Space Entry Program as specified in 29 CFR 1910.146. Do not store near food, beverages or smoking materials. Avoid personal

contact with heated material. Respirable crystalline silica-containing dust may be generated when hardened asphalt mix is subjected to mechanical forces, such as demolition work, surface treatment (sanding, grooving, chiseling, etc.), and/or recycling of pavement.
Do not attempt to clean empty containers since residue is difficult to remove. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition as they may explode and cause injury or death. Tripping accidents have occurred because of asphalt buildup on bottoms of shoes and boots; buildup should be removed regularly to prevent such accidents. Do not use solvents or thinners to clean footwear.

Conditions for safe storage, including any incompatibilities:

Store away from all ignition sources and open flames in accordance with applicable laws and regulations.
Vapors containing hydrogen sulfide may accumulate during storage or transport of asphaltic materials. When petroleum asphalt products are heated, potentially irritating emissions (fumes, mists, vapors) may be released.

8. Exposure controls/personal protection

Legend:
NE = Not Established; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; STEL= Short Term Exposure Limit; OSHA = Occupational Safety and Health Administration; MSHA = Mine Safety and Health Administration; NIOSH = National Institute for Occupational Safety and Health; ACGIH = American Conference of Governmental Industrial Hygienists

Component	OSHA/MSHA PEL	ACGIH TLV	NIOSH REL
Asphalt Fumes	NE	0.5 mg/m^3 (as benzene-soluble aerosol)	Ceiling 5 ppm
Particulates not otherwise classified	15 mg/m^3 (total dust) 5 mg/m^3 (respirable fraction)	10 mg/m^3 (inhalable fraction) 3 mg/m3 (respirable fraction)	NE
Respirable dust containing silica	10 mg/m^3 ÷ (% silica + 2)	Use Respirable Silica TLV	Use Respirable Silica TLV
Total dust containing silica	MSHA: 30 mg/m^3 ÷ (% silica + 3)	NE	NE
Respirable Crystalline Silica (quartz)	OSHA: 0.05 mg/m^3 (PEL) OSHA: 0.025 mg/m^3 (Action Level) MSHA: Use Respirable Dust containing Silica PEL (above)	0.025 mg/m^3	0.05 mg/m^3
Respirable Tridymite and Cristobalite (other forms of crystalline silica)	OSHA: Use respirable crystalline silica PEL MSHA: 1/2 of respirable dust containing silica PEL	0.025 mg/m^3	0.05 mg/m^3
Ammonia (NH_3)	50 ppm	25 ppm STEL 35 ppm	25 ppm Ceiling 35 ppm
Carbon Monoxide (CO)	50 ppm	25 ppm	35 ppm Ceiling 200 ppm
Hydrogen Sulfide (H_2S)	Ceiling 20 ppm	10 ppm STEL 15 ppm	Ceiling 10 ppm
Nitrogen Dioxide (NO_2)	Ceiling 5 ppm	3 ppm STEL 5 ppm	STEL 1 ppm
Ozone (O_3)	0.1 ppm	0.05 ppm	Ceiling 0.1 ppm
Sulfur Dioxide (SO_2)	5 ppm	STEL 0.25 ppm	2 ppm STEL 5 ppm

Exposure Guidelines:
Workers should station themselves on the upwind side of asphalt emissions when possible. It is recommended that asphalt emissions be monitored regularly to determine exposure levels. Total dust containing silica, respirable silica-containing dust and respirable crystalline silica (quartz) levels should be monitored regularly to determine worker exposure levels. Exposure levels in excess of allowable exposure limits should be reduced by all feasible engineering controls, including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee workstations.

Engineering Controls:
General dilution or local exhaust ventilation is required to maintain exposures below appropriate exposure limits. Use only in well-ventilated areas. Activities with dried/hardened product that generate dust require the use of general ventilation, local exhaust and/or wet suppression methods to maintain exposures below appropriate exposure limits.

Eye Protection:
Use a full-face shield and chemical safety goggles if handling heated material. Safety glasses with side shields should be worn as minimum protection at ambient temperatures. Contact lens should not be worn when eye contact with product is possible.

Skin Protection (Protective Gloves/Clothing):
Avoid skin contact with material by wearing impervious gloves and protective clothing. With product at ambient temperatures, use disposable nitrile, neoprene or butyl rubber material. When handling hot material, use heat-resistant gloves. Use insulated, heat-resistant clothing as necessary.

Respiratory Protection:
Not expected to be necessary under normal use and working conditions. All respirators must be NIOSH-approved for the exposure levels present. (See NIOSH Respirator Selection Guide). The need for respiratory protection should be evaluated by a qualified safety and health professional. For air-contaminant concentrations which exceed or are likely to exceed applicable exposure limits, use a NIOSH-approved, contaminant-specific, air purifying respirator. If such conditions are sufficiently high that the air-purifying respirator is inadequate, or if oxygen adequate to sustain life is not present, use a positive-pressure, self-contained breathing apparatus. Activities that generate dust require the use of an appropriate dust respirator where dust levels exceed or are likely to exceed allowable exposure limits. For respirable silica-containing dust levels that exceed or are likely to exceed an 8-hour time-weighted average (TWA) of 0.25 mg/m^3, a high efficiency particulate filter respirator must be worn at a minimum; however, if respirable silica-containing dust levels exceed or are likely to exceed an 8-hour TWA of 1.25 mg/m^3 an air-purifying, full-face respirator or equivalent is required. Respirator use must comply with applicable MSHA (42 CFR 84) or OSHA (29 CFR 1910.134) standards, which include provisions for a user training program, respirator inspection, repair and cleaning, respirator fit testing, medical surveillance and other requirements.

9. Physical and chemical properties

Appearance:
Black, viscous, granular.

Odor: Petroleum odor.	**PH:** Not applicable	**Decomposition temperature:** Not applicable
Melting point/freezing point: 100-135°F	**Initial boiling point and boiling range:** 470°C	**Flash point:** >500°F (min). COC
Evaporation rate: Not applicable	**Flammability:** Not applicable	**Upper/lower flammability or explosive limits:** Not applicable
Vapor pressure: Not applicable	**Vapor density:** >1	**Solubility:** Negligible
Partition coefficient: n-octanol/water. Not applicable	**Autoignition temperature:** Not applicable	**Specific Gravity (H_2O = 1):** 2.0 -2.5

10. Stability and reactivity

Reactivity:
Not reactive under normal use.

Chemical stability:
Stable under normal temperatures and pressures.

Possibility of hazardous reactions:
None under normal use.

Conditions to avoid (e.g., static discharge, shock or vibration):
Keep away from direct flame/ignition sources. Contact with incompatible materials should be avoided (see below). See Sections 5, 6 and 7 for additional information.

Incompatible materials:
Strong oxidizers may react with hydrocarbons. Contact with fluorine may cause burning or explosion. Adding water to hot asphalt presents an explosion hazard.

Hazardous decomposition products:
Carbon monoxide and other compounds (such as amines, ammonia, nitrogen dioxide, sulfur dioxide, ozone, hydrogen sulfide, and various hydrocarbons) may be released by thermal decomposition. Hazardous vapors can collect in enclosed vessels or areas if not properly ventilated. If hydrogen sulfide is present, the flammable limits range from 4.3 to 45.5% by volume and its presence may promote the formation of pyrophoric (spontaneously igniting) iron compounds (See 29 CFR 1910.146). Respirable crystalline silica-containing dust may be generated. When heated, quartz is slowly transformed into tridymite (above 860°C/1580°F) and cristobalite (above 1470°C/2678°F). Both tridymite and cristobalite are other forms of crystalline silica.

11. Toxicological information

Primary Routes of Exposure:
Inhalation and contact with the eyes and skin.

Symptoms related to the physical, chemical, toxicological characteristics
Inhalation:
Fumes, mists or vapors may cause respiratory irritation. Contains or may release hydrogen sulfide gas (H_2S), which may accumulate in confined spaces. H_2S fumes and vapors may be harmful or fatal if inhaled.
Breathing silica containing dust for prolonged periods in the workplace can cause lung damage and lung disease called silicosis. Several scientific organizations have classified crystalline silica as causing lung cancer in humans. Silicosis and lung cancer can result in permanent injury or death.

Eye Contact:
Direct contact with hot material can cause severe thermal burns. Hardened material may scratch the eye causing tearing, redness and a stinging sensation. Fumes, vapors or mists may be irritating.

Skin Contact:
Direct contact with hot material can cause severe thermal burns. Hardened material may cause irritation due to abrasive effects.

Ingestion:
Direct contact with heated material can cause severe thermal burns. Asphalt has a low toxicity when ingested, however, chewing and swallowing asphalt may cause gastrointestinal effects. Gastric masses (Bezoars) and stomach (pyloric) obstructions have been reported in individuals who have chewed and swallowed asphalt.

Medical Conditions Aggravated by Exposure:
Pre-existing medical conditions that may be aggravated by exposure include disorders of the eye, skin and/or lung (including asthma and/or other breathing disorders).

Delayed and immediate effects and also chronic effects from short- and long-term exposure:
Prolonged and repeated exposure to asphalt may cause skin disorders such as dermatitis, folliculitis, and acne-like lesions, or more rarely, pigmentation of the skin. Chronic inhalation of high concentrations of asphalt emissions may cause chronic bronchitis and pneumonitis (inflammation of the lungs). In mice, there was damage to the lungs, including bronchitis, pneumonitis, and abscess formation. Guinea pigs and rats showed pneumonitis, peribronchial adenomatosis, and some squamous cell metaplasia.
This material contains heavy vacuum distillates/aromatic extract oils. Repeated dermal application of these oils to experimental animals has been reported to cause skin disorders, effects on the adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus as well as fetal death and birth defects.
Repeated exposure to low levels of H_2S may cause eye effects including conjunctivitis and corneal injury. There is no evidence that H_2S will accumulate in the body tissue.

<u>The following information applies to the dried product if it is subjected to mechanical forces (such as demolition or asphalt recycling work), which may generate crystalline silica-containing dust particles:</u>

Prolonged overexposure to respirable dusts in excess of allowable exposure limits can cause inflammation of the lungs leading to possible fibrotic changes, a medical condition known as pneumoconiosis.
Prolonged and repeated overexposure to high levels of respirable crystalline silica-containing dust may cause a chronic form of silicosis, an incurable lung disease that may result in permanent lung damage or death. Chronic silicosis generally occurs after 10 years or more of overexposure; a more accelerated type of silicosis may occur between 5 and 10 years of higher levels of prolonged and repeated overexposure. In early stages of silicosis, not all individuals will exhibit symptoms (signs) of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposure has ceased.
Repeated overexposures to very high levels of respirable crystalline silica for periods as short as six months may cause acute silicosis. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include (but are not limited to): shortness of breath, cough, fever, weight loss, and chest pain.
Respirable dust containing newly broken crystalline silica particles has been shown to be more hazardous to animals in laboratory tests than respirable dust containing older crystalline silica particles of similar size. Respirable crystalline silica particles which had aged for sixty days or more showed less lung injury in animals than equal exposures to respirable dust containing newly broken particles of respirable crystalline silica.
There are reports in the literature suggesting that excessive respirable crystalline silica exposure may be associated with autoimmune disorders and other adverse health effects involving the kidney. In particular, the incidence of scleroderma (thickening of the skin caused by swelling and thickening of fibrous tissue) appears to be higher in silicotic individuals. To date, the evidence does not conclusively determine a causal relationship between silica exposure and these adverse health effects.

Carcinogenicity:
Skin application of asphalt fume condensate fractions caused skin tumors in laboratory mice. When asphalt was dissolved or mixed with a solvent prior to exposing laboratory animals, the carcinogenicity results were weakly positive. The causal agent is thought to be 4 to 6 ring polycyclic aromatic compounds (PAH). Trace amounts of these materials may be present in asphalts and can be generated upon excessive heating. Some PAHs have been identified as causing carcinogenic and reproductive effects. Currently, epidemiological evidence does not support a link between asphalt exposure and human skin cancer.
Repeated breathing of asphalt emissions has not resulted in a carcinogenic response in laboratory animal testing. Although epidemiological studies on asphalt workers have suggested a possible link between asphalt fumes and certain types of cancer, confounding factors such as smoking and concomitant exposure to other agents in the workplace may have influenced the results of these studies. Asphalt is not listed as a carcinogen by the National Toxicology Program (NTP) or the Occupational Safety and Health Administration (OSHA). IARC states that there is sufficient evidence that extracts (asphalts dissolved in hydrocarbon solvents) are carcinogenic to laboratory animals and recently the agency determined that occupational exposures to oxidized asphalt and their emissions during roofing applications are "probably carcinogenic to humans "(Group 2A). They also determined that occupation exposures to hard asphalts and their emissions during mastic asphalt work and occupational exposures to straight-run asphalts and their emissions during paving operations are "possibly carcinogenic to humans" (Group 2B)
This material contains heavy vacuum distillates/aromatic extract oils. IARC has determined that there is sufficient evidence in experimental animals for their carcinogenicity, and has classified these oils as Group 1, or human carcinogens.

<u>The following information applies to the dried product if it is subjected to mechanical forces (such as demolition or asphalt recycling work), which may generate crystalline silica-containing dust particles:</u>
Epidemiology studies on the association between respirable crystalline silica exposure and lung cancer have had both positive and negative results. There is some speculation that the source, type, and level of exposure of respirable crystalline silica may play a role. Studies of persons with silicosis indicate an increased risk of developing lung cancer, a risk that increases with the level and duration of exposure. It is not clear whether lung cancer develops in non-silicotic patients. Several studies of silicotics do not account for lung cancer confounders, especially smoking, which have been shown to increase the risk of developing lung disorders, including emphysema and lung cancer.
In October 1996, an IARC Working Group designated respirable crystalline silica as carcinogenic (Group 1). In 2012, an IARC Working Group re-affirmed that inhalation of crystalline silica was a known human carcinogen. The NTP's Report on Carcinogens, 9th edition, lists respirable crystalline silica as a "known human carcinogen." In the year 2000, the

American Conference of Governmental Industrial Hygienists (ACGIH) listed respirable crystalline silica (quartz) as a suspected human carcinogen (A-2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to respirable crystalline silica.

Additional information on toxicological-effects:

Acute toxicity: Not classified

No specific data on product. Based on components, not expected to be classified for acute toxicity.

Asphalt:
Acute Oral, rat: LD50 >5000 mg/kg
Acute Dermal, rat: LD50 >2000 mg/kg

Skin corrosion/irritation: Not classified

Serious eye damage/eye irritation: Not classified

Respiratory sensitization: Not classified.

Skin sensitization: May cause photosensitization (contact), but not classified as a skin sensitizer.

Germ cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer (Inhalation).

Reproductive toxicity: Suspected of damaging the unborn child.

Specific target organ toxicity - single exposure: Not classified

Specific target organ- toxicity – repeated exposure: Causes damage to organs (lungs, respiratory system, adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus) through prolonged or repeated exposure (inhalation)

Aspiration toxicity: Not classified (not applicable- solid material)

12. Ecological information

Ecotoxicity (aquatic and terrestrial, where available):
No specific data on this product. Large spills may cause damage to aquatic organisms though fouling of the shoreline.

Persistence and degradability:
Expected to be resistant to biodegradation.

Bioaccumulative potential.
Significant migration into the environment and bioaccumulation are unlikely.

Mobility in soil.
Not determined

Other adverse effects.
Not determined

13. Disposal considerations

Safe handling and disposal of waste:
Place contaminated materials in appropriate containers and dispose of in a manner consistent with applicable federal, state, and local regulations. Prevent from entering drainage, sewer systems, and unintended bodies of water. It is the responsibility of the user to determine, at the time of disposal, whether product meets criteria for hazardous waste. Product uses, transformations, mixture and processes, may render the resulting material hazardous.

14. Transport information
UN Number: Not regulated.
UN Proper shipping name: Not regulated.
Transport Hazard class: Not applicable.
Packing group, if applicable: Not applicable.
Marine pollutant (Yes/No): Not applicable.

15. Regulatory information
Toxic Substances Control Act (TSCA): The components in this product are listed on the TSCA Inventory or are exempt.
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA): Releases of this material to water may be reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act. (See Section 6)
Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III: Section 302 extremely hazardous substances: None Section 311/312 hazard categories: Delayed Health Section 313 reportable ingredients at or above de minimus concentrations: None
California Proposition 65: This product contains a chemical (crystalline silica, bitumen, various aromatic hydrocarbons) known to the State of California to cause cancer and birth defects or other reproductive harm.
State Regulatory Lists: Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list or all state regulations. Therefore, the user should review the components listed in Section 2 and consult state or local authorities for specific regulations that apply.

16. Other information
Disclaimer **NO WARRANTY IS MADE, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE.** Vulcan Materials Company and its subsidiaries and affiliates ("Vulcan") believe the information contained herein is accurate; however, Vulcan makes no guarantees with respect to such accuracy and assumes no liability whatsoever in connection with the use of any information contained herein by any party. The provision of the information contained herein is not intended to be, and should not be construed as, legal advice or as ensuring compliance with any federal, state, or local laws, rules or regulations. Any party using any information contained herein should review all applicable laws, rules and regulations prior to use.
Issue date: 3/01/2017
Revision date: 3/01/2017

Vulcan Materials Company and its subsidiaries and affiliates
1200 Urban Center Drive
Birmingham, AL 35242

Vulcan Materials Company

SAFETY DATA SHEET

Effective Date: 3/01/2017
Replaces: 6/01/2015

Ready Mix Concrete

1. Identification

Product name:
Ready Mix Concrete

Other means of identification/Synonyms/Common Names:
Freshly Mixed Unhardened Concrete

Recommended use:
Ready Mix Concrete is used as a construction material.

Recommended restrictions:
None Known

Manufacturer/Contact info:
Vulcan Materials Company and its subsidiaries and affiliates
1200 Urban Center Drive
Birmingham, AL 35242

General Phone Number:
1.866.401.5424

Emergency Phone Number:
1.866.401.5424 (3E Company, 24hours/day, 7 Days/week)

Website:
www.vulcanmaterials.com

2. Hazard(s) Identification

Physical hazards:
Not Classified

Signal word:
Danger

Health hazards:
Skin corrosion/irritation-Category 1B
Serious eye damage/eye irritation-Category 1
Carcinogenicity-Category 1A
Specific target organ toxicity, single exposure- Category 3
Specific target organ toxicity, repeated exposure- Category 2



Hazard Statement:
Causes severe skin burns and eye damage
Causes serious eye damage
May cause cancer (Inhalation)
May cause respiratory irritation
May cause damage to organs (lung/respiratory system) through prolonged or repeated exposure (inhalation)

Precautionary statement:

Prevention

- Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
- Do not breathe dust, fume, or vapors. Use only outdoors or in a well ventilated area.
- Wash hands thoroughly after handling
- Use personal protective equipment as required. Wear protective gloves, protective clothing, eye protection, and face protection. .

Response

- If exposed or concerned: Immediately call a Poison Center or doctor/physician. Get medical advice/attention
- Specific treatment (see the following information on this label)

- IF SWALLOWED: Rinse mouth Do NOT induce vomiting.
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse cautiously with water for several minutes. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention.
- IF INHALED: Remove victim to fresh air and keep at rest position comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Wash contaminated clothing before reuse.

Disposal

- Dispose of contents/container in accordance with all local, regional, national, and international regulations.

Supplemental information:

Ready mix concrete contains a naturally occurring mineral complex with varying quantities of quartz (crystalline silica). Respirable Crystalline Silica (RCS) may cause cancer. Hardened ready mix concrete may be subjected to various natural or mechanical forces that produce small particles (dust) which may contain respirable crystalline silica (particles less than 10 micrometers in aerodynamic diameter). Repeated inhalation of respirable crystalline silica (quartz) may cause lung cancer according to IARC, NTP; ACGIH states that it is a suspected cause of cancer.

3. Composition/information on ingredients

Chemical name	CAS number	%
Aggregate (crushed stone, sand, gravel, expanded shale) Quartz (crystalline silica)	Mixture 14808-60-7	60-95 >1
Hydraulic Cement(s) Portland and/or Slag Cement	Mixture 65997-15-1	3-20
Pozzolan Artificial Fly Ash Natural Metakaolin and/or Silica Fume	Mixture 38131-74-8 1332-58-7 69012-64-2	0-11
Water	7732-18-5	6-13

4. First-aid measures

Inhalation:

Dusts from hardened product may irritate the mouth, nose, throat and lungs. Remove person to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or later develops.

Eyes:

Immediately flush eye(s) with plenty of clean water for at least 15 minutes, while holding the eyelid(s) open. Occasionally lift the eyelid(s) to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from eye(s). Contact a physician if irritation persists or later develops.

Skin:

Wash affected areas thoroughly with mild soap and fresh water. Contact a physician if irritation persists.

Ingestion:

If person is conscious do not induce vomiting. Give large quantity of water and get medical attention. Never attempt to make an unconscious person drink.

Most important symptoms/effects, acute and delayed:

Contact with wet product may result in chemical (caustic) burns and eye injury which may be progressive and could cause blindness. Wet product may result in chemical burns to the skin.

Dust may irritate the eyes, skin, and respiratory tract. Breathing respirable crystalline silica-containing dust for prolonged periods in the workplace can cause lung damage and a lung disease called silicosis. Symptoms of silicosis may include (but are not limited to) shortness of breath, difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure.

Indication of immediate medical attention and special treatment needed:

Not all individuals with silicosis will exhibit symptoms of the disease. However, silicosis can be progressive and symptoms can appear even years after exposures have ceased. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

For emergencies contact 3E Company at 1.866.401.5424 (24 hours/day, 7 days/week).

5. Fire-fighting measures

Suitable extinguishing media:
This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media:
None known.

Specific hazards arising from the chemical:
Contact with powerful oxidizing agents may cause fire and/or explosions (see section 10 of SDS).

Special protective equipment and precautions for firefighters:
Use protective equipment appropriate for surrounding materials.

Fire-fighting equipment/instructions:
No unusual fire or explosion hazards noted. Not a combustible dust.

Specific methods:
The presence of this material in a fire does not hinder the use of any standard extinguishing medium. Use extinguishing medium for surrounding fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:
Persons involved in cleanup processes should first observe precautions (as appropriate) identified in Section 8 of this SDS. **For emergencies, contact 3E Company at 1-866-401-5424 (24 hours/day, 7 days/week).**

Environmental precautions:
Prevent from entering into sewers or drainage systems where it can harden and clog flow.

Methods and materials for containment and cleaning up:
Wet product should be removed from roads or other surfaces where it may interfere with traffic. If hardened material is spilled and dust is generated, cleanup personnel may be exposed to respirable crystalline silica. Do not dry sweep or use compressed air for clean-up. Wetting of spilled material and/or use of respiratory protective equipment may be necessary.

7. Handling and storage

Precautions for safe handling:
Respirable crystalline silica-containing dust may be generated during processing, handling, and storage. Use personal protection and controls identified in Section 8 of this MSDS as appropriate.

Conditions for safe storage, including any incompatibilities:
Do not store near food, beverages, or smoking materials.

8. Exposure controls/personal protection

Legend:
NE = Not Established; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; OSHA = Occupational Safety and Health Administration; MSHA = Mine Safety and Health Administration; NIOSH = National Institute for Occupational Safety and Health; ACGIH = American Conference of Governmental Industrial Hygienists

Component	OSHA/MSHA PEL	ACGIH TLV	NIOSH REL
Portland Cement	15 mg/m^3 (total dust) 5 mg/m^3 (respirable fraction)	10 mg/m^3 (respirable fraction)	10 mg/m^3 (total dust) 5 mg/m^3 (respirable fraction)
Respirable dust containing silica	10 mg/m^3 ÷ (%silica + 2)	Use Respirable Silica TLV	Use Respirable Silica TLV
Total dust containing silica	MSHA: 30 mg/m^3 ÷ (% silica + 3)	NE	NE
Respirable Crystalline Silica (quartz)	OSHA: 0.05 mg/m^3 (PEL) OSHA: 0.025 mg/m^3 (Action Level) MSHA: Use Respirable Dust containing Silica PEL (above)	0.025 mg/m^3	0.05 mg/m^3
Respirable Tridymite and Cristobalite (other forms of crystalline silica)	OSHA: Use respirable crystalline silica PEL MSHA: 1/2 of respirable dust containing silica PEL	0.025 mg/m^3	0.05 mg/m^3
Amorphous Silica	20 mppcf (80 mg/m3/percent silica)	NE	6 mg/m^3
Iron Oxide	10 mg/m^3	5 mg/m^3 (respirable fraction)	5 mg/m^3 (respirable fraction)
Magnesium Oxide	15 mg/m^3 (total dust)	10 mg/m^3 (inhalable fraction)	NE
Aluminum Oxide	15 mg/m^3 (total dust) 5 mg/m^3 (Respirable)	10 mg/m^3 (total dust)	15 mg/m^3 (total dust) 5 mg/m^3 (Respirable)
Manganese Oxide	5 mg/m^3 (as Mn)	0.2 mg/m^3 (as Mn)	1 mg/m^3
Particulates Not Otherwise Classified	15 mg/m^3 (total dust) 5 mg/m^3 (respirable fraction)	10 mg/m^3 (inhalable fraction) 3 mg/m^3 (respirable fraction)	NE

Exposure Guidelines:
Total dust containing silica, respirable silica-containing dust and respirable crystalline silica (quartz) levels should be monitored regularly to determine worker exposure levels. Exposure levels in excess of allowable exposure limits should be reduced by all feasible engineering controls, including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee workstations.

Engineering Controls:
Ordinarily not required when working with wet product. Activities that generate dust from hardened product require the use of general ventilation, local exhaust, and/or wet suppression methods adequate to maintain exposures below appropriate exposure limits.

Eye Protection:
Safety glasses with side shields should be worn as minimum protection. Goggles or face shield should be worn where splashing is possible. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated due to working with hardened product.

Skin Protection (Protective Gloves/Clothing):
Waterproof gloves, rubber boots, and clothing sufficient to protect skin from contact with wet product should be worn. Clothing saturated from contact with wet product should be removed promptly to prevent continued contact with skin. As a precaution, wash hands thoroughly before eating, smoking, and using toilet facilities. After working with product, workers should clean their skin with soap and water. Clean clothing should be worn after showering.

Respiratory Protection:
Ordinarily not required when working with wet product. Activities that generate dust from hardened dry product

require the use of a NIOSH approved respirator for the exposure circumstances involved (See NIOSH Respirator Selection Guide). The need for respiratory protection should be evaluated by a qualified safety and health professional. Activities that generate dust require the use of an appropriate dust respirator where dust levels exceed or are likely to exceed allowable exposure limits. For respirable silica-containing dust levels that exceed or are likely to exceed an 8-hour time-weighted average (TWA) of 0.25 mg/m^3, a high efficiency particulate filter respirator must be worn at a minimum; however, if respirable silica-containing dust levels exceed or are likely to exceed an 8-hour TWA of 1.25 mg/m^3 an air-purifying, full-face respirator or equivalent is required. Respirator use must comply with applicable MSHA (42 CFR 84) or OSHA (29 CFR 1910.134) standards, which include provisions for a user training program, respirator inspection, repair and cleaning, respirator fit testing, medical surveillance and other requirements.

9. Physical and chemical properties

Appearance:
Gray, plastic, flowable, granular mixture.

Odor: Faint, characteristic cement odor.	**PH:** Approximately 12	**Decomposition temperature:** Not applicable
Melting point/freezing point: Not applicable	**Initial boiling point and boiling range:** Not applicable	**Flash point:** Non-combustible
Evaporation rate: Not applicable	**Flammability:** Not applicable	**Upper/lower flammability or explosive limits:** Not applicable
Vapor pressure: Not applicable	**Relative density:** Not applicable	**Solubility:** 0.1 - 1%
Partition coefficient: n-octanol/water. Not applicable	**Autoignition temperature:** Not applicable	**Specific Gravity (H2O = 1):** 1.7 - 3.0

10. Stability and reactivity

Reactivity:
Not reactive under normal use.

Chemical stability:
Stable under normal temperatures and pressures.

Possibility of hazardous reactions:
None under normal use.

Conditions to avoid (e.g., static discharge, shock or vibration):
Contact with incompatible materials should be avoided (see below). See Sections 5 and 7 for additional information.

Incompatible materials:
Fresh concrete is caustic (pH approximately 12) and could react with strong acids. Silica reacts violently with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride yielding possible fire and/or explosions. Silica dissolves readily in hydrofluoric acid producing a corrosive gas - silicon tetrafluoride..

Hazardous decomposition products:
Respirable crystalline silica-containing dust may be generated. When heated, quartz is slowly transformed into tridymite (above 860°C/1580°F) and cristobalite (above 1470°C/2678°F). Both tridymite and cristobalite are other forms of crystalline silica.

11. Toxicological information

Primary Routes of Exposure:
Inhalation and contact with the eyes and skin.

Symptoms related to the physical, chemical, toxicological characteristics
Inhalation:
Not expected to be a significant exposure route. Dusts from hardened product may irritate the mouth, nose, throat and lungs. Coughing, sneezing and shortness of breath may occur.
Symptoms of silicosis may include (but are not limited to) shortness of breath, difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

Eye Contact:
Contact may result in chemical (caustic) burns and eye injury which may be progressive and could cause blindness. Symptoms may include tearing, redness, pain, swelling with blurred vision. Dusts from hardened product may be irritating.

Skin Contact:
May cause severe skin irritation with redness, pain, an itching or burning feeling, and swelling of the skin. More severe effects, including chemical (alkali) burns and skin ulcers may occur. Dusts from hardened product may be irritating and cause dermatitis after prolonged or repeated exposure.

Ingestion:
Direct contact with exposed tissues may result in severe irritation with pain, nausea, vomiting, and/or diarrhea and possibly chemical (alkali) burns.

Medical Conditions Aggravated by Exposure:
Irritated or broken skin increases chance of contact dermatitis. Pre-existing medical conditions that may be aggravated by exposure include disorders of the eye, skin and lung (including asthma and other breathing disorders). Smoking tobacco will impair the ability of the lungs to clear themselves of dust.

Delayed and immediate effects and also chronic effects from short- and long-term exposure:
Hydraulic (Portland) cement may contain trace amounts of hexavalent chromium. Hexavalent chromium has been associated in some individuals with causing allergic reactions which may be manifested as contact dermatitis and skin ulcerations. Individuals who develop allergies to skin sensitizers such as hexavalent chromium, may experience a reaction upon repeated contact with those compounds. Irritated or broken skin is more likely to develop further complications such as ulcers and infection. Dermatitis and allergic reactions have been observed in workers with chronic exposure to fly ash. This was attributed to trace amounts of chromium, cobalt, nickel and other metals in the fly ash.

<u>The following information pertains to creating dust from hardened dry material:</u>
Prolonged overexposure to respirable dusts in excess of allowable exposure limits can cause inflammation of the lungs leading to possible fibrotic changes, a medical condition known as pneumoconiosis.
Prolonged and repeated overexposure to high levels of respirable crystalline silica-containing dust may cause a chronic form of silicosis, an incurable lung disease that may result in permanent lung damage or death. Chronic silicosis generally occurs after 10 years or more of overexposure; a more accelerated type of silicosis may occur between 5 and 10 years of higher levels of prolonged and repeated overexposure. In early stages of silicosis, not all individuals will exhibit symptoms (signs) of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposure has ceased.
Repeated overexposures to very high levels of respirable crystalline silica for periods as short as six months may cause acute silicosis. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include (but are not limited to): shortness of breath, cough, fever, weight loss, and chest pain.
Respirable dust containing newly broken crystalline silica particles has been shown to be more hazardous to animals in laboratory tests than respirable dust containing older crystalline silica particles of similar size. Respirable crystalline silica particles which had aged for sixty days or more showed less lung injury in animals than equal exposures to respirable dust containing newly broken particles of respirable crystalline silica.
There are reports in the literature suggesting that excessive respirable crystalline silica exposure may be associated with autoimmune disorders and other adverse health effects involving the kidney. In particular, the incidence of scleroderma (thickening of the skin caused by swelling and thickening of fibrous tissue) appears to be higher in silicotic individuals. To date, the evidence does not conclusively determine a causal relationship between silica exposure and these adverse health effects.

Carcinogenicity:
Epidemiology studies on the association between respirable crystalline silica exposure and lung cancer have had both positive and negative results. There is some speculation that the source, type, and level of exposure of respirable crystalline silica may play a role. Studies of persons with silicosis indicate an increased risk of developing lung cancer, a risk that increases with the level and duration of exposure. It is not clear whether lung cancer develops in non-silicotic patients. Several studies of silicotics do not account for lung cancer confounders, especially smoking, which have been shown to increase the risk of developing lung disorders, including emphysema and lung cancer.
In October 1996, an IARC Working Group designated respirable crystalline silica as carcinogenic (Group 1). In 2012, an IARC Working Group re-affirmed that inhalation of crystalline silica was a known human carcinogen. The NTP's Report

on Carcinogens, 9th edition, lists respirable crystalline silica as a "known human carcinogen." In the year 2000, the American Conference of Governmental Industrial Hygienists (ACGIH) listed respirable crystalline silica (quartz) as a suspected human carcinogen (A-2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to respirable crystalline silica.

Additional information on toxicological-effects:

Acute toxicity: Not classified

Skin corrosion/irritation: Causes severe skin burns and eye damage

Serious eye damage/eye irritation: Causes serious eye damage.

Respiratory sensitization: Not classified.

Skin sensitization: Not classified.

Germ cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer (Inhalation).

Reproductive toxicity: Not classified

Specific target organ toxicity - single exposure: May cause respiratory irritation

Specific target organ- toxicity – repeated exposure: May causes damage to organs (lungs, respiratory system) through prolonged or repeated exposure (inhalation)

Aspiration toxicity: Not classified (not applicable- solid material)

12. Ecological information

Ecotoxicity (aquatic and terrestrial, where available):
Not determined

Persistence and degradability:
Not determined

Bioaccumulative potential.
Not determined

Mobility in soil.
Not determined

Other adverse effects.
Not determined

13. Disposal considerations

Safe handling and disposal of waste:
Material can be retained until it hardens, and then disposed of as solid waste. Place contaminated materials in appropriate containers and dispose of in a manner consistent with applicable federal, state, and local regulations. Prevent from entering drainage, sewer systems, and unintended bodies of water. It is the responsibility of the user to determine, at the time of disposal, whether product meets criteria for hazardous waste. Product uses, transformations, mixture and processes, may render the resulting material hazardous.

14. Transport information

UN Number:
Not regulated.

UN Proper shipping name:
Not regulated.

Transport Hazard class: Not applicable.
Packing group, if applicable: Not applicable.
Marine pollutant (Yes/No): Not applicable.

15. Regulatory information
Toxic Substances Control Act (TSCA): The components in this product are listed on the TSCA Inventory or are exempt.
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA): Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act.
Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III: Section 302 extremely hazardous substances: None Section 311/312 hazard categories: Delayed Health Section 313 reportable ingredients at or above de minimus concentrations: None
California Proposition 65: This product contains a chemical (crystalline silica, chromium, cobalt, nickel) known to the State of California to cause cancer.
State Regulatory Lists: Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list or all state regulations. Therefore, the user should review the components listed in Section 2 and consult state or local authorities for specific regulations that apply.

16. Other information
Disclaimer **NO WARRANTY IS MADE, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE.** Vulcan Materials Company and its subsidiaries and affiliates ("Vulcan") believe the information contained herein is accurate; however, Vulcan makes no guarantees with respect to such accuracy and assumes no liability whatsoever in connection with the use of any information contained herein by any party. The provision of the information contained herein is not intended to be, and should not be construed as, legal advice or as ensuring compliance with any federal, state, or local laws, rules or regulations. Any party using any information contained herein should review all applicable laws, rules and regulations prior to use.
Issue date: 3/01/2017
Revision date: 3/01/2017

Vulcan Materials Company and its subsidiaries and affiliates
1200 Urban Center Drive
Birmingham, AL 35242

Recycled Crushed Concrete

1. Identification

Product name:
Recycled Crushed Concrete

Other means of identification/Synonyms/Common Names:
Recycled Hardened Concrete, Recycled Crushed Concrete

Recommended use:
Recycled Crushed Concrete is used as a construction material.

Recommended restrictions:
None Known

Manufacturer/Contact info:
Vulcan Materials Company and its subsidiaries and affiliates
1200 Urban Center Drive
Birmingham, AL 35242

General Phone Number:
1.866.401.5424

Emergency Phone Number:
1.866.401.5424 (3E Company, 24hours/day, 7 Days/week)

Website:
www.vulcanmaterials.com

2. Hazard(s) Identification

Physical hazards:
Not Classified

Signal word:
Danger

Health hazards:
Skin corrosion/irritation-Category 1B
Carcinogenicity-Category 1A
Specific target organ toxicity, single exposure- Category 3
Specific target organ toxicity, repeated exposure- Category 2

Hazard Statement:
Causes severe skin burns and eye damage
May cause cancer (Inhalation)
May cause respiratory irritation
May causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (inhalation)

Precautionary statement:

Prevention

- Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
- Do not breathe dust, fume, or vapors. Use only outdoors or in a well ventilated area.
- Wash hands thoroughly after handling
- Use personal protective equipment as required. Wear protective gloves, protective clothing, eye protection, and face protection. .

Response

- If exposed or concerned: Immediately call a Poison Center or doctor/physician. Get medical advice/attention
- Specific treatment (see the following information on this label)
- IF SWALLOWED: Rinse mouth Do NOT induce vomiting.
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse cautiously with water for several minutes.

Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention.

- IF INHALED: Remove victim to fresh air and keep at rest position comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Wash contaminated clothing before reuse.

Disposal

Dispose of contents/container in accordance with all local, regional, national, and international regulations.

Supplemental information:

Recycled crushed concrete contains a naturally occurring mineral complex with varying quantities of quartz (crystalline silica). Respirable Crystalline Silica (RCS) may cause cancer. Recycled crushed concrete may be subjected to various natural or mechanical forces that produce small particles (dust) which may contain respirable crystalline silica (particles less than 10 micrometers in aerodynamic diameter). Repeated inhalation of respirable crystalline silica (quartz) may cause lung cancer according to IARC, NTP; ACGIH states that it is a suspected cause of cancer.

3. Composition/information on ingredients

Chemical name	CAS number	%
Aggregate (crushed stone, sand, gravel, expanded shale)	Mixture	60-95
Quartz (crystalline silica)	14808-60-7	>1
Fly Ash	68131-74-8	0-11
Hydrated Portland Cement	65997-15-1	3-40

4. First-aid measures

Inhalation:

Dusts from hardened product may irritate the mouth, nose, throat and lungs. Remove person to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or later develops.

Eyes:

Immediately flush eye(s) with plenty of clean water for at least 15 minutes, while holding the eyelid(s) open. Occasionally lift the eyelid(s) to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from eye(s). Contact a physician if irritation persists or later develops.

Skin:

Wash affected areas thoroughly with mild soap and fresh water. Contact a physician if irritation persists or later develops. Burns should be treated as caustic burns.

Ingestion:

If person is conscious do not induce vomiting. Give large quantity of water and get medical attention. Never attempt to make an unconscious person drink.

Most important symptoms/effects, acute and delayed:

Dust may irritate the eyes, skin, and respiratory tract. Breathing respirable crystalline silica-containing dust for prolonged periods in the workplace can cause lung damage and a lung disease called silicosis. Symptoms of silicosis may include (but are not limited to) shortness of breath, difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure.

Indication of immediate medical attention and special treatment needed:

Not all individuals with silicosis will exhibit symptoms of the disease. However, silicosis can be progressive and symptoms can appear even years after exposures have ceased. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

For emergencies contact 3E Company at 1.866.401.5424 (24 hours/day, 7 days/week).

5. Fire-fighting measures

Suitable extinguishing media:

This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media:

None known.

Specific hazards arising from the chemical:

Contact (dust) with powerful oxidizing agents may cause fire and/or explosions (see section 10 of SDS).

Special protective equipment and precautions for firefighters:
Use protective equipment appropriate for surrounding materials.

Fire-fighting equipment/instructions:
No unusual fire or explosion hazards noted. Not a combustible dust.

Specific methods:
The presence of this material in a fire does not hinder the use of any standard extinguishing medium. Use extinguishing medium for surrounding fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:
Persons involved in cleanup processes should first observe precautions (as appropriate) identified in Section 8 of this SDS. **For emergencies, contact 3E Company at 1-866-401-5424 (24 hours/day, 7 days/week).**

Environmental precautions:
Prevent from entering into sewers or drainage systems where it can harden and clog flow.

Methods and materials for containment and cleaning up:
Product should be removed from roads or other surfaces where it may interfere with traffic. If hardened material is spilled and dust is generated, cleanup personnel may be exposed to respirable crystalline silica. Do not dry sweep or use compressed air for clean-up. Wetting of spilled material and/or use of respiratory protective equipment may be necessary.

7. Handling and storage

Precautions for safe handling:
Respirable crystalline silica-containing dust may be generated during processing, handling, and storage. Use personal protection and controls identified in Section 8 of this MSDS as appropriate.

Conditions for safe storage, including any incompatibilities:
Do not store near food, beverages, or smoking materials.

8. Exposure controls/personal protection

Legend:
NE = Not Established; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; OSHA = Occupational Safety and Health Administration; MSHA = Mine Safety and Health Administration; NIOSH = National Institute for Occupational Safety and Health; ACGIH = American Conference of Governmental Industrial Hygienists

Component	OSHA/MSHA PEL	ACGIH TLV	NIOSH REL
Particulates not otherwise classified	15 mg/m^3 (total dust) 5 mg/m^3 (respirable fraction)	10 mg/m^3 (inhalable fraction) 3 mg/m^3 (respirable fraction)	NE
Respirable dust containing silica	10 mg/m^3 ÷ (%silica + 2)	Use Respirable Silica TLV	Use Respirable Silica REL
Total dust containing silica	MSHA: 30 mg/m^3 ÷ (% silica + 3)	NE	NE
Respirable Crystalline Silica (quartz)	OSHA: 0.05 mg/m^3 (PEL) OSHA: 0.025 mg/m^3 (Action Level) MSHA: Use Respirable Dust containing Silica PEL (above)	0.025 mg/m^3	0.05 mg/m^3
Respirable Tridymite and Cristobalite (other forms of crystalline silica)	OSHA: Use respirable crystalline silica PEL MSHA: 1/2 of respirable dust containing silica PEL	0.025 mg/m^3	0.05 mg/m^3
Portland Cement	15 mg/m^3 (total dust) 5 mg/m^3 (respirable fraction)	10 mg/m^3	10 mg/m^3 (total dust) 5 mg/m^3 (respirable fraction)

Exposure Guidelines:
Total dust containing silica, respirable silica-containing dust and respirable crystalline silica (quartz) levels should be

monitored regularly to determine worker exposure levels. Exposure levels in excess of allowable exposure limits should be reduced by all feasible engineering controls, including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee workstations.

Engineering Controls:

Activities that generate dust from hardened product require the use of general ventilation, local exhaust, and/or wet suppression methods adequate to maintain exposures below appropriate exposure limits.

Eye Protection:

Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated.

Skin Protection (Protective Gloves/Clothing):

Use gloves to provide hand protection from abrasion. In dusty conditions, use long sleeve shirts. Wash work clothes after each use.

Respiratory Protection:

All respirators must be NIOSH-approved for the exposure levels present. (See NIOSH Respirator Selection Guide). The need for respiratory protection should be evaluated by a qualified safety and health professional. Activities that generate dust require the use of an appropriate dust respirator where dust levels exceed or are likely to exceed allowable exposure limits. For respirable silica-containing dust levels that exceed or are likely to exceed an 8-hour time-weighted average (TWA) of 0.25 mg/m^3, a high efficiency particulate filter respirator must be worn at a minimum; however, if respirable silica-containing dust levels exceed or are likely to exceed an 8-hour TWA of 1.25 mg/m^3 an air-purifying, full-face respirator or equivalent is required. Respirator use must comply with applicable MSHA (42 CFR 84) or OSHA (29 CFR 1910.134) standards, which include provisions for a user training program, respirator inspection, repair and cleaning, respirator fit testing, medical surveillance and other requirements.

9. Physical and chemical properties

Appearance:
Gray, solid mixture.

Odor: Faint odor.	**PH:** Not applicable	**Decomposition temperature:** Not applicable
Melting point/freezing point: Not applicable	**Initial boiling point and boiling range:** Not applicable	**Flash point:** Non-combustible
Evaporation rate: Not applicable	**Flammability:** Not applicable	**Upper/lower flammability or explosive limits:** Not applicable
Vapor pressure: Not applicable	**Relative density:** Not applicable	**Solubility:** Negligible
Partition coefficient: n-octanol/water. Not applicable	**Autoignition temperature:** Not applicable	**Specific Gravity (H2O = 1):** 1.7 - 3.0

10. Stability and reactivity

Reactivity:
Not reactive under normal use.

Chemical stability:
Stable under normal temperatures and pressures.

Possibility of hazardous reactions:
None under normal use.

Conditions to avoid (e.g., static discharge, shock or vibration):
Contact with incompatible materials should be avoided (see below). See Sections 5 and 7 for additional information.

Incompatible materials:
Strong acids. Silica reacts violently with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride yielding possible fire and/or explosions. Silica dissolves readily in hydrofluoric acid producing a corrosive gas - silicon tetrafluoride..

Hazardous decomposition products:
Respirable crystalline silica-containing dust may be generated. When heated, quartz is slowly transformed into tridymite (above 860°C/1580°F) and cristobalite (above 1470°C/2678°F). Both tridymite and cristobalite are other forms of

crystalline silica.

11. Toxicological information

Primary Routes of Exposure:

Inhalation and contact with the eyes and skin.

Symptoms related to the physical, chemical, toxicological characteristics

Inhalation:

Dusts from hardened product may irritate the mouth, nose, throat and lungs. Coughing, sneezing and shortness of breath may occur.

Symptoms of silicosis may include (but are not limited to) shortness of breath, difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

Eye Contact:

Dust particles can scratch the eye causing tearing, redness, a stinging or burning feeling, or swelling of the eyes with blurred vision. Wet material may be slightly caustic and cause irritation or injury. Effects may become more serious with repeated or prolonged contact.

Skin Contact:

Dust particles can scratch and irritate the skin with redness, an itching or burning feeling, swelling of the skin, and/or rash. Wet material may be slightly caustic and cause irritation, and may cause contact dermatitis, with symptoms that may include (but are not limited to) reddening, irritation and rash. Effects may become more serious with repeated or prolonged contact.

Ingestion:

Wet material is slightly caustic and causes tissue irritation. Ingestion of large amounts may cause gastrointestinal irritation including nausea, vomiting and diarrhea and blockage.

Medical Conditions Aggravated by Exposure:

Pre-existing medical conditions that may be aggravated by exposure include disorders of the eye, skin and lung (including asthma and other breathing disorders). Smoking tobacco will impair the ability of the lungs to clear themselves of dust.

Delayed and immediate effects and also chronic effects from short- and long-term exposure:

Hydraulic (Portland) cement may contain trace amounts of hexavalent chromium. Hexavalent chromium has been associated in some individuals with causing allergic reactions which may be manifested as contact dermatitis and skin ulcerations. Individuals who develop allergies to skin sensitizers such as hexavalent chromium, may experience a reaction upon repeated contact with those compounds. Irritated or broken skin is more likely to develop further complications such as ulcers and infection. Dermatitis and allergic reactions have been observed in workers with chronic exposure to fly ash. This was attributed to trace amounts of chromium, cobalt, nickel and other metals in the fly ash.

<u>The following information pertains to creating dust from hardened dry material:</u>

Prolonged overexposure to respirable dusts in excess of allowable exposure limits can cause inflammation of the lungs leading to possible fibrotic changes, a medical condition known as pneumoconiosis.

Prolonged and repeated overexposure to high levels of respirable crystalline silica-containing dust may cause a chronic form of silicosis, an incurable lung disease that may result in permanent lung damage or death. Chronic silicosis generally occurs after 10 years or more of overexposure; a more accelerated type of silicosis may occur between 5 and 10 years of higher levels of prolonged and repeated overexposure. In early stages of silicosis, not all individuals will exhibit symptoms (signs) of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposure has ceased.

Repeated overexposures to very high levels of respirable crystalline silica for periods as short as six months may cause acute silicosis. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include (but are not limited to): shortness of breath, cough, fever, weight loss, and chest pain.

Respirable dust containing newly broken crystalline silica particles has been shown to be more hazardous to animals in laboratory tests than respirable dust containing older crystalline silica particles of similar size. Respirable crystalline silica particles which had aged for sixty days or more showed less lung injury in animals than equal exposures to respirable dust containing newly broken particles of respirable crystalline silica.

There are reports in the literature suggesting that excessive respirable crystalline silica exposure may be associated with

autoimmune disorders and other adverse health effects involving the kidney. In particular, the incidence of scleroderma (thickening of the skin caused by swelling and thickening of fibrous tissue) appears to be higher in silicotic individuals. To date, the evidence does not conclusively determine a causal relationship between silica exposure and these adverse health effects.

Carcinogenicity:

Epidemiology studies on the association between respirable crystalline silica exposure and lung cancer have had both positive and negative results. There is some speculation that the source, type, and level of exposure of respirable crystalline silica may play a role. Studies of persons with silicosis indicate an increased risk of developing lung cancer, a risk that increases with the level and duration of exposure. It is not clear whether lung cancer develops in non-silicotic patients. Several studies of silicotics do not account for lung cancer confounders, especially smoking, which have been shown to increase the risk of developing lung disorders, including emphysema and lung cancer.
In October 1996, an IARC Working Group designated respirable crystalline silica as carcinogenic (Group 1). In 2012, an IARC Working Group re-affirmed that inhalation of crystalline silica was a known human carcinogen. The NTP's Report on Carcinogens, 9th edition, lists respirable crystalline silica as a "known human carcinogen." In the year 2000, the American Conference of Governmental Industrial Hygienists (ACGIH) listed respirable crystalline silica (quartz) as a suspected human carcinogen (A-2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to respirable crystalline silica.

Additional information on toxicological-effects:

Acute toxicity: Not classified

Skin corrosion/irritation: Causes severe skin burns and eye damage

Serious eye damage/eye irritation: Not classified.

Respiratory sensitization: Not classified.

Skin sensitization: Not classified.

Germ cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer (Inhalation).

Reproductive toxicity: Not classified

Specific target organ toxicity - single exposure: May cause respiratory irritation

Specific target organ- toxicity – repeated exposure: May causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (inhalation)

Aspiration toxicity: Not classified (not applicable- solid material)

12. Ecological information

Ecotoxicity (aquatic and terrestrial, where available):
Not determined

Persistence and degradability:
Not determined

Bioaccumulative potential.
Not determined

Mobility in soil.
Not determined

Other adverse effects.
Not determined

13. Disposal considerations

Safe handling and disposal of waste:

Place contaminated materials in appropriate containers and dispose of in a manner consistent with applicable federal, state, and local regulations. Prevent from entering drainage, sewer systems, and unintended bodies of water. It is the responsibility of the user to determine, at the time of disposal, whether product meets criteria for hazardous waste.

Product uses, transformations, mixture and processes, may render the resulting material hazardous.

14. Transport information

UN Number:
Not regulated.

UN Proper shipping name:
Not regulated.

Transport Hazard class:
Not applicable.

Packing group, if applicable:
Not applicable.

Marine pollutant (Yes/No):
Not applicable.

15. Regulatory information

Toxic Substances Control Act (TSCA):
The components in this product are listed on the TSCA Inventory or are exempt.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):
Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act.

Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III:
Section 302 extremely hazardous substances: None
Section 311/312 hazard categories: Delayed Health
Section 313 reportable ingredients at or above de minimus concentrations: None

California Proposition 65:
This product contains a chemical (crystalline silica, chromium, cobalt, nickel) known to the State of California to cause cancer.

State Regulatory Lists:
Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list or all state regulations. Therefore, the user should review the components listed in Section 2 and consult state or local authorities for specific regulations that apply.

16. Other information

Disclaimer

NO WARRANTY IS MADE, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE.

Vulcan Materials Company and its subsidiaries and affiliates ("Vulcan") believe the information contained herein is accurate; however, Vulcan makes no guarantees with respect to such accuracy and assumes no liability whatsoever in connection with the use of any information contained herein by any party. The provision of the information contained herein is not intended to be, and should not be construed as, legal advice or as ensuring compliance with any federal, state, or local laws, rules or regulations. Any party using any information contained herein should review all applicable laws, rules and regulations prior to use.

Issue date:
3/01/2017

Revision date:
3/01/2017

Vulcan Materials Company and its subsidiaries and affiliates
1200 Urban Center Drive
Birmingham, AL 35242

SAFETY DATA SHEET

Issuing Date 9-April-2015 **Revision Date** 3-AUG-2016 **Revision Number** 2

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

GHS Product Identifier
Product Name: **Asphalt Binder**

Other Means of Identification
Product Code(s): **M1140**
Synonyms None

Recommended Use of the Chemical and Restrictions on Use
Recommended Use: No Information Available
Uses Advised Against: No Information Available

Manufacturer's Details
Manufacturer Address
ThorWorks Industries, Inc.
2520 S. Campbell St.
Sandusky, OH 44870
www.sealmaster.net
1-800-326-1994

Emergency Telephone Number Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification
This product is not considered hazardous according to the OSHA Hazard Communication Standard 2012 (29 CFR 1910.1200).

GHS Label Elements, Including Precautionary Statements

Emergency Overview

Signal Word **Warning**

- Harmful if swallowed
- May cause skin irritation

Appearance: Black **Physical State:** Mastic **Odor:** Asphaltic

Precautionary Statements

Prevention	**Inhalation:**	May cause irritation of respiratory tract.
	Eye Contact:	Contact with eyes may cause irritation.
	Skin Contact:	May cause irritation.
	Ingestion:	Ingestion may cause stomach discomfort.
General Advice	•None	
Storage	• Keep container tightly closed	
Disposal	•Dispose of material/containers in accordance with the appropriate state, regional, or local regulations.	

Hazard Not Otherwise Classified (HNOC)
Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight %	Trade Secret
Asphalt	8052-42-4	50-70	*

**The exact percentage of composition has been withheld as a trade secret.*

4. FIRST AID MEASURES

Description of Necessary First-Aid Measures

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.

Skin Contact Wash off immediately with soap and plenty of water. In the case of skin irritation or allergic reactions, see a physician.

Inhalation Move to fresh air. If symptoms persist, call a physician.

Ingestion Drink plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

Most Important Symptoms/Effects, Acute and Delayed

Most Important Symptoms/Effects No information available

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary

Notes to Physician Treat Symptomatically. May cause sensitization by skin contact.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Carbon Dioxide (CO_2). Dry Chemical. Foam. Water Fog.

Unsuitable Extinguishing Media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical

No information available

Explosion Data

Sensitivity to Mechanical Impact None

Sensitivity to Static Discharge None

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure- demand MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Personal Precautions: Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Use personal protective equipment.

Environmental Precautions

Environmental Precautions: See Section 12 for additional Ecological Information

Methods and Materials for Containment and Cleaning Up

Methods for Containment: Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up: Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Handling: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes, and clothing. Wear personal protective equipment. Avoid breathing vapors or mists. Do not eat, drink, or smoke when using this product. Wash thoroughly after handling.

Conditions for Safe Storage, Including Any Incompatibilities

Storage: Keep container tightly closed

Incompatible Products: Strong oxidizing agents. Acids.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Asphalt 8052-42-4	TWA: 0.5 mg/m³ benzene soluble aerosol fume, inhalable fraction	-	Ceiling: 5 mg/m³ fume 15 min.

Appropriate Engineering Controls

Engineering Measures: Showers
Eyewash Stations
Ventilation Systems

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection: If splashes are likely to occur, wear: Safety glasses with side shields.

Skin and Body Protection: Impervious gloves.

Respiratory Protection: No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State: Liquid
Odor: Asphaltic
Appearance: Black
Odor Threshold: No Information Available

Property	Values	Remarks/Method
pH	No data available	None known
Melting Point/Range	No data available	None known
Boiling Point/Boiling Range	100° C	None known
Flash Point	No data available	None known
Evaporation Rate	1.8	None known
Flammability (solid, gas)	No data available	None known
Flammability Limits in Air		
Upper flammability limit	No data available	
Lower flammability limit	No data available	
Vapor Pressure	No data available	None known
Vapor Density	<1	None known
Specific Density	1.03 @ 77 F	None known
Water Solubility	Easily dispersible	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition Temperature	No data available	None known
Decomposition Temperature	No data available	None known
Viscosity	No data available	None known
Flammable Properties	Not Flammable	
Explosive Properties	No data available	
Oxidizing Properties	No data available	

Other Information

VOC Content No data available

10. STABILITY AND REACTIVITY

Reactivity: No data available
Chemical Stability: Stable under recommended storage conditions.
Possibility of Hazardous Reactions: None under normal processing.
Hazardous Polymerization: Hazardous polymerization does not occur.
Conditions to Avoid: None known
Incompatible Materials: Strong oxidizing agents. Acids.
Hazardous Decomposition Products: Carbon Monoxide (CO), Carbon Dioxide (CO^2), Hydrogen Sulfide, Nitrogen Dioxide

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation: May cause irritation of respiratory tract.
Eye Contact: Contact with eyes may cause irritation.
Skin Contact: May cause irritation.
Ingestion: Ingestion may cause stomach discomfort.

Chemical Name	LD50 Oral	LD50 Dermal	LD50 Inhalation
Asphalt	5000 mg/kg (Rat)	>2000 mg/kg (Rabbit)	-

Symptoms Related to the Physical, Chemical, and Toxicological Characteristics

Symptoms: No information available.

Delayed and Immediate Effects and also Chronic Effects from Short and Long Term Exposure

Sensitization: No information available.
Mutagenic Effects: No information available.
Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen. The IARC, NTP, and OSHA do not list asphalt as a carcinogen. In general, the oxidation of polycyclic aromatic hydrocarbons destroys their carcinogenic potential. Petroleum asphalt, shale oil asphalts, and coal tars show distinct variation in their relative carcinogenicity for experimental animals.

Chemical Name	ACGIH	IARC	NTP	OSHA
Asphalt	A3	Group 2B	Reasonably Anticipated	X

ACGIH: (American Conference of Governmental Industrial Hygienists)
A3 – Animal Carcinogen
IRAC: (International Agency for Research on Cancer)
Group 2B – Possibly Carcinogenic to Humans
NTP: (National Toxicity Program)
Reasonably Anticipated – Reasonably Anticipated to be a Human Carcinogen

OSHA: (Occupational Safety & Health Administration)
X – Present

Reproductive Toxicity: No information available.
STOT - Single Exposure: No information available.
STOT – Repeated Exposure: No information available.
Aspiration Hazard: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Persistence and Degradability: No information available.
Bioaccumulation

Chemical Name	Log Pow
Asphalt	6..006

Other Adverse Effects: No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging: Do not re-use empty containers.

14. TRANSPORTATION INFORMATION

DOT: Not regulated

ICAO/IATA Not regulated as a hazardous material or dangerous goods for transportation.

15. REGULATORY INFORMATION

International Inventories
TSCA – Complies
DSL/NDSL – Complies

Legend
TSCA – United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL – Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS Number	Weight %	SARA 313 – Threshold Values %
Asphalt	8052-42-4	20-40	0.1

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations
California Proposition 65: This product does not contain any Proposition 65 chemicals.

U.S. State Right-To-Know Regulations

"X" designates that the ingredients are listed on the state right to know list.

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Illinois	Rhode Island
Asphalt	X	X	X		X

U.S. EPA Label Information

EPA Pesticide Registration Number: Not applicable

16. OTHER INFORMATION

NFPA	**Health Hazard:** 1	**Flammability:** 0	**Instability:** 0	**Physical and Chemical Hazards-**
HMIS	**Health Hazard:** 1	**Flammability:** 0	**Physical Hazard:** 0	**Personal Protection: X**

Revision Date: 3-AUG-2016
Revision Note: Supersedes 4-JAN-2016.

General Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

SAFETY DATA SHEET

1. Identification

Product number	1000028766
Product identifier	**13 OZ MACS BRAKE CLEANER 4800 LT 12PK**
Revision date	07-15-2016
Company information	NAPA Balkamp 2601 Stout Heritage Parkway Plainfield, IN 46168 United States
Company phone	General Assistance 1-317-754-3900
Emergency telephone US	1-866-836-8855
Emergency telephone outside US	1-952-852-4646
Version #	02
Supersedes date	06-24-2016
Recommended use	CLEANER
Recommended restrictions	None known.

2. Hazard(s) identification

Physical hazards	Flammable aerosols	Category 1
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Reproductive toxicity (the unborn child)	Category 2
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Specific target organ toxicity, repeated exposure	Category 2
	Aspiration hazard	Category 1
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	Extremely flammable aerosol. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause drowsiness or dizziness. Suspected of damaging the unborn child. May cause damage to organs through prolonged or repeated exposure.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not spray on an open flame or other ignition source. Pressurized container: Do not pierce or burn, even after use. Do not breathe gas. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
Response	If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting. If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed or concerned: Get medical advice/attention. Call a poison center/doctor if you feel unwell. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.

Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 2
Hazard(s) not otherwise classified (HNOC)	None known.	
Supplemental information	None.	

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Acetone		67-64-1	40 - 60
Toluene		108-88-3	40 - 60
Carbon Dioxide		124-38-9	2.5 - 10

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Remove contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. Prolonged exposure may cause chronic effects.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
General information	IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Contents under pressure. Pressurized container may explode when exposed to heat or flame. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk. Containers should be cooled with water to prevent vapor pressure build up. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. In the event of fire and/or explosion do not breathe fumes.
General fire hazards	Extremely flammable aerosol.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe gas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Refer to attached safety data sheets and/or instructions for use. Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable. Isolate area until gas has dispersed. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Prevent product from entering drains. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. All equipment used when handling the product must be grounded. Do not re-use empty containers. Do not breathe gas. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Use only in well-ventilated areas. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Level 2 Aerosol.

Store locked up. Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C/122 °F. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Acetone (CAS 67-64-1)	PEL	2400 mg/m3 1000 ppm
Carbon Dioxide (CAS 124-38-9)	PEL	9000 mg/m3 5000 ppm

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
Toluene (CAS 108-88-3)	Ceiling	300 ppm
	TWA	200 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	500 ppm
	TWA	250 ppm
Carbon Dioxide (CAS 124-38-9)	STEL	30000 ppm
	TWA	5000 ppm
Toluene (CAS 108-88-3)	TWA	20 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m3 250 ppm
Carbon Dioxide (CAS 124-38-9)	STEL	54000 mg/m3 30000 ppm
	TWA	9000 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Toluene (CAS 108-88-3)	STEL	5000 ppm 560 mg/m3
	TWA	150 ppm 375 mg/m3 100 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	25 mg/l	Acetone	Urine	*
Toluene (CAS 108-88-3)	0.3 mg/g	o-Cresol, with hydrolysis	Creatinine in urine	*
	0.03 mg/l	Toluene	Urine	*
	0.02 mg/l	Toluene	Blood	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Toluene (CAS 108-88-3) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Toluene (CAS 108-88-3) Skin designation applies.

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection If permissible levels are exceeded use NIOSH mechanical filter / organic vapor cartridge or an air-supplied respirator.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Observe any medical surveillance requirements. When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Gas.

Form Aerosol.

Color Not available.

Odor Not available.

Odor threshold Not available.

pH Not available.

Melting point/freezing point Not available.

Initial boiling point and boiling range 113.51 °F (45.29 °C) estimated

Flash point 18.8 °F (-7.4 °C) estimated

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	1.9 % estimated
Flammability limit - upper (%)	10 % estimated
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	896 °F (480 °C) estimated
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Specific gravity	0.904 estimated

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Aluminum.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause damage to organs through prolonged or repeated exposure by inhalation. May cause drowsiness and dizziness. Headache. Nausea, vomiting.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Symptoms related to the physical, chemical and toxicological characteristics	Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways. Narcotic effects.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Guinea pig	> 7426 mg/kg, 24 Hours
		> 9.4 ml/kg, 24 Hours
	Rabbit	> 7426 mg/kg, 24 Hours
		> 9.4 ml/kg, 24 Hours

Components	Species	Test Results
Inhalation		
LC50	Rat	55700 ppm, 3 Hours
		132 mg/l, 3 Hours
		50.1 mg/l
Oral		
LD50	Rat	5800 mg/kg
		2.2 ml/kg
Toluene (CAS 108-88-3)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, 24 Hours
Inhalation		
LC50	Mouse	6405 - 7436 ppm, 6 Hours
		5320 ppm, 8 Hours
	Rat	5879 - 6281 ppm, 6 Hours
		25.7 mg/l, 4 Hours
Oral		
LD50	Rat	> 5000 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Toluene (CAS 108-88-3) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity Suspected of damaging the unborn child.

Specific target organ toxicity - single exposure May cause drowsiness and dizziness.

Specific target organ toxicity - repeated exposure Respiratory system. Skin. Kidneys. Central nervous system. Eyes. Liver. May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects May cause damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects.

Components		Species	Test Results
Acetone (CAS 67-64-1)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	21.6 - 23.9 mg/l, 48 hours

Components		Species	Test Results
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	4740 - 6330 mg/l, 96 hours
Toluene (CAS 108-88-3)			
Aquatic			
Algae	IC50	Algae	433.0001 mg/L, 72 Hours
Crustacea	EC50	Daphnia	7.645 mg/L, 48 Hours
		Water flea (Daphnia magna)	5.46 - 9.83 mg/l, 48 hours
Fish	LC50	Coho salmon,silver salmon (Oncorhynchus kisutch)	8.11 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

Acetone	-0.24
Toluene	2.73

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Contents under pressure. Do not puncture, incinerate or crush. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

14. Transport information

DOT

UN number UN1950

UN proper shipping name Aerosols, flammable, (each not exceeding 1 L capacity)

Transport hazard class(es)

Class 2.1

Subsidiary risk -

Label(s) 2.1

Packing group Not applicable.

Special precautions for user Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.

Special provisions N82

Packaging exceptions 306

Packaging non bulk None

Packaging bulk None

This product meets the exception requirements of section 173.306 as a limited quantity and may be shipped as a limited quantity. Until 12/31/2020, the "Consumer Commodity - ORM-D" marking may still be used in place of the new limited quantity diamond mark for packages of UN 1950 Aerosols. Limited quantities require the limited quantity diamond mark on cartons after 12/31/20 and may be used now in place of the "Consumer Commodity ORM-D" marking and both may be displayed concurrently.

IATA

UN number UN1950

UN proper shipping name Aerosols, flammable

Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	Not applicable.
Environmental hazards	Yes
ERG Code	10L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.
Packaging Exceptions	LTD QTY

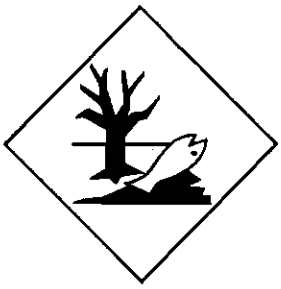
IMDG

UN number	UN1950
UN proper shipping name	AEROSOLS
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	Not applicable.
Environmental hazards	
Marine pollutant	Yes
EmS	F-D, S-U
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.
Packaging Exceptions	LTD QTY
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

DOT

IATA; IMDG

Marine pollutant



15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	Listed.
Toluene (CAS 108-88-3)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Toluene	108-88-3	40 - 60

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Toluene (CAS 108-88-3)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Acetone (CAS 67-64-1)	6532
Toluene (CAS 108-88-3)	6594

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Acetone (CAS 67-64-1)	35 %WV
Toluene (CAS 108-88-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1)	6532
Toluene (CAS 108-88-3)	594

US state regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Acetone (CAS 67-64-1)
Toluene (CAS 108-88-3)

US. Massachusetts RTK - Substance List

Acetone (CAS 67-64-1)
Carbon Dioxide (CAS 124-38-9)
Toluene (CAS 108-88-3)

US. New Jersey Worker and Community Right-to-Know Act

Acetone (CAS 67-64-1)
Carbon Dioxide (CAS 124-38-9)
Toluene (CAS 108-88-3)

US. Pennsylvania Worker and Community Right-to-Know Law

Acetone (CAS 67-64-1)
Carbon Dioxide (CAS 124-38-9)
Toluene (CAS 108-88-3)

US. Rhode Island RTK

Acetone (CAS 67-64-1)
Toluene (CAS 108-88-3)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

Toluene (CAS 108-88-3) Listed: January 1, 1991

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 06-24-2016

Revision date 07-15-2016

Version # 02

Disclaimer The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Revision information	Composition / Information on Ingredients: Ingredients Accidental release measures: Personal precautions, protective equipment and emergency procedures Accidental release measures: Environmental precautions Handling and storage: Precautions for safe handling Handling and storage: Conditions for safe storage, including any incompatibilities Exposure controls/personal protection: Eye/face protection Exposure controls/personal protection: Hand protection Exposure controls/personal protection: Respiratory protection Exposure controls/personal protection: Other Physical & Chemical Properties: Multiple Properties Toxicological information: Acute toxicity Ecological information: Ecotoxicity Transport Information: Material Transportation Information Regulatory Information: United States

SAFETY DATA SHEET

1. Identification

Product number	1000028750
Product identifier	**11.5 OZ NAPA MAC'S IGNITION & BATTERY SEALER 1067**
Company information	NAPA Balkamp 2601 Stout Heritage Parkway Plainfield, IN 46168 United States
Company phone	General Assistance 1-317-754-3900
Emergency telephone US	1-866-836-8855
Emergency telephone outside US	1-952-852-4646
Version #	01
Recommended use	ADHESIVE
Recommended restrictions	None known.

2. Hazard(s) identification

Physical hazards	Flammable aerosols	Category 1
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Reproductive toxicity (the unborn child)	Category 2
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Specific target organ toxicity, repeated exposure	Category 2
	Aspiration hazard	Category 1
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	Extremely flammable aerosol. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause drowsiness or dizziness. Suspected of damaging the unborn child. May cause damage to organs through prolonged or repeated exposure.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not spray on an open flame or other ignition source. Pressurized container: Do not pierce or burn, even after use. Do not breathe mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
Response	If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting. If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed or concerned: Get medical advice/attention. Call a poison center/doctor if you feel unwell. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.

Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 2
Hazard(s) not otherwise classified (HNOC)	None known.	
Supplemental information	None.	

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Acetone		67-64-1	20 - 40
Toluene		108-88-3	20 - 40
Butane		106-97-8	10 - 20
Propane		74-98-6	10 - 20
Mineral Spirits		8052-41-3	0.1 - 1
Other components below reportable levels			2.5 - 10

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Remove contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. Prolonged exposure may cause chronic effects.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
General information	IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Contents under pressure. Pressurized container may explode when exposed to heat or flame. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk. Containers should be cooled with water to prevent vapor pressure build up. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. In the event of fire and/or explosion do not breathe fumes.
General fire hazards	Extremely flammable aerosol.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Refer to attached safety data sheets and/or instructions for use. Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Prevent entry into waterways, sewer, basements or confined areas. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. All equipment used when handling the product must be grounded. Do not re-use empty containers. Do not breathe mist or vapor. Avoid contact with eyes, skin, and clothing. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Use only in well-ventilated areas. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Level 3 Aerosol.

Store locked up. Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C/122 °F. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Acetone (CAS 67-64-1)	PEL	2400 mg/m3 1000 ppm
Mineral Spirits (CAS 8052-41-3)	PEL	2900 mg/m3 500 ppm
Propane (CAS 74-98-6)	PEL	1800 mg/m3 1000 ppm

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
Toluene (CAS 108-88-3)	Ceiling TWA	300 ppm 200 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Acetone (CAS 67-64-1)	STEL TWA	500 ppm 250 ppm
Butane (CAS 106-97-8)	STEL	1000 ppm
Mineral Spirits (CAS 8052-41-3)	TWA	100 ppm
Toluene (CAS 108-88-3)	TWA	20 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m3 250 ppm
Butane (CAS 106-97-8)	TWA	1900 mg/m3 800 ppm
Mineral Spirits (CAS 8052-41-3)	Ceiling	1800 mg/m3
	TWA	350 mg/m3
Propane (CAS 74-98-6)	TWA	1800 mg/m3 1000 ppm
Toluene (CAS 108-88-3)	STEL	560 mg/m3 150 ppm
	TWA	375 mg/m3 100 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	25 mg/l	Acetone	Urine	*
Toluene (CAS 108-88-3)	0.3 mg/g	o-Cresol, with hydrolysis	Creatinine in urine	*
	0.03 mg/l	Toluene	Urine	*
	0.02 mg/l	Toluene	Blood	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Toluene (CAS 108-88-3) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Toluene (CAS 108-88-3) Skin designation applies.

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Chemical respirator with organic vapor cartridge and full facepiece.

Skin protection

Hand protection Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection Chemical respirator with organic vapor cartridge and full facepiece.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Observe any medical surveillance requirements. When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Liquid.

Form Aerosol.

Color Not available.

Odor Not available.

Odor threshold Not available.

pH Not available.

Melting point/freezing point Not available.

Initial boiling point and boiling range	165.38 °F (74.1 °C) estimated
Flash point	-156.0 °F (-104.4 °C) PROPELLANT estimated
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	2.1 % estimated
Flammability limit - upper (%)	10.5 % estimated
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	50 psig @70F estimated
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Specific gravity	0.731 estimated

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Nitrates. Fluorine. Chlorine.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause damage to organs through prolonged or repeated exposure by inhalation. May cause drowsiness and dizziness. Headache. Nausea, vomiting.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Symptoms related to the physical, chemical and toxicological characteristics	Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity	May be fatal if swallowed and enters airways. Narcotic effects.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Guinea pig	> 7426 mg/kg, 24 Hours
		> 9.4 ml/kg, 24 Hours
	Rabbit	> 7426 mg/kg, 24 Hours
		> 9.4 ml/kg, 24 Hours
Inhalation		
LC50	Rat	55700 ppm, 3 Hours
		132 mg/l, 3 Hours
		50.1 mg/l
Oral		
LD50	Rat	5800 mg/kg
		2.2 ml/kg
Butane (CAS 106-97-8)		
Acute		
Inhalation		
LC50	Mouse	1237 mg/l, 120 Minutes
		52 %, 120 Minutes
	Rat	1355 mg/l
Propane (CAS 74-98-6)		
Acute		
Inhalation		
LC50	Mouse	1237 mg/l, 120 Minutes
		52 %, 120 Minutes
	Rat	1355 mg/l
		658 mg/l/4h
Toluene (CAS 108-88-3)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, 24 Hours
Inhalation		
LC50	Mouse	6405 - 7436 ppm, 6 Hours
		5320 ppm, 8 Hours
	Rat	5879 - 6281 ppm, 6 Hours
		25.7 mg/l, 4 Hours
Oral		
LD50	Rat	> 5000 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Toluene (CAS 108-88-3) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity Suspected of damaging the unborn child.

Specific target organ toxicity - single exposure May cause drowsiness and dizziness.

Specific target organ toxicity - repeated exposure May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects May cause damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects.

Components		Species	Test Results
Acetone (CAS 67-64-1)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	21.6 - 23.9 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	4740 - 6330 mg/l, 96 hours
Toluene (CAS 108-88-3)			
Aquatic			
Algae	IC50	Algae	433.0001 mg/L, 72 Hours
Crustacea	EC50	Daphnia	7.645 mg/L, 48 Hours
		Water flea (Daphnia magna)	5.46 - 9.83 mg/l, 48 hours
Fish	LC50	Coho salmon,silver salmon (Oncorhynchus kisutch)	8.11 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

Acetone	-0.24
Butane	2.89
Mineral Spirits	3.16 - 7.15
Propane	2.36
Toluene	2.73

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Contents under pressure. Do not puncture, incinerate or crush. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

14. Transport information

DOT

UN number	UN1950
UN proper shipping name	Aerosols, flammable, (each not exceeding 1 L capacity)
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	Not applicable.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.
Special provisions	N82
Packaging exceptions	306
Packaging non bulk	None
Packaging bulk	None

This product meets the exception requirements of section 173.306 as a limited quantity and may be shipped as a limited quantity. Until 12/31/2020, the "Consumer Commodity - ORM-D" marking may still be used in place of the new limited quantity diamond mark for packages of UN 1950 Aerosols. Limited quantities require the limited quantity diamond mark on cartons after 12/31/20 and may be used now in place of the "Consumer Commodity ORM-D" marking and both may be displayed concurrently.

IATA

UN number	UN1950
UN proper shipping name	Aerosols, flammable
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	Not applicable.
Environmental hazards	Yes
ERG Code	10L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.
Packaging Exceptions	LTD QTY

IMDG

UN number	UN1950
UN proper shipping name	AEROSOLS
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	Not applicable.
Environmental hazards	
Marine pollutant	Yes
EmS	F-D, S-U
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.
Packaging Exceptions	LTD QTY
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

DOT

IATA; IMDG

Marine pollutant

General information DOT Regulated Marine Pollutant. IMDG Regulated Marine Pollutant.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	Listed.
Toluene (CAS 108-88-3)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - Yes
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Toluene	108-88-3	20 - 40

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Toluene (CAS 108-88-3)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Butane (CAS 106-97-8)
Propane (CAS 74-98-6)

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Acetone (CAS 67-64-1)	6532
Toluene (CAS 108-88-3)	6594

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Acetone (CAS 67-64-1)	35 %WV
Toluene (CAS 108-88-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1)	6532
Toluene (CAS 108-88-3)	594

US state regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Acetone (CAS 67-64-1)
Butane (CAS 106-97-8)
Mineral Spirits (CAS 8052-41-3)
Toluene (CAS 108-88-3)

US. Massachusetts RTK - Substance List

Acetone (CAS 67-64-1)
Butane (CAS 106-97-8)
Mineral Spirits (CAS 8052-41-3)
Propane (CAS 74-98-6)
Toluene (CAS 108-88-3)

US. New Jersey Worker and Community Right-to-Know Act

Acetone (CAS 67-64-1)
Butane (CAS 106-97-8)
Propane (CAS 74-98-6)
Toluene (CAS 108-88-3)

US. Pennsylvania Worker and Community Right-to-Know Law

Acetone (CAS 67-64-1)
Butane (CAS 106-97-8)
Mineral Spirits (CAS 8052-41-3)
Propane (CAS 74-98-6)
Toluene (CAS 108-88-3)

US. Rhode Island RTK

Acetone (CAS 67-64-1)
Butane (CAS 106-97-8)
Propane (CAS 74-98-6)
Toluene (CAS 108-88-3)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

Toluene (CAS 108-88-3)	Listed: January 1, 1991

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 06-15-2016

Version # 01

Disclaimer We cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

Revision information Product and Company Identification: Product and Company Identification
Hazard(s) identification: Hazard statement
Physical & Chemical Properties: Multiple Properties
Regulatory Information: United States

SAFETY DATA SHEET

1. Identification

Product number	1000028751
Product identifier	**13 OZ NAPA MAC'S BATTERY TERMINAL CLEANER 1072**
Company information	NAPA Balkamp 2601 Stout Heritage Parkway Plainfield, IN 46168 United States
Company phone	General Assistance 1-317-754-3900
Emergency telephone US	1-866-836-8855
Emergency telephone outside US	1-952-852-4646
Version #	01
Recommended use	CLEANER
Recommended restrictions	None known.

2. Hazard(s) identification

Physical hazards	Flammable aerosols	Category 1
Health hazards	Not classified.	
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	Extremely flammable aerosol.
Precautionary statement	
Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not spray on an open flame or other ignition source. Pressurized container: Do not pierce or burn, even after use.
Response	Wash hands after handling.
Storage	Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
Disposal	Dispose of waste and residues in accordance with local authority requirements.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Butane		106-97-8	2.5 - 10
Isopropyl Alcohol		67-63-0	2.5 - 10
Propane		74-98-6	2.5 - 10
Sodium Carbonate Anhydrous		497-19-8	1 - 2.5
Other components below reportable levels			80 - 90

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	If symptoms develop move victim to fresh air. Get medical attention if symptoms persist.
Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Direct contact with eyes may cause temporary irritation.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Not available.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Contents under pressure. Pressurized container may explode when exposed to heat or flame. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk. Containers should be cooled with water to prevent vapor pressure build up. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers. In the event of fire and/or explosion do not breathe fumes.
General fire hazards	Extremely flammable aerosol.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Refer to attached safety data sheets and/or instructions for use. Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable. Isolate area until gas has dispersed. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. All equipment used when handling the product must be grounded. Do not re-use empty containers. Use only in well-ventilated areas. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Level 1 Aerosol. Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C/122 °F. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Isopropyl Alcohol (CAS 67-63-0)	PEL	980 mg/m3

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Propane (CAS 74-98-6)	PEL	400 ppm 1800 mg/m3 1000 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Butane (CAS 106-97-8)	STEL	1000 ppm
Isopropyl Alcohol (CAS 67-63-0)	STEL	400 ppm
	TWA	200 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Butane (CAS 106-97-8)	TWA	1900 mg/m3 800 ppm
Isopropyl Alcohol (CAS 67-63-0)	STEL	1225 mg/m3 500 ppm
	TWA	980 mg/m3 400 ppm
Propane (CAS 74-98-6)	TWA	1800 mg/m3 1000 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Isopropyl Alcohol (CAS 67-63-0)	40 mg/l	Acetone	Urine	*

* - For sampling details, please see the source document.

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Other Wear suitable protective clothing.

Respiratory protection If permissible levels are exceeded use NIOSH mechanical filter / organic vapor cartridge or an air-supplied respirator.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Gas.

Form Aerosol.

Color Not available.

Odor Not available.

Odor threshold Not available.

pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	212 °F (100 °C) estimated
Flash point	-156.0 °F (-104.4 °C) PROPELLANT estimated
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	2.5 % estimated
Flammability limit - upper (%)	12 % estimated
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	60 psig @70F estimated
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Specific gravity	0.95 @70F estimated

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Nitrates. Isocyanates. Fluorine. Chlorine.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	No adverse effects due to inhalation are expected.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity

Components	Species	Test Results
Butane (CAS 106-97-8)		
Acute		
Inhalation		
LC50	Mouse	1237 mg/l, 120 Minutes
		52 %, 120 Minutes
	Rat	1355 mg/l
Isopropyl Alcohol (CAS 67-63-0)		
Acute		
Dermal		
LD50	Rabbit	16.4 ml/kg, 24 Hours
Inhalation		
LC50	Rat	> 10000 ppm, 6 Hours
Oral		
LD50	Rat	5.84 g/kg
Propane (CAS 74-98-6)		
Acute		
Inhalation		
LC50	Mouse	1237 mg/l, 120 Minutes
		52 %, 120 Minutes
	Rat	1355 mg/l
		658 mg/l/4h
Sodium Carbonate Anhydrous (CAS 497-19-8)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Inhalation		
LC50	Guinea pig	800 mg/m3, 2 Hours
Aerosol		
LC50	Mouse	1200 mg/m3, 2 Hours
	Rat	2300 mg/m3, 2 Hours
LC50	Rat	2.3 mg/l, 2 hours supplier
Oral		
LD50	Rat	2800 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not likely, due to the form of the product.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Isopropyl Alcohol (CAS 67-63-0)			
Aquatic			
Algae	IC50	Algae	1000.0001 mg/L, 72 Hours
Crustacea	EC50	Daphnia	13299 mg/L, 48 Hours
Fish	LC50	Bluegill (Lepomis macrochirus)	> 1400 mg/l, 96 hours
Sodium Carbonate Anhydrous (CAS 497-19-8)			
Aquatic			
Crustacea	EC50	Daphnia	265 mg/L, 48 Hours
		Water flea (Ceriodaphnia dubia)	156.6 - 298.9 mg/l, 48 hours
Fish	LC50	Bluegill (Lepomis macrochirus)	300 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)	
Butane	2.89
Isopropyl Alcohol	0.05
Propane	2.36

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal Instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Contents under pressure. Do not puncture, incinerate or crush. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

14. Transport information

DOT

UN number UN1950

UN proper shipping name Aerosols, flammable, (each not exceeding 1 L capacity)

Transport hazard class(es)

Class 2.1

Subsidiary risk -

Label(s) 2.1

Packing group Not applicable.

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Special provisions N82

Packaging exceptions	306
Packaging non bulk	None
Packaging bulk	None

IATA

UN number	UN1950
UN proper shipping name	Aerosols, flammable
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1
Packing group	Not applicable.
Environmental hazards	No.
ERG Code	10L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.
Packaging Exceptions	LTD QTY

IMDG

UN number	UN1950
UN proper shipping name	AEROSOLS
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	None
Packing group	Not applicable.
Environmental hazards	
Marine pollutant	No.
EmS	F-D, S-U
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Packaging Exceptions	LTD QTY

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - Yes
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Butane (CAS 106-97-8)
Propane (CAS 74-98-6)

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Butane (CAS 106-97-8)
Isopropyl Alcohol (CAS 67-63-0)

US. Massachusetts RTK - Substance List

Butane (CAS 106-97-8)
Isopropyl Alcohol (CAS 67-63-0)
Propane (CAS 74-98-6)

US. New Jersey Worker and Community Right-to-Know Act

Butane (CAS 106-97-8)
Isopropyl Alcohol (CAS 67-63-0)
Propane (CAS 74-98-6)

US. Pennsylvania Worker and Community Right-to-Know Law

Butane (CAS 106-97-8)
Isopropyl Alcohol (CAS 67-63-0)
Propane (CAS 74-98-6)

US. Rhode Island RTK

Butane (CAS 106-97-8)
Isopropyl Alcohol (CAS 67-63-0)
Propane (CAS 74-98-6)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Formaldehyde (CAS 50-00-0) Listed: January 1, 1988

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 06-27-2016

Version # 01

Disclaimer The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Revision information Product and Company Identification: Product and Company Identification

Safety Data Sheet

Chemical Name: Propane

Synonyms: Dimethylmethane, Liquefied Petroleum Gas (LPG), Sales Propane, Commercial Propane, Refinery Propane, Product Propane (non-odorized)

Section 1 - Chemical Product and Company Identification

Company Information

Arizona Propane
17251 E Shea Blvd. Unit 1
Fountain Hills, AZ 85268

Product Information

Product: Propane (odorized)
Chemical Name: Propane
Chemical Family: Liquified Petroleum Gas (Paraffinic Hydrocarbons)
Chemical Formula: C_3H_8

Section 2 - Hazards Identification

GHS Classification:

Flammable Gas - Category 1
Gases Under Pressure - Liquefied Gas

GHS LABEL ELEMENTS

Pictogram(s)

Signal Word

Danger

Hazard Statements

H220 - Extremely flammable gas.
H280 - Contains gas under pressure, may explode if heated.

Precautionary Statements

Prevention

P210 - Keep away from heat/sparks/open flames/hot surfaces. No smoking

Response

P376 - Stop leak if safe to do so.
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.

Storage

P403 - Store in a well-ventilated place.
P405 - Store locked up.
P410 - Protect from sunlight.

Disposal

P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3 - Composition / Information on Ingredients

CAS #	Component	Percent
74-98-6	Propane	85 - 100
106-97-8	Butane and heavier	0 - 2.5
74-84-0	Ethane	0 - 5
115-07-1	Propylene	0 - 10
75-08-1	Ethyl Mercaptan	0 - 0.0025

Section 4 - First Aid Measures

First Aid: Eyes

Direct contact with liquid propane can result in eye burns.
In case of contact with eyes, hold eyelids open to allow liquid to evaporate and gently flush with lukewarm water. Cover eyes to protect from light. Seek immediate medical attention.

First Aid: Skin

Direct contact with liquid propane can result in skin burns (frostbite).
Remove contaminated clothing. In case of blistering, frostbite or freeze burns seek immediate medical attention.

First Aid: Ingestion

Risk of ingestion is extremely low. However, if oral exposure occurs, seek immediate medical assistance.

First Aid: Inhalation

This product is classified as a simple asphyxiant. High vapor concentrations may produce a reversible central nervous system depression (anesthesia) and asphyxiation.
Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

Section 5 - Fire Fighting Measures

General Fire Hazards

See Section 9 for Flammability Properties.
Liquid releases flammable vapors at well below ambient temperatures and readily forms a flammable mixture with air. Dangerous fire and explosion hazard when exposed to heat, sparks or flame. Vapors are heavier than air and may travel long distances to a point of ignition and flash back.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

Use extinguishing media suitable for the surrounding material, preferably or, any extinguisher suitable for Class B fires, dry chemical, fire fighting foam, CO_2, and other gaseous agents. However, fire should not be extinguished unless flow of gas can be immediately stopped.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Gas fires should not be extinguished unless flow of gas can be immediately stopped. Shut off gas source and allow gas to burn out. If spill or leak has not ignited, determine if water spray may assist in dispersing gas or vapor to protect personnel attempting to stop leak. Use water to cool equipment, surfaces and containers exposed to fire and excessive heat. For large fire the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Isolate area, particularly around ends of storage vessels. Let vessel, tank car or container burn unless leak can be stopped. Withdraw immediately in the event of a rising sound from a venting safety device. Large fires typically require specially trained personnel and equipment to isolate and extinguish the fire.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Section 6 - Accidental Release Measures

Recovery and Neutralization

Stop the source of the release, if safe to do so.

Materials and Methods for Clean-Up

Do not flush down sewer or drainage systems. Do not touch spilled liquid (frostbite/freeze burn hazard!). Consider the use of water spray to disperse vapors. Isolate the area until gas has dispersed. Ventilate and gas test area before entering.

Emergency Measures

Evacuate nonessential personnel and secure all ignition sources. No road flares, smoking or flames in hazard area. Consider wind direction, stay upwind and uphill, if possible. Evaluate the direction of product travel. Vapor cloud may be white, but color will dissipate as cloud disperses - fire and explosion hazard is still present!

Personal Precautions and Protective Equipment

Do not touch spilled liquid (frostbite/freeze burn hazard!).

Environmental Precautions

Do not flush down sewer or drainage systems.

Prevention of Secondary Hazards

None

Section 7 - Handling and Storage

Handling Procedures

Keep away from flame, sparks, ignition sources and excessive temperatures. Use only in well ventilated areas.

Storage Procedures

Store only in approved containers. Keep away from flame, sparks, excessive temperatures and open flame. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Incompatibilities

Keep away from strong oxidizers, ignition sources and heat. Explosion hazard when exposed to chlorine dioxide. Heating barium peroxide with propane causes violent exothermic reaction. Heated chlorine-propane mixtures are explosive under some conditions.

Section 8 - Exposure Controls / Personal Protection

Component Exposure Limits

Propane (74-98-6)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)
OSHA: 1000 ppm TWA; 1800 mg/m3 TWA
NIOSH: 1000 ppm TWA; 1800 mg/m3 TWA

Ethane (74-84-0)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)

Propylene (115-07-1)

ACGIH: 500 ppm TWA

Engineering Measures

Use adequate ventilation to keep gas and vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Use explosion-proof equipment and lighting in classified/controlled areas.

Personal Protective Equipment: Respiratory

Use a NIOSH approved positive-pressure, supplied air respirator with escape bottle or self-contained breathing apparatus (SCBA) for gas concentrations above occupational exposure limits, for potential for uncontrolled release, if exposure levels are not known, or in an oxygen-deficient atmosphere. CAUTION: Flammability limits (i.e., explosion hazard) should be considered when assessing the need to expose personnel to concentrations requiring respiratory protection.

Personal Protective Equipment: Hands

Use cold-impervious, insulating gloves where contact with liquid may occur.

Personal Protective Equipment: Eyes

Where there is a possibility of liquid contact, wear splash-proof safety glasses and faceshield.

Personal Protective Equipment: Skin and Body

Where contact with liquid may occur, wear appropriate cold insulating protective clothing and faceshield.

Section 9 - Physical & Chemical Properties

Appearance: Colorless
Physical State: Gas
Max Vapor Pressure: 208 psig @ 100 °F (37.8 °C)
Boiling Point: -43.8°F (-42.1°C)
Solubility (H2O): slight (0.1 to 1.0%)
Expansion Ratio: 1 to 270 (from liquid to gas @ 14.7 psia)
Evaporation Rate: ND
Octanol/H2O Coeff.: ND
Flash Point Method: PMCC
Upper Flammability Limit (UFL): 9.6%
Lower Flammability Limit (LFL): 2.15%

Odor: Odorless
pH: ND
Vapor Density: 1.56 @ 32°F (0°C)
Molecular Weight: 44.096
Specific Gravity: 1.52 (Air = 1)
Burning Rate: ND
VOC: ND
Flash Point: -156°F (-104 °C)
Auto Ignition: 842°F (450°C)

Section 10 - Chemical Stability & Reactivity Information

Chemical Stability

This is a stable material.

Hazardous Polymerization

Will not occur.

Conditions to Avoid

Keep away from strong oxidizers, ignition sources and heat.

Incompatible Products

Explosion hazard when exposed to chlorine dioxide. Heating barium peroxide with propane causes violent exothermic reaction. Heated chlorine-propane mixtures are explosive under some conditions.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke) may be formed during combustion.

Section 11 - Toxicological Information

Acute Toxicity

A: General Product Information

Propane exhibits some degree of anesthetic action and is mildly irritating to the mucous membranes. At high concentrations propane acts as a simple asphyxiant without other significant physiological effects. High concentrations may cause death due to oxygen depletion.

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Vapors are not irritating. Direct contact to skin or mucous membranes with liquefied product or cold vapor may cause freeze burns and frostbite. Contact to mucous membranes with liquefied product may cause frostbite and freeze burns. Signs of frostbite include a change in the color of the skin to gray or white, possibly followed by blistering. Skin may become inflamed and painful.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Vapors are not irritating. However, contact with liquid or cold vapor may cause frostbite, freeze burns, and permanent eye damage.

Potential Health Effects: Ingestion

Ingestion is unlikely. Contact with mucous membranes with liquefied product may cause frostbite and freeze burns.

Potential Health Effects: Inhalation

This product is considered to be non-toxic by inhalation. Inhalation of high concentrations may cause central nervous system depression such as dizziness, drowsiness, headache, and similar narcotic symptoms, but no long-term effects. Numbness, a "chilly" feeling, and vomiting have been reported from accidental exposures to high concentrations. This product is a simple asphyxiant. In high concentrations it will displace oxygen from the breathing atmosphere, particularly in confined spaces. Signs of asphyxiation will be noticed when oxygen is reduced to below 16%, and may occur in several stages. Symptoms may include rapid breathing and pulse rate, headache, dizziness, visual disturbances, mental confusion, incoordination, mood changes, muscular weakness, tremors, cyanosis, narcosis and numbness of the extremities. Unconsciousness leading to central nervous system injury and possibly death will occur when the atmospheric oxygen concentration is reduced to about 6% to 8% or less.

WARNING: The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This product is not reported to have any mutagenic effects.

Carcinogenicity

A: General Product Information

This product is not reported to have any carcinogenic effects.

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ repeat effects.

Aspiration Respiratory Organs Hazard

This product is not reported to have any aspiration hazard effects.

Section 12 - Ecological Information

Ecotoxicity

A: General Product Information

Liquid release is only expected to cause localized, non-persistent environmental damage, such as freezing. Biodegradation of this product may occur in soil and water. Volatilization is expected to be the most important removal process in soil and water. This product is expected to exist entirely in the vapor phase in ambient air.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data is available for this product's components.

Persistence/Degradability

No information available.

Bioaccumulation

No information available.

Mobility in Soil

No information available.

Section 13 - Disposal Considerations

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14 - Transportation Information

DOT Information

UN #: 1075 or 1978 Hazard Class: 2.1

Shipping Name: Petroleum Gases, Liquefied

Placard:

Section 15 - Regulatory Information

Regulatory Information

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Propylene (115-07-1)

SARA 313: 1.0 % de minimis concentration

SARA Section 311/312 – Hazard Classes

Acute Health	Chronic Health	Fire	Sudden Release of Pressure	Reactive
--	–	X	X	–

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION PERCENT BY VOLUME
Propylene (115-07-1)	30 max

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Propane	74-98-6	No	Yes	Yes	Yes	Yes	Yes
Ethane	74-84-0	No	Yes	Yes	Yes	Yes	Yes
Propylene	115-07-1	Yes	Yes	Yes	Yes	Yes	Yes

Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

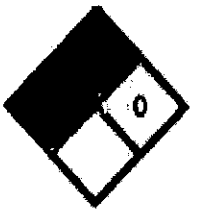
Additional Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EU
Propane	74-98-6	Yes	DSL	EINECS
Ethane	74-84-0	Yes	DSL	EINECS
Propylene	115-07-1	Yes	DSL	EINECS

*** Section 16 - Other Information ***

NFPA® Hazard Rating	Health	2	
	Fire	4	
	Reactivity	0	



HMIS® Hazard Rating	Health	2	Moderate
	Fire	4	Severe
	Physical	0	Minimal

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry; TSCA = Toxic Substance Control Act; EU = European Union; CAN = Canada

Literature References

None

Other Information

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

Issue Information

This Safety Data Sheet supersedes all previous editions.

Issued: January 2015

Issued by:

Arizona Propane
17251 E Shea Blvd. Unit 1
Fountain Hills, AZ 85268

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Name of the substance	Diesel Fuels and Gas Oils - All Grades (Refer to Synonyms for Product Name)
Identification number	649-224-00-6 (Index number)
Registration number	01-2119484664-27-0052
Synonyms	Ultra Low Sulfur Diesel, FAME Free * Ultra Low Sulfur Diesel, up to 7% FAME * Ultra Low Sulphur Gas Oil , Unmarked - FAME Free * High Sulfur Diesel * GTL Diesel * Unfinished Diesel
SDS number	2004
Issue date	29-July-2011
Version number	06
Revision date	09-May-2014
Supersedes date	09-September-2013

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Distribution of a substance. Formulation & (re) packaging of substances and mixtures. Manufacture of substance. Use as a Fuel. Use as an intermediate.
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet

Supplier

Company name	Valero Energy Ltd
Address	1 Westferry Circus Canary Wharf London E14 4HA UK
Telephone	01/210 345 4593 (General information; US)
e-mail	CorpHSE@valero.com
Contact person	Industrial Hygienist

1.4. Emergency telephone number 0044/(0)18 65 407333

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The substance has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

Classification Carc. Cat. 3;R40, Xn;R20-65, Xi;R38, N;R51/53

The full text for all R-phrases is displayed in section 16.

Classification according to Regulation (EC) No 1272/2008 as amended

Physical hazards		
Flammable liquids	Category 3	H226 - Flammable liquid and vapour.
Health hazards		
Acute toxicity, inhalation	Category 4	H332 - Harmful if inhaled.
Skin corrosion/irritation	Category 2	H315 - Causes skin irritation.
Carcinogenicity	Category 2	H351 - Suspected of causing cancer.
Specific target organ toxicity - repeated exposure	Category 2	H373 - May cause damage to organs () through prolonged or repeated exposure.
Aspiration hazard	Category 1	H304 - May be fatal if swallowed and enters airways.
Environmental hazards		
Hazardous to the aquatic environment, long-term aquatic hazard	Category 2	H411 - Toxic to aquatic life with long lasting effects.

Hazard summary

Physical hazards	Not classified for physical hazards.
Health hazards	Harmful by inhalation. Irritating to skin. Limited evidence of a carcinogenic effect. Harmful: may cause lung damage if swallowed.
Environmental hazards	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Specific hazards	Breathing of high vapour concentrations may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness. Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema/chapping and oil acne. Components of the product may be absorbed into the body through the skin. Prolonged and repeated contact with the product may cause skin cancer.
Main symptoms	Irritation of eyes and mucous membranes. Skin irritation. Defatting of the skin. Dermatitis. Ingestion may cause irritation and malaise.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains:	Fuels, diesel
Identification number	649-224-00-6
Hazard pictograms	
Signal word	Danger
Hazard statements	H373 - May cause damage to organs () through prolonged or repeated exposure. H411 - Toxic to aquatic life with long lasting effects. H332 - Harmful if inhaled. H304 - May be fatal if swallowed and enters airways. H351 - Suspected of causing cancer. H226 - Flammable liquid and vapour. H315 - Causes skin irritation.

Precautionary statements

Prevention	P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P280 - Wear protective gloves/protective clothing/eye protection/face protection. P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
Response	P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician. P331 - Do NOT induce vomiting.
Storage	P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
Disposal	P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.
Supplemental label information	None known.
2.3. Other hazards	Static accumulator - Static accumulating flammable materials can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite material and vapor may cause flash fire (or explosion). Not a PBT or vPvB substance or mixture.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Fuels, diesel	100	68334-30-5 269-822-7	01-2119484664-27-0052	649-224-00-6	
Classification:	**DSD:**	Carc. Cat. 3;R40, Xn;R20-65, Xi;R38, N;R51/53			N
	CLP:	Flam. Liq. 3;H226, Asp. Tox. 1;H304, Skin Irrit. 2;H315, Acute Tox. 4;H332, Carc. 2;H351, STOT RE 2;H373, Aquatic Chronic 2;H411			N

SECTION 4: First aid measures

General information Get medical attention if any discomfort develops.

4.1. Description of first aid measures

Inhalation

Move to fresh air. If breathing is difficult, give oxygen. Get medical attention if discomfort develops or persists.

If there is any suspicion of inhalation of H2S:
Rescuers must wear breathing apparatus, belt and safety rope, and follow rescue procedures.
Remove casualty to fresh air as quickly as possible.
Immediately begin artificial respiration if breathing has ceased.
Provision of oxygen may help.
Obtain medical advice for further treatment.

Skin contact

Remove contaminated clothing. Wash with soap and water. In case of rashes, wounds or other skin disorders: Seek medical attention and bring along these instructions.

Eye contact

Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids wide apart. Get medical attention if irritation develops or persists.

Ingestion

Immediately rinse mouth and drink plenty of water or milk. Keep person under observation. Do not induce vomiting. If vomiting occurs, keep head low. Transport immediately to hospital and take these instructions. Immediately rinse mouth and drink plenty of water or milk. Keep person under observation. Do not induce vomiting. If vomiting occurs, keep head low. Seek immediate medical attention or advice.

4.2. Most important symptoms and effects, both acute and delayed

Irritation of eyes and mucous membranes. Skin irritation. Defats the skin. Dermatitis. Ingestion may cause irritation and malaise. May cause damage to organs () through prolonged or repeated exposure. May cause damage to organs through prolonged or repeated exposure.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically. The effects might be delayed.

SECTION 5: Firefighting measures

General fire hazards

The product is combustible, and heating may generate vapours which may form explosive vapour/air mixtures. Material will float and can be re-ignited on surface of water.

5.1. Extinguishing media

Suitable extinguishing media

Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition may produce smoke, oxides of carbon and lower molecular weight organic compounds whose composition have not been characterised. Sulfur Oxides (SOx). Nitrogen Oxides (NOx).

5.3. Advice for firefighters

Special protective equipment for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special fire fighting procedures

Move containers from fire area if you can do it without risk. Use water spray to cool unopened containers. Cool containers with flooding quantities of water until well after fire is out.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Keep upwind. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). In case of spills, beware of slippery floors and surfaces.

For emergency responders

Keep unnecessary personnel away. Wear protective clothing as described in Section 8 of this safety data sheet.

6.2. Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Extremely flammable. Review Fire and Explosion Hazard Data before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g., by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies.

6.3. Methods and material for containment and cleaning up

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Use non-sparking tools and explosion-proof equipment. Stop leak if you can do so without risk. This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas.

Small Spills: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. This material and its container must be disposed of as hazardous waste.

Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent product from entering drains. Do not allow material to contaminate ground water system. Should not be released into the environment. Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labelled container.

6.4. Reference to other sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Before entering storage tanks and commencing any operation in a confined area check the atmosphere for oxygen content and flammability. (Subject to applicability) If sulfur compounds are suspected to be present in the product, check the atmosphere for H2S content. Access to work area should be restricted to people handling the product only. Aerosol producing work should be handled in closed systems, if possible. Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity . Avoid inhalation of vapours. Avoid contact with eyes, skin, and clothing. Wear personal protective equipment. Immediately change contaminated clothes. When using, do not eat, drink or smoke. Be aware of potential for surfaces to become slippery. Avoid release to the environment. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities

Store in a cool, dry place with adequate ventilation. Keep away from incompatible materials, open flames and high temperatures. Keep away from food, drink and animal feeding stuffs.

7.3. Specific end use(s)

Distribution of a substance. Formulation & (re) packaging of substances and mixtures. Manufacture of substance. Use as a Fuel.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Belgium. Exposure Limit Values.

Material	Type	Value	Form
Fuels, diesel (CAS 68334-30-5)	TWA	100 mg/m3	Vapor and aerosol.

Ireland. Occupational Exposure Limits

Material	Type	Value
Fuels, diesel (CAS 68334-30-5)	TWA	100 mg/m3

Italy. OELs

Material	Type	Value	Form
Fuels, diesel (CAS 68334-30-5)	TWA	100 mg/m3	Inhalable fraction and vapor.

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

Material	Type	Value	Form
Fuels, diesel (CAS 68334-30-5)	TWA	100 mg/m3	Vapor and aerosol.

Biological limit values

No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures

Follow standard monitoring procedures.

Derived no-effect level (DNEL)

Material	Type	Route	Value	Form
Fuels, diesel (CAS 68334-30-5)	Workers	Dermal	2,9 mg/kg/8h	Long term exposure systemic effects
		Inhalation	4300 mg/m³/15min	Aerosol, Acute exposure systemic effects

Material	Type	Route	Value	Form
		Inhalation	68 mg/m³/8h	Aerosol, Long term exposure systemic effects

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

Appropriate engineering controls Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

Individual protection measures, such as personal protective equipment

General information Use personal protective equipment as required. Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. Keep working clothes separately. Launder contaminated clothing before reuse.

Eye/face protection Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

Skin protection

- Hand protection Wear chemical-resistant, impervious gloves. Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Viton, Polyurethane, Nitrile rubber. Suitable gloves can be recommended by the glove supplier. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

- Other Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended.

Respiratory protection In case of inadequate ventilation or risk of inhalation of vapours, use suitable respiratory equipment with gas filter (type A2). Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

Thermal hazards When material is heated, wear gloves to protect against thermal burns.

Hygiene measures When using, do not eat, drink or smoke. Wash hands after handling. Launder contaminated clothing before reuse. Private clothes and working clothes should be kept separately. Handle in accordance with good industrial hygiene and safety practices. Follow up on any medical surveillance requirements.

Environmental exposure controls Contain spills and prevent releases and observe national regulations on emissions.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance Brown liquid.

Physical state Liquid.

Form Liquid.

Colour Brown.

Odour Petroleum.

Odour threshold Not available.

pH Not applicable.

Melting point/freezing point Not applicable.

Initial boiling point and boiling range 160 - 400 °C (320 - 752 °F)

Flash point > 62,0 °C (> 143,0 °F) Pensky-Martens Closed Cup

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Vapour pressure 0,4 kPa (40°C)

Vapour density Not applicable.

Relative density 0,8 - 0,91 g/cm3

Solubility(ies) Insoluble in water.

Partition coefficient (n-octanol/water) Not available.

Auto-ignition temperature >= 225 °C (>= 437 °F)

Decomposition temperature	Not available.
Viscosity	>= 1,5 mm²/s (50°C)
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

9.2. Other information

Density	0,80 - 0,91 g/cm³

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is stable and non reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Stable under normal temperature conditions and recommended use.
10.3. Possibility of hazardous reactions	Hazardous polymerisation does not occur.
10.4. Conditions to avoid	Heat, flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.
10.5. Incompatible materials	Strong acids. Strong oxidizers such as nitrates, chlorates, peroxides.
10.6. Hazardous decomposition products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

SECTION 11: Toxicological information

General information	Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Ingestion	Ingestion may cause irritation and malaise.
Inhalation	Harmful if inhaled. Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of co-ordination. Continued inhalation may result in unconsciousness.
Skin contact	Repeated exposure may cause skin dryness or cracking. May be absorbed through the skin.
Eye contact	May cause eye irritation on direct contact.
Symptoms	Irritation of eyes and mucous membranes. Skin irritation. Defatting of the skin. Dermatitis. Ingestion may cause irritation and malaise. May cause damage to organs through prolonged or repeated exposure.

11.1. Information on toxicological effects

Acute toxicity	Harmful if inhaled. Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of co-ordination. Continued inhalation may result in unconsciousness. May irritate and cause stomach pain, vomiting, diarrhoea and nausea. Hydrogen sulphide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulphide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odour does not provide a reliable indicator of the presence of hazardous levels in the atmosphere.

Product	Species	Test results
Fuels, diesel (CAS 68334-30-5)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg
Inhalation		
LC50	Rat	> 4,1 mg/l
Oral		
LD50	Rat	> 2000 mg/kg

Skin corrosion/irritation	Causes mild skin irritation. Repeated exposure may cause skin dryness or cracking. Pre-existing skin conditions including dermatitis might be aggravated by exposure to this product.
Serious eye damage/eye irritation	May cause eye irritation on direct contact.
Respiratory sensitisation	Due to lack of data the classification is not possible.
Skin sensitisation	Based on available data, the classification criteria are not met.
Germ cell mutagenicity	Test data conclusive but not sufficient for classification.
Carcinogenicity	May cause cancer.
Reproductive toxicity	Suspected of damaging the unborn child.
Specific target organ toxicity - single exposure	Test data conclusive but not sufficient for classification.

Specific target organ toxicity - repeated exposure	May cause damage to organs through prolonged or repeated exposure: Liver. Thymus. Bone marrow.
Aspiration hazard	May be fatal if swallowed and enters airways.
Mixture versus substance information	Not available.
Other information	Components of the product may be absorbed into the body through the skin.

SECTION 12: Ecological information

12.1. Toxicity	Oil spills are generally hazardous to the environment.
12.2. Persistence and degradability	The degradability of the product has not been stated.
12.3. Bioaccumulative potential	No data available on bioaccumulation.
Partition coefficient n-octanol/water (log Kow)	Not available.
Bioconcentration factor (BCF)	Not available.
12.4. Mobility in soil	Not available.
Mobility in general	The product is insoluble in water. It will spread on the water surface while some of the components will eventually sediment in water systems. The volatile components of the product will spread in the atmosphere.
12.5. Results of PBT and vPvB assessment	Not a PBT or vPvB substance or mixture.
12.6. Other adverse effects	Very toxic to aquatic life with long lasting effects. Oil spills are generally hazardous to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of in accordance with local regulations.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied.
EU waste code	13 07 01* The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste. Do not discharge into drains, water courses or onto the ground.

SECTION 14: Transport information

ADR

14.1. UN number	UN1202
14.2. UN proper shipping name	DIESEL FUEL
14.3. Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Hazard No. (ADR)	30
Tunnel restriction code	D/E
14.4. Packing group	III
14.5. Environmental hazards	Yes
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number	UN1202
14.2. UN proper shipping name	DIESEL FUEL
14.3. Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
14.4. Packing group	III
14.5. Environmental hazards	Yes
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number	UN1202
14.2. UN proper shipping name	DIESEL FUEL
14.3. Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
14.4. Packing group	III
14.5. Environmental hazards	Yes
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IATA

14.1. UN number	UN1202
14.2. UN proper shipping name	DIESEL FUEL
14.3. Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
14.4. Packing group	III
14.5. Environmental hazards	Yes
ERG Code	3L
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

14.1. UN number	UN1202
14.2. UN proper shipping name	DIESEL FUEL
14.3. Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
14.4. Packing group	III
14.5. Environmental hazards	
Marine pollutant	Yes
EmS	F-E, S-E
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable. However, this product is a liquid and if transported in bulk covered under MARPOL 73/78, Annex I.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I

Not listed.

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex II

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(1) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorisation, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Fuels, diesel (CAS 68334-30-5)

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work

Not listed.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding

Fuels, diesel (CAS 68334-30-5)

Other EU regulations

Directive 96/82/EC (Seveso II) on the control of major-accident hazards involving dangerous substances

Not listed.

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Fuels, diesel (CAS 68334-30-5)

Directive 94/33/EC on the protection of young people at work

Fuels, diesel (CAS 68334-30-5)

Other regulations	The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended and respective national laws implementing EC directives. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006. 96/82/EC (Seveso II) Directive; Part 2 (Classified Substances) - Flammable
National regulations	Young people under 18 years old are not allowed to work with this product according to the EU Directive 94/33/EC on the protection of young people at work.
15.2. Chemical safety assessment	For this substance a chemical safety assessment has been carried out.

SECTION 16: Other information

List of abbreviations	DSD: Directive 67/548/EEC. CLP: Regulation No. 1272/2008. DNEL: Derived No-Effect Level. PNEC: Predicted No-Effect Concentration. PBT: Persistent, bioaccumulative and toxic. vPvB: Very Persistent and very Bioaccumulative.
References	CONCAWE Chemical safety report.
Information on evaluation method leading to the classification of mixture	The mixture is classified based on test data for physical hazards. The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available. For details, refer to Sections 9, 11 and 12.
Full text of any statements or R-phrases and H-statements under Sections 2 to 15	R20 Harmful by inhalation. R38 Irritating to skin. R40 Limited evidence of a carcinogenic effect. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R65 Harmful: may cause lung damage if swallowed. H226 Flammable liquid and vapour. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H332 Harmful if inhaled. H351 Suspected of causing cancer. H373 May cause damage to organs (<@1>) through prolonged or repeated exposure. H411 Toxic to aquatic life with long lasting effects.
This SDS contains revisions in the following section(s):	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16.
Training information	Follow training instructions when handling this material.

Disclaimer

This material Safety Data Sheet (SDS) was prepared in accordance with EC No 1272/2008 by Valero Energy Ltd. Valero Energy Ltd. does not assume any liability arising out of product use by others. The information, recommendations, and suggestions presented in this SDS are based upon test results and data believed to be reliable. The end user of the product has the responsibility for evaluating the adequacy of the data under the conditions of use, determining the safety, toxicity and suitability of the product under these conditions, and obtaining additional or clarifying information where uncertainty exists. No guarantee expressed or implied is made as to the effects of such use, the results to be obtained, or the safety and toxicity of the product in any specific application. Furthermore, the information herein is not represented as absolutely complete, since it is not practicable to provide all the scientific and study information in the format of this document, plus additional information may be necessary under exceptional conditions of use, or because of applicable laws or government regulations.

Annex to the extended Safety Data Sheet (eSDS)

1 - Exposure Scenario Worker

1. Distribution of substance

List of use descriptors

Sector(s) of Use	SU3: Industrial uses
Product categories [PC]:	Not available.
Name of contributing environmental scenario and corresponding ERC	ERC1: Manufacture of substances. ERC2: Formulation of preparations. ERC3: Formulation in materials. ERC4: Industrial use of processing aids in processes and products, not becoming part of articles. ERC5: Industrial use resulting in inclusion into or onto a matrix. ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates). ERC6b: Industrial use of reactive processing aids. ERC6c: Industrial use of monomers for manufacture of thermoplastics. ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers. ERC7: Industrial use of substances in closed systems. Specific Environmental Release Category: ESVOC SpERC 1.1b.v1
List of names of contributing worker scenarios and corresponding PROCs	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises. PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC15: Use as laboratory reagent.
Further explanations	
Other Process or activity	Bulk loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, maintenance and associated laboratory activities.

2.1. Contributing scenario controlling environmental exposure for Manufacture of substances.

Product characteristics

Concentration of the substance in a mixture	Covers percentage substance in the product up to 100 % (unless stated differently). Substance is complex UVCB. Predominantly hydrophobic.
Physical state	Liquid With potential aerosol generation
Viscosity	
Kinematic viscosity	1,6 mm²/s 40 °C
Dynamic viscosity	Not available.

Amounts used

Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tons/year):	2,8 e7
Fraction of Regional tonnage used locally:	0,002
Annual site tonnage (tons/year):	5,6 e4
Maximum daily site tonnage (kg/day):	1,9 e5

Frequency and duration of use

Batch process	Not available.
Continuous process	Emission days (days/year): 300

Environment factors not influenced by risk management

Local freshwater dilution factor:	10
Local marine water dilution factor:	100

Other given operational conditions affecting environmental exposure

Type	Emission days (days/year)	Emission factors Air	Soil	Water	Remarks
initial release prior to RMM	300	0,001	0,00001	0,000001	

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	Treat air emission to provide a typical removal efficiency of (%): 90
Soil	Not available.
Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): 0. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): 0
Sediment	Not available.
Remarks	Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion). Prevent discharge of undissolved substance to or recover from onsite wastewater. No wastewater treatment required.
Organisational measures to prevent/limit release from site	Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/treatment plant (m3/d)

Type	Municipal STP
Discharge rate	2000
Treatment effectiveness	94,1
Sludge treatment technique	Not available.
Measures to limit air emissions	Not available.
Remarks	Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 2,9e6
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94,1

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment

Suitable waste treatment	Not available.
Disposal methods	Not available.
Treatment effectiveness	Not available.
Remarks	External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Fraction of used amount transferred to external waste treatment

Suitable recover operations	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Treatment effectiveness	Not available.
Remarks	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Additional good practice advice beyond the REACH CSA	Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in the PETRORISK file.

2.2. Contributing exposure scenario controlling worker exposure for Use in batch and other process (synthesis) where opportunity for exposure arises.

Process categories beyond the REACH CSA

Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
Transfer of substance or preparation into small containers (dedicated filling line, including weighing).
Use as laboratory reagent.

Further explanations

Other process or activity

Bulk loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, maintenance and associated laboratory activities.

Product characteristics

Concentration of the substance in a mixture

Covers percentage substance in the product up to 100 % (unless stated differently).

Physical form of the product

Liquid With potential aerosol generation

Vapour pressure

Liquid, vapour pressure <0,5 kPa at STP.

Process temperature

Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Amounts used

Not available.

Frequency and duration of use

	Duration	Frequency of use	Remarks
Covers daily exposures up to 8 hours (unless stated differently).	8		Assumes a good basic standard of occupational hygiene is implemented.

Human factors not influenced by risk management

Exposed skin areas

Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size	Temperature	Ventilation rate	Remarks

Other relevant operational conditions

Not available.

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

General exposures (closed systems);
Handle substance within a closed system.

Bulk closed loading and unloading;
Handle substance within a closed system.

Equipment cleaning and maintenance;
Drain down system prior to equipment break-in or maintenance.

Storage;
Handle substance within a closed system.

Technical conditions and measures to control dispersion from source towards the worker

Handle substance within a closed system..

Organizational measures to prevent/limit releases, dispersion and exposure	General measures applicable to all activities; Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a stood standard of ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions. General measures (skin irritants); Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. wash off any skin contamination immediately. provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
Conditions and measures related to personal protection, hygiene and health evaluations	General exposures (open systems); Wear suitable gloves tested to EN374. Bulk closed loading and unloading; Wear suitable gloves tested to EN374. Bulk open loading and unloading; Wear suitable gloves tested to EN374. Drum and small package filling; Wear suitable gloves tested to EN374. Equipment cleaning and maintenance; Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure Estimation

Environment

See PETRORISK file in IUCLID Section 13 - "LocalCSR" worksheet.

Health

	Exposure level	RCR	Method	Remarks
General exposures (closed systems)	0,01 mg/m³	0	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.120	**	Dermal Exposure
		0.120	**	All routes
General exposures (closed system) + With sample collection	1 mg/m³	0.010	**	Inhalation Exposure
	1,37 mg/kg bw/day	0.47	**	Dermal Exposure
		0.49	**	All routes
General exposures (closed system) + Batch process + With sample collection	3 mg/m³	0.040	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.120	**	Dermal Exposure
		0.160	**	All routes
General exposures open batch process	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Sample collection	3 mg/m³	0.040	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.120	**	Dermal Exposure
		0.160	**	All routes
Laboratory activities	5 mg/m³	0.070	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.020	**	Dermal Exposure
		0.190	**	All routes
Bulk transfers (closed systems) e.g bottom loading	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure

		0.550	**	All routes
Bulk transfers (open systems)	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Bulk closed loading and unloading	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Bulk open loading and unloading	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Drum and small package filling	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Equipment cleaning and maintenance	2 mg/m³	0.030	**	Inhalation Exposure
	13,71 mg/kg bw/day	0.47	**	Dermal Exposure
		0.050	**	All routes
Bulk Storage	1 mg/m³	0.010	**	Inhalation Exposure
	1,37 mg/kg bw/day	0.47	**	Dermal Exposure
		0.49	**	All routes

** - The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.

2 - Exposure Scenario Worker

1. Formulation & (re)packing of substances and mixtures

List of use descriptors

Sector(s) of Use	SU3: Industrial uses SU10: Formulation [mixing] of preparations and/or re-packaging
Product categories [PC]:	Not available.
Name of contributing environmental scenario and corresponding ERC	ERC2: Formulation of preparations. Specific Environmental Release Category: ESVOC SpERC 2.2.v1
List of names of contributing worker scenarios and corresponding PROCs	PROC1: Use in closed process, no likelihood of exposure. PROC2: Use in closed, continuous process with occasional controlled exposure. PROC3: Use in closed batch process (synthesis or formulation). PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises. PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation . PROC15: Use as laboratory reagent.
Further explanations	
Other Process or activity	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

2.1. Contributing scenario controlling environmental exposure for Formulation of preparations.

Product characteristics

Concentration of the substance in a mixture	Covers percentage substance in the product up to 100 % (unless stated differently). Substance is complex UVCB. Predominantly hydrophobic.
Physical state	Liquid With potential aerosol generation
Viscosity	
Kinematic viscosity	1,6 mm²/s 40 °C
Dynamic viscosity	Not available.

Amounts used

Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tons/year):	2,8 e7
Fraction of Regional tonnage used locally:	0,0011
Annual site tonnage (tons/year):	3 e4
Maximum daily site tonnage (kg/day):	1 e5

Frequency and duration of use

Batch process	Not available.
Continuous process	Emission days (days/year): 300

Environment factors not influenced by risk management

Local freshwater dilution factor:	10
Local marine water dilution factor:	100

Other given operational conditions affecting environmental exposure

	Emission days	Emission factors			
Type	**(days/year)**	**Air**	**Soil**	**Water**	**Remarks**
initial release prior to RMM	300	0,01	0,0001	0,00002	

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	Treat air emission to provide a typical removal efficiency of (%): 0
Soil	Not available.
Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): 59,9. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): 0
Sediment	Not available.
Remarks	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

Organisational measures to prevent/limit release from site	Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/treatment plant (m3/d)

Type	Municipal STP
Discharge rate	2000
Treatment effectiveness	94,1
Sludge treatment technique	Not available.
Measures to limit air emissions	Not available.
Remarks	Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 6,8e5
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94,1

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment

Suitable waste treatment	Not available.
Disposal methods	Not available.
Treatment effectiveness	Not available.
Remarks	External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste

Fraction of used amount transferred to external waste treatment

Suitable recover operations	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Treatment effectiveness	Not available.
Remarks	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Additional good practice advice beyond the REACH CSA	Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in the PETRORISK file.

2.2. Contributing exposure scenario controlling worker exposure for Use in closed process, no likelihood of exposure.

Process categories beyond the REACH CSA	Use in closed, continuous process with occasional controlled exposure. Use in closed batch process (synthesis or formulation). Use in batch and other process (synthesis) where opportunity for exposure arises. Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Use as laboratory reagent.

Product characteristics

Concentration of the substance in a mixture	Covers percentage substance in the product up to 100 % (unless stated differently).
Physical form of the product	Liquid With potential aerosol generation
Vapour pressure	Liquid, vapour pressure <0,5 kPa at STP.
Process temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Amounts used

Not available.

Frequency and duration of use

	Duration	Frequency of use	Remarks
Covers daily exposures up to 8 hours (unless stated differently).	8		Assumes a good basic standard of occupational hygiene is implemented.

Human factors not influenced by risk management

Exposed skin areas	Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size	Temperature	Ventilation rate	Remarks

Other relevant operational conditions

Not available.

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release	General exposures (closed systems); Handle substance within a closed system. Bulk transfers; Handle substance within a closed system. Equipment cleaning and maintenance; Drain down system prior to equipment break-in or maintenance. Storage; Store substance within a closed system.
Technical conditions and measures to control dispersion from source towards the worker	Batch processes at elevated temperatures; Provide extract ventilation to points where emissions occur. Drum/batch transfers; Use drum pumps or carefully pour from container. Mixing operations (closed systems); Provide extract ventilation to points where emissions occur.
Organizational measures to prevent/limit releases, dispersion and exposure	General measures applicable to all activities; Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a stood standard of ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions. General measures (skin irritants); Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. wash off any skin contamination immediately. provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Conditions and measures related to personal protection, hygiene and health evaluations	General exposures (open systems); Wear suitable gloves tested to EN374. Drum/batch transfers; Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Bulk transfers; Wear suitable gloves tested to EN374. Mixing operations (open systems); Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Production of preparations or articles by tabletting, compression, extrusion, pelletisation; Wear suitable gloves tested to EN374. Drum and small package filling; Wear suitable gloves tested to EN374. Equipment cleaning and maintenance; Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure Estimation

Environment

See PETRORISK file in IUCLID Section 13 - "LocalCSR" worksheet.

Health

	Exposure level	RCR	Method	Remarks
General exposures (closed systems)	0,01 mg/m³	0	**	Inhalation Exposure
	0,03 mg/kg bw/day	0.010	**	Dermal Exposure
		0.010	**	All routes
General exposures (closed system) + Process sampling	1 mg/m³	0.010	**	Inhalation Exposure
	1,37 mg/kg bw/day	0.47	**	Dermal Exposure
		0.49	**	All routes
General exposures (closed systems)	3 mg/m³	0.040	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.120	**	Dermal Exposure
		0.160	**	All routes
General exposures open batch process	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Batch processes at elevated temperatures	0,1 mg/m³	0	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.120	**	Dermal Exposure
		0.120	**	All routes
Sample collection	3 mg/m³	0.040	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.120	**	Dermal Exposure
		0.160	**	All routes
Laboratory activities	5 mg/m³	0.070	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.120	**	Dermal Exposure
		0.190	**	All routes
Bulk transfers	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Mixing operations (open systems)	5 mg/m³	0.070	**	Inhalation Exposure
	13,71 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Mixing operations (open systems)	2,5 mg/m³	0.36	**	Inhalation Exposure
	0,07 mg/kg bw/day	0.020	**	Dermal Exposure

		0.38	**	All routes
Transfer from/pouring from containers, Manual	2 mg/m³	0.030	**	Inhalation Exposure
	13,71 mg/kg bw/day	0.47	**	Dermal Exposure
		0.500	**	All routes
Drum/batch transfers	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Transfer from/pouring from containers	5 mg/m³	0.070	**	Inhalation Exposure
	3,43 mg/kg bw/day	0.24	**	Dermal Exposure
		0.310	**	All routes
Production of preparations or articles by tabletting, compression, extrusion, pelletisation	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Equipment cleaning and maintenance	2 mg/m³	0.030	**	Inhalation Exposure
	13,71 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Bulk Storage	1 mg/m³	0.010	**	Inhalation Exposure
	1,37 mg/kg bw/day	0.47	**	Dermal Exposure
		0.49	**	All routes

** - The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.

3 - Exposure Scenario Worker

1. Manufacture of substance

List of use descriptors

Sector(s) of Use	SU3: Industrial uses SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals
Product categories [PC]:	Not available.
Name of contributing environmental scenario and corresponding ERC	ERC1: Manufacture of substances. Specific Environmental Release Category: ESVOC SpERC 1.1.v1
List of names of contributing worker scenarios and corresponding PROCs	PROC1: Use in closed process, no likelihood of exposure. PROC2: Use in closed, continuous process with occasional controlled exposure. PROC3: Use in closed batch process (synthesis or formulation). PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises. PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC15: Use as laboratory reagent.
Further explanations	
Other Process or activity	Manufacture of substance or use as process chemical or extracting agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.

2.1. Contributing scenario controlling environmental exposure for Manufacture of substances.

Product characteristics

Concentration of the substance in a mixture	Covers percentage substance in the product up to 100 % (unless stated differently). Substance is complex UVCB. Predominantly hydrophobic.
Physical state	Liquid With potential aerosol generation
Viscosity	
Kinematic viscosity	Not available.
Dynamic viscosity	Not available.

Amounts used

Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tons/year):	2,8 e7
Fraction of Regional tonnage used locally:	0,021
Annual site tonnage (tons/year):	6 e5
Maximum daily site tonnage (kg/day):	2 e6

Frequency and duration of use

Batch process	Not available.
Continuous process	Emission days (days/year): 300

Environment factors not influenced by risk management

Local freshwater dilution factor:	10
Local marine water dilution factor:	100

Other given operational conditions affecting environmental exposure

	Emission days	Emission factors			
Type	**(days/year)**	**Air**	**Soil**	**Water**	**Remarks**
initial release prior to RMM	300	0,01	0,0001	0,00003	

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	Treat air emission to provide a typical removal efficiency of (%): 90
Soil	Not available.
Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): 90,3. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): 0
Sediment	Not available.
Remarks	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
Organisational measures to prevent/limit release from site	Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/treatment plant (m3/d)

Type	Municipal STP
Discharge rate	10000
Treatment effectiveness	94,1
Sludge treatment technique	Not available.
Measures to limit air emissions	Not available.
Remarks	Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 3,3e6
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94,1

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment

Suitable waste treatment	Not available.
Disposal methods	Not available.
Treatment effectiveness	Not available.
Remarks	During manufacturing no waste of the substance is generated to treat.

Conditions and measures related to external recovery of waste

Fraction of used amount transferred to external waste treatment

Suitable recover operations	Not available.
Treatment effectiveness	Not available.
Remarks	During manufacturing no waste of the substance is generated to recover.
Additional good practice advice beyond the REACH CSA	Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in the PETRORISK file.

2.2. Contributing exposure scenario controlling worker exposure for Use in closed process, no likelihood of exposure.

Process categories beyond the REACH CSA	Use in closed, continuous process with occasional controlled exposure. Use in closed batch process (synthesis or formulation). Use in batch and other process (synthesis) where opportunity for exposure arises. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Use as laboratory reagent.

Product characteristics

Concentration of the substance in a mixture	Covers percentage substance in the product up to 100 % (unless stated differently).
Physical form of the product	Liquid With potential aerosol generation
Vapour pressure	Liquid, vapour pressure <0,5 kPa at STP.
Process temperature	Operation is carried out at elevated temperature (> 20°C above ambient temperature).

Amounts used

Not available.

Frequency and duration of use

	Duration	Frequency of use	Remarks
Covers daily exposures up to 8 hours (unless stated differently).	8		Assumes a good basic standard of occupational hygiene is implemented.

Human factors not influenced by risk management

Exposed skin areas

Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size	Temperature	Ventilation rate	Remarks

Other relevant operational conditions

Not available.

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

General exposures (closed systems);
Handle substance within a closed system.

Bulk closed loading and unloading;
Handle substance within a closed system.

Equipment cleaning and maintenance;
Drain down system prior to equipment break-in or maintenance.

Bulk product storage;
Store substance within a closed system.

Technical conditions and measures to control dispersion from source towards the worker

Not available.

Organizational measures to prevent/limit releases, dispersion and exposure

General measures applicable to all activities;
Control any potential exposure using measures such as contained systems, properly designed and maintained facilities and a stood standard of ventilation. Drain down systems and transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of exposure potential and aware of basic actions to minimise exposures; ensure suitable personal protective equipment is available; clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; provide regular health surveillance as appropriate; identify and implement corrective actions.

General measures (skin irritants);
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. wash off any skin contamination immediately. provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Conditions and measures related to personal protection, hygiene and health evaluations

General exposures (open systems);
Wear suitable gloves tested to EN374.

Bulk closed loading and unloading;
Wear suitable gloves tested to EN374.

Bulk open loading and unloading;
Wear suitable gloves tested to EN374.

Equipment cleaning and maintenance;
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure Estimation

Environment

See PETRORISK file in IUCLID Section 13 - "LocalCSR" worksheet.

Health

	Exposure level	RCR	Method	Remarks
General exposures (closed systems)	0,01 mg/m³	0	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.11	**	Dermal Exposure
		0.11	**	All routes
General exposures (closed system) + Process sampling	1 mg/m³	0.010	**	Inhalation Exposure
	1,37 mg/kg bw/day	0.47	**	Dermal Exposure
		0.49	**	All routes
General exposures (closed systems)	3 mg/m³	0.040	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.120	**	Dermal Exposure
		0.160	**	All routes
General exposures open batch process	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Sample collection	2,1 mg/m³	0.030	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.120	**	Dermal Exposure
		0.150	**	All routes
Laboratory activities	5 mg/m³	0.070	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.120	**	Dermal Exposure
		0.190	**	All routes
Bulk transfers (closed systems) e.g bottom loading	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Bulk transfers (open systems)	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Equipment cleaning and maintenance	2 mg/m³	0.030	**	Inhalation Exposure
	13,71 mg/kg bw/day	0.47	**	Dermal Exposure
		0.500	**	All routes
Bulk Storage	1 mg/m³	0.010	**	Inhalation Exposure
	1,37 mg/kg bw/day	0.47	**	Dermal Exposure
		0.49	**	All routes

** - The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file - "Site-Specific Production" worksheet. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. Taking into account the findings of the air monitoring evaluation on benzene included as the tier 2 analysis in the Low Boiling Point Naphtha category, the default "Air Removal Efficiency" of 90% included en the SPERC has been shown to be over-conservative and that 95% efficiency can safely be claimed in a tier 2 analysis. On this basis, the Tier 2 Analysis demonstrates that no refineries have RCRs>1 (see PETRORISK file in IUCLID section 13 - "Tier 2 Site Specific Production Worksheet").

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.

4 - Exposure Scenario Worker

1. Use as a fuel

List of use descriptors

Sector(s) of Use	SU3: Industrial uses
Product categories [PC]:	Not available.
Name of contributing environmental scenario and corresponding ERC	ERC7: Industrial use of substances in closed systems. Specific Environmental Release Category: ESVOC SpERC 7.12a.v1
List of names of contributing worker scenarios and corresponding PROCs	PROC1: Use in closed process, no likelihood of exposure. PROC2: Use in closed, continuous process with occasional controlled exposure. PROC3: Use in closed batch process (synthesis or formulation). PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC16: Using material as fuel sources, limited exposure to unburned product to be expected.
Further explanations	
Other Process or activity	Covers the use as a fuel (or fuel additive), and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

2.1. Contributing scenario controlling environmental exposure for Industrial use of substances in closed systems.

Product characteristics

Concentration of the substance in a mixture	Covers percentage substance in the product up to 100 % (unless stated differently). Substance is complex UVCB. Predominantly hydrophobic.
Physical state	Liquid With potential aerosol generation
Viscosity	
Kinematic viscosity	1,6 mm²/s 40 °C
Dynamic viscosity	Not available.

Amounts used

Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tons/year):	4,5 e6
Fraction of Regional tonnage used locally:	0,34
Annual site tonnage (tons/year):	1,5 e6
Maximum daily site tonnage (kg/day):	5 e6

Frequency and duration of use

Batch process	Not available.
Continuous process	Emission days (days/year): 300

Environment factors not influenced by risk management

Local freshwater dilution factor:	10
Local marine water dilution factor:	100

Other given operational conditions affecting environmental exposure

	Emission days	Emission factors			
Type	**(days/year)**	**Air**	**Soil**	**Water**	**Remarks**
initial release prior to RMM	300	0,005	0	0,00001	

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	Treat air emission to provide a typical removal efficiency of (%): 95
Soil	Not available.

Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): 97,7. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): 60,4
Sediment	Not available.
Remarks	Risk from environmental exposure is driven by freshwater sediment. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
Organisational measures to prevent/limit release from site	Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/treatment plant (m3/d)

Type	Municipal STP
Discharge rate	2000
Treatment effectiveness	94,1
Sludge treatment technique	Not available.
Measures to limit air emissions	Not available.
Remarks	Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 5,0e6
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	97,7

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment

Suitable waste treatment	Not available.
Disposal methods	Not available.
Treatment effectiveness	Not available.
Remarks	Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment.

Conditions and measures related to external recovery of waste

Fraction of used amount transferred to external waste treatment

Suitable recover operations	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Treatment effectiveness	Not available.
Remarks	Not available.
Additional good practice advice beyond the REACH CSA	Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in the PETRORISK file.

2.2. Contributing exposure scenario controlling worker exposure for Use in closed process, no likelihood of exposure.

Process categories beyond the REACH CSA	Use in closed, continuous process with occasional controlled exposure. Use in closed batch process (synthesis or formulation). Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Using material as fuel sources, limited exposure to unburned product to be expected.

Product characteristics

Concentration of the substance in a mixture	Covers percentage substance in the product up to 100 % (unless stated differently).
Physical form of the product	Liquid With potential aerosol generation
Vapour pressure	Liquid, vapour pressure <0,5 kPa at STP.
Process temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Amounts used

Not available.

Frequency and duration of use

	Duration	Frequency of use	Remarks
Covers daily exposures up to 8 hours (unless stated differently).	8		Assumes a good basic standard of occupational hygiene is implemented.

Human factors not influenced by risk management

Exposed skin areas Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size	Temperature	Ventilation rate	Remarks

Other relevant operational conditions

Not available.

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

Storage;
Store substance within a closed system.

Equipment cleaning and maintenance;
Drain down and flush system prior to equipment break-in or maintenance.

Technical conditions and measures to control dispersion from source towards the worker

Not available.

Organizational measures to prevent/limit releases, dispersion and exposure

General measures applicable to all activities;
Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; Ensure suitable personal protective equipment is available; Clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.

General measures (skin irritants);
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. wash off any skin contamination immediately. provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Conditions and measures related to personal protection, hygiene and health evaluations

Bulk transfers;
Wear suitable gloves tested to EN374.

Drum/batch transfers;
Wear suitable gloves tested to EN374.

Equipment cleaning and maintenance;
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure Estimation

Environment

See PETRORISK file in IUCLID Section 13 - "LocalCSR" worksheet.

Health

	Exposure level	RCR	Method	Remarks
Bulk transfers	5 mg/m³	0.070	**	Inhalation Exposure
	6,86	0.47	**	Dermal Exposure
		0.550	**	All routes
Drum/batch transfers	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
General exposures (closed systems)	1 mg/m³	0.010	**	Inhalation Exposure
	1,37 mg/kg bw/day	0.47	**	Dermal Exposure

		0.49	**	All routes
Use as a fuel (closed system)	1 mg/m³	0.010	**	Inhalation Exposure
	0,03 mg/kg bw/day	0.010	**	Dermal Exposure
		0.020	**	All routes
Use as a fuel additive diluent (closed system)	1 mg/m³	0.010	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.120	**	Dermal Exposure
		0.130	**	All routes
Equipment cleaning and maintenance	1 mg/m³	0.010	**	Inhalation Exposure
	13,71 mg/kg bw/day	0.47	**	Dermal Exposure
		0.49	**	All routes
Vessel and container cleaning	1 mg/m³	0.010	**	Inhalation Exposure
	13,71 mg/kg bw/day	0.47	**	Dermal Exposure
		0.49	**	All routes
Storage	1 mg/m³	0.010	**	Inhalation Exposure
	0,14 mg/kg bw/day	0.050	**	Dermal Exposure
		0.061	**	All routes

** - The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Available hazard data do not enable the derivation of a DNEL for carcinogenic effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.

5 - Exposure Scenario Worker

1. Use as an intermediate

List of use descriptors

Sector(s) of Use	SU3: Industrial uses SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals
Product categories [PC]:	Not available.
Name of contributing environmental scenario and corresponding ERC	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates). Specific Environmental Release Category: ESVOC SpERC 6.1a.v1
List of names of contributing worker scenarios and corresponding PROCs	PROC1: Use in closed process, no likelihood of exposure. PROC2: Use in closed, continuous process with occasional controlled exposure. PROC3: Use in closed batch process (synthesis or formulation). PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC15: Use as laboratory reagent.
Further explanations	
Other Process or activity	Use of substance as an intermediate. Includes recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

2.1. Contributing scenario controlling environmental exposure for Industrial use resulting in manufacture of another substance (use of intermediates).

Product characteristics

Concentration of the substance in a mixture	Covers percentage substance in the product up to 100 % (unless stated differently). Substance is complex UVCB. Predominantly hydrophobic.
Physical state	Liquid With potential aerosol generation
Viscosity	
Kinematic viscosity	1,6 mm²/s 40 °C
Dynamic viscosity	Not available.

Amounts used

Fraction of Regional tonnage used locally:	0,043
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tons/year):	3,5 e5
Maximum daily site tonnage (kg/day):	1,5 e4
Annual site tonnage (tons/year):	5 e4

Frequency and duration of use

Batch process	Not available.
Continuous process	Emission days (days/year): 300

Environment factors not influenced by risk management

Local freshwater dilution factor:	10
Local marine water dilution factor:	100

Other given operational conditions affecting environmental exposure

	Emission days	Emission factors			
Type	**(days/year)**	**Air**	**Soil**	**Water**	**Remarks**
initial release prior to RMM	300	0,001	0,001	0,00003	

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	Treat air emission to provide a typical removal efficiency of (%): 80
Soil	Not available.
Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): 51,6. If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ≥ (%): 0
Sediment	Not available.
Remarks	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

Organisational measures to prevent/limit release from site	Prevent discharge of undissolved substance to or recover from onsite wastewater. Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Conditions and measures related to municipal sewage treatment plant

Size of municipal sewage system/treatment plant (m3/d)

Type	Municipal STP
Discharge rate	2000
Treatment effectiveness	94,1
Sludge treatment technique	Not available.
Measures to limit air emissions	Not available.
Remarks	Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 4,1e5
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	94,1

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment

Suitable waste treatment	Not available.
Disposal methods	Not available.
Treatment effectiveness	Not available.
Remarks	This substance is consumed during use and no waste of the substance is generated to treat.

Conditions and measures related to external recovery of waste

Fraction of used amount transferred to external waste treatment

Suitable recover operations	Not available.
Treatment effectiveness	Not available.
Remarks	This substance is consumed during use and no waste of the substance is generated to recover.

Additional good practice advice beyond the REACH CSA	Additional information on the basis for the allocation of the indentified OCs and RMMs is contained in the PETRORISK file.

2.2. Contributing exposure scenario controlling worker exposure for Use in closed process, no likelihood of exposure.

Process categories beyond the REACH CSA	Use in closed, continuous process with occasional controlled exposure. Use in closed batch process (synthesis or formulation). Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. Use as laboratory reagent.

Product characteristics

Concentration of the substance in a mixture	Covers percentage substance in the product up to 100 % (unless stated differently).
Physical form of the product	Liquid With potential aerosol generation
Vapour pressure	Liquid, vapour pressure <0,5 kPa at STP.
Process temperature	Operation is carried out at elevated temperature (> 20°C above ambient temperature).

Amounts used

Not available.

Frequency and duration of use

	Duration	Frequency of use	Remarks
Covers daily exposures up to 8 hours (unless stated differently).	8		Assumes a good basic standard of occupational hygiene is implemented.

Human factors not influenced by risk management

Exposed skin areas

Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size	Temperature	Ventilation rate	Remarks

Other relevant operational conditions

Not available.

Risk management measures (RMM)

Technical conditions and measures at process level (source) to prevent release

General exposures (closed systems);
Handle substance within a closed system.

Bulk closed loading and unloading;
Handle substance within a closed system.

Equipment cleaning and maintenance;
Drain down and flush system prior to equipment break-in or maintenance.

Bulk product storage;
Store substance within a closed system.

Technical conditions and measures to control dispersion from source towards the worker

Handle substance within a closed system..

Organizational measures to prevent/limit releases, dispersion and exposure

General measures applicable to all activities;
Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Ensure relevant staff are informed of the nature of exposure and aware of basic actions to minimise exposures; Ensure suitable personal protective equipment is available; Clear up spills and dispose of waste in accordance with regulatory requirements; monitor effectiveness of control measures; consider the need for health surveillance; identify and implement corrective actions.

Conditions and measures related to personal protection, hygiene and health evaluations

General measures (skin irritants);
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. wash off any skin contamination immediately. provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

General exposures (closed systems);
Wear suitable gloves tested to EN374.

Bulk closed loading and unloading;
Wear suitable gloves tested to EN374.

Bulk open loading and unloading;
Wear suitable gloves tested to EN374.

Equipment cleaning and maintenance;
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure Estimation

Environment

See PETRORISK file in IUCLID Section 13 - "LocalCSR" worksheet.

Health

	Exposure level	RCR	Method	Remarks
General exposures (closed systems)	0,01 mg/m³	0	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.11	**	Dermal Exposure
		0.11	**	All routes
General exposures (closed system) + Process sampling	1 mg/m³	0.010	**	Inhalation Exposure
	1,37 mg/kg bw/day	0.47	**	Dermal Exposure
		0.49	**	All routes
General exposures (closed systems)	3 mg/m³	0.040	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.120	**	Dermal Exposure
		0.160	**	All routes
General exposures open batch process	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Sample collection	2,1 mg/m³	0.030	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.120	**	Dermal Exposure
		0.150	**	All routes
Laboratory activities	5 mg/m³	0.070	**	Inhalation Exposure
	0,34 mg/kg bw/day	0.120	**	Dermal Exposure
		0.190	**	All routes
Bulk transfers (closed systems) e.g bottom loading	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Bulk transfers (open systems)	5 mg/m³	0.070	**	Inhalation Exposure
	6,86 mg/kg bw/day	0.47	**	Dermal Exposure
		0.550	**	All routes
Equipment cleaning and maintenance	2 mg/m³	0.030	**	Inhalation Exposure
	13,71 mg/kg bw/day	0.47	**	Dermal Exposure
		0.500	**	All routes
Bulk Storage	1 mg/m³	0.010	**	Inhalation Exposure
	1,37 mg/kg bw/day	0.47	**	Dermal Exposure
		0.49	**	All routes

** - The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Available hazard data do not enable the derivation of a DNEL for carcinogenic effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk Management Measures are based on qualitative risk characterisation.

Roy Sucanick

From: Sean Bulmann
Sent: Wednesday, August 22, 2018 9:06 AM
To: Luis Ojeda
Cc: Roy Sucanick
Subject: FW: U.S. Department of Labor Posts New Frequently Asked Questions and Videos on OSHA Standard for Controlling Silica in Construction

FYI.

Sean Bulmann
Division Manager

From: OSHA news <osha.news@subscriptions.dol.gov>
Sent: Wednesday, August 22, 2018 8:47 AM
To: Sean Bulmann <sean@regionalpavement.com>
Subject: U.S. Department of Labor Posts New Frequently Asked Questions and Videos on OSHA Standard for Controlling Silica in Construction

Trade Release from OSHA

Having trouble viewing this email? View it as a Web page.

Trade Release

U.S. Department of Labor
Occupational Safety and Health Administration
Office of Communications
Washington, D.C.
www.osha.gov

For Immediate Release
August 22, 2018
Contact: Office of Communications
Phone: 202-693-1999

U.S. Department of Labor Posts New Frequently Asked Questions and Videos on OSHA Standard for Controlling Silica in Construction

WASHINGTON, DC – The U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) announced today that new frequently asked questions (FAQs) and training videos on the Agency's standard for respirable crystalline silica in construction are now available online.

Developed by OSHA in cooperation with industry and labor organizations, the FAQs provide employers and workers with guidance on the standard's requirements. In addition, a series of six new videos instruct users on methods for controlling exposure to silica dust when performing common construction tasks, or using construction equipment. The videos cover topics including handheld power saws, jackhammers, drills, and grinders.

Visit OSHA's silica standard for construction page for more information and resources on complying with the standard.

Under the Occupational Safety and Health Act of 1970, employers are responsible for providing safe and healthful workplaces for their employees. OSHA's role is to help ensure these conditions for America's working men and women by setting and enforcing standards, and providing training, education and assistance. For more information, visit www.osha.gov.

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Silica, Crystalline

Construction

Complying with the Construction Standard Construction Resources

OSHA's Respirable Crystalline Silica standard for construction requires employers to limit worker exposures to respirable crystalline silica and to take other steps to protect workers.

The standard provides flexible alternatives, which OSHA expects will be especially useful for small employers. Employers can either use the control methods laid out in Table 1 of the construction standard, or they can measure workers' exposure to silica and independently decide which dust controls work best to limit exposures to the PEL in their workplaces.

Regardless of which exposure control method is used, all construction employers covered by the standard are required to:

- Establish and implement a written exposure control plan that identifies tasks that involve exposure and methods used to protect workers, including procedures to restrict access to work areas where high exposures may occur.
- Designate a competent person to implement the written exposure control plan.
- Restrict housekeeping practices that expose workers to silica where feasible alternatives are available.
- Offer medical exams-including chest X-rays and lung function tests-every three years for workers who are required by the standard to wear a respirator for 30 or more days per year.
- Train workers on work operations that result in silica exposure and ways to limit exposure.
- Keep records of exposure measurements, objective data, and medical exams.

Construction employers must comply with all requirements of the standard by September 23, 2017, except requirements for laboratory evaluation of exposure samples, which begin on June 23, 2018.

Construction Outreach Materials

OSHA Small Entity Compliance Guide for Construction. Discusses suggested engineering and work practice controls, exposure assessments, respirator use, medical surveillance, written exposure control plans, and other aspects of compliance.

Sample Training Powerpoint for Construction. Provides a customizable Powerpoint for employers and other instructors to tailor their training on how to comply with OSHA's respirable crystalline silica standard for construction.

OSHA's Crystalline Silica Rule: Construction. **Revised** Provides a summary of the requirements of the respirable crystalline silica standard for construction.

Controlling Silica Dust in Construction Fact Sheets for Table 1 Tasks

- Handheld Power Saws Fact Sheet
- Handheld Grinders for Tasks Other Than Mortar Removal Fact Sheet
- Handheld Power Saws Used to Cut Fiber-Cement Board
- Jackhammers or Handheld Powered Chipping Tools Fact Sheet
- Handheld and Stand-Mounted Drills Fact Sheet
- Stationary Masonry Saws Fact Sheet

Applying water to a saw blade when cutting materials that contain crystalline silica — such as stone, rock, concrete,

- Handheld Grinders for Mortar Removal (Tuckpointing) Fact Sheet
- Walk-Behind Saws Fact Sheet
- Drivable Saws Fact Sheet
- Rig-Mounted Core Saws or Drills Fact Sheet
- Dowel Drilling Rigs for Concrete Fact Sheet
- Vehicle-Mounted Drilling Rigs for Rock and Concrete Fact Sheet
- Walk-Behind Milling Machines and Floor Grinders Fact Sheet
- Small Drivable Milling Machines (Less than Half Lane) Fact Sheet
- Large Drivable Milling Machines (Half Lane and Larger) Fact Sheet
- Crushing Machines Fact Sheet
- Heavy Equipment and Utility Vehicles Used During Demolition Activities Fact Sheet
- Heavy Equipment and Utility Vehicles Used for Grading and Excavating Tasks Fact Sheet

brick, and block — substantially reduces the amount of dust created during these operations.

Controlling Silica Dust in Construction Videos for Table 1 Tasks

- Stationary Masonry Saws
- Handheld Power Saws
- Handheld and Stand-Mounted Drills
- Jackhammers or Handheld Powered Chipping Tools
- Handheld Grinders for Mortar Removal (Tuckpointing)
- Handheld Grinders for Uses Other than Mortar Removal

OSHA Standards, Interpretations, and Directives

Construction Industry (29 CFR 1926)

- 1926 Subpart Z, Toxic and Hazardous Substances
  - 1926.1153. Respirable Crystalline Silica
    - Appendix A, Methods of Sample Analysis
    - Appendix B, Medical Surveillance Guidelines
- Federal Register Notice

OSHA Directives

- Interim Enforcement for the Respirable Crystalline Silica in Construction Standard
- Search all available directives.

Standard Interpretations

- Search all available standard interpretations.

Frequently Asked Questions

- Search all available frequently asked questions (FAQs) for the silica rule.

State Standards

There are twenty-eight OSHA-approved State Plans, operating state-wide occupational safety and health programs. State Plans are required to have standards and enforcement programs that are at least as effective as OSHA's and may have different or more stringent requirements.

Resources for the Construction Industry

- Silica. National Institute for Occupational Safety and Health (NIOSH) Safety and Health Topic. Provides information about silica as well as links to related publications and references.
  - NIOSH Silica Controls for Construction Page
  - Control of Hazardous Dust during Tuckpointing. U.S. Department of Health and Human Services (DHHS), National Institute for Occupational Safety and Health (NIOSH) Publication No. 2008-126, (2008, September).
  - Silicosis in Sandblasters: A Case Study Adapted for Use in U.S. High Schools. U.S. Department of Health and Human Services (DHHS), National Institute for Occupational Safety and Health (NIOSH) Publication No. 2002-105, (2002, June). Provides a case study developed for use in teaching epidemiology to high school students. Includes basic information about the disease silicosis, potential routes of exposure to silica, and controls.
- Working Safely with Silica. The Center for Construction Research and Training (also known as CPWR) has a website with resources to help contractors and workers understand the health risk involved and implement measures to control dust.
  - CPWR's Sample Written Exposure Control Plans
- Silica and Road Construction: Silicosis. New York Department of Health document addressing silica dangers in road construction.
- OSHA Clinicians page. The page provides information for clinicians to understand important ethical, regulatory, and clinical issues.

Related Safety and Health Topics Pages

- Medical Screening and Surveillance
- Respiratory Protection
- Sampling and Analysis
- Carcinogens
- Construction Industry
- Chemical Hazards and Toxic Substances

Contractors adopt innovative concrete drill jig to reduce silica exposures during concrete drilling operations. Read more.

UNITED STATES
DEPARTMENT OF LABOR

Occupational Safety and Health Administration
200 Constitution Ave NW
Washington, DC 20210
800-321-6742 (OSHA)
TTY
www.OSHA.gov

DEERY BRAND®
PAVEMENT PRESERVATION PRODUCTS

SAFETY DATA SHEET

1. Identification

Product identifier **No Stick**

Other means of identification Not available.

Recommended use Applied to fresh road sealant to reduce tackiness.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Manufacturer: Crafco, Inc.

Address: 6165 West Detrolt St.
Chandler, AZ 85226 USA

Contact Name: Jim Chehovits

Telephone: 1-800-227-4059

E-mail: jim.chehovits@crafco.com

CHEMTREC: 800-424-9300 (North America)
1-703-527-3887 (International)

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Not classified.

Environmental hazards Not classified.

OSHA defined hazards Not classified.

*Hazards not stated here are "Not classified", "Not applicable" or "Classification not possible".

Label elements

Hazard symbol None.

Signal word Not available.

Hazard statement Not available.

Prevention Not available.

Response Not available.

Storage Not available.

Disposal Not available.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
WATER		7732-18-5	70 - 90
TALL OIL, SODIUM SALT		65997-01-5	10 - 30

4. First-aid measures

Inhalation If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.

Skin contact Wash contact areas with soap and water. If needed, seek medical attention.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. DO NOT induce vomiting. Get medical attention immediately. If ingestion of a large amount does occur, call a poison control center immediately.

Most important symptoms/effects, acute and delayed Direct contact with eyes may cause temporary irritation.

Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Water. Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Not a fire hazard.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection.
Fire-fighting equipment/instructions	ALWAYS stay away from tanks engulfed in flame. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do so without risk. In the event of fire, cool tanks with water spray.
Specific methods	In the event of fire and/or explosion do not breathe fumes. In the event of fire, cool tanks with water spray.
General fire hazards	Will not burn

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	This product is miscible in water. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Ventilate area and avoid breathing vapors or mist. For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site.
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Do not allow material to freeze.

8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Safety glasses.
Hand protection	Chemical resistant gloves are recommended. If contact with forearms is likely wear gauntlet style gloves.
Other	Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapor contact.
Respiratory protection	No protection is ordinarily required under normal conditions of use and with adequate ventilation.
Thermal hazards	Not available.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	Not available.
Physical state	Liquid.
Form	Liquid.
Color	Brown.
Odor	Not available.
Odor threshold	Not available.
pH	8 - 9
Melting point/freezing point	Not available.
Initial boiling point and boiling range	212 °F (100 °C)
Flash point	Not applicable
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	0 hPa estimated
Vapor density	> 1
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Complete
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Percent volatile	85 % estimated
Specific gravity	1

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable under normal temperature conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Freezing.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	None known.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Expected to be a low ingestion hazard.
Inhalation	Prolonged inhalation may be harmful.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Harmful in contact with eyes.
Symptoms related to the physical, chemical and toxicological characteristics	Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity	Not available.
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Harmful in contact with eyes. None known.

Respiratory or skin sensitization

Respiratory sensitization	Not available.
Skin sensitization	May cause skin disorders if contact is repeated or prolonged.

Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	Not classified.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not available.
Chronic effects	Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema/chapping and oil acne.
Further information	This product has no known adverse effect on human health.

12. Ecological information

Ecotoxicity	Not expected to be harmful to aquatic organisms.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	No components are identified as hazardous wastes.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	Not applicable.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Avoid discharge into water courses or onto the ground.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not available.

15. Regulatory information

US federal regulations	All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act

Not regulated.

US. Pennsylvania RTK - Hazardous Substances

Not regulated.

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

Not Listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 05-22-2015

Version # 01

Further information HMIS® is a registered trade and service mark of the NPCA.

References	ACGIH EPA: AQUIRE database NLM: Hazardous Substances Data Base US. IARC Monographs on Occupational Exposures to Chemical Agents IARC Monographs. Overall Evaluation of Carcinogenicity National Toxicology Program (NTP) Report on Carcinogens ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. The information in the sheet was written based on the best knowledge and experience currently available.
Revision Information	Product and Company Identification: Product and Company Identification

1162 Waterborne Latex Fast Dry Traffic Marking Paint Green

1. PRODUCT AND COMPANY INFORMATION

Trade name	1162 Waterborne Latex Fast Dry Traffic Marking Paint Green
Product codes	ZB1162, B1162, 1162, Waterborne Latex Fast Dry Traffic Marking Paint Green
Chemical family	Aqueous pigmented resin solution
Intended use	Roadway marking
Company	Colorado Paint (a Swarco Company) 4747 Holly Street Denver, CO 80216; U. S. A.
Telephone	+1 303-388-9265
Web site	www.swarco.com/americas
Emergency (Chemtrec; 24 h)	1-800-424-9300 (U. S. A. and Canada)

2. HAZARD IDENTIFICATION

Emergency Overview

OSHA Hazards

Target Organ Effect, Irritant, Toxic if swallowed

Target Organs

Liver, Kidney

GHS Classification

Specific target organ toxicity - single exposure (Category 3)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictograms:

Signal word: Warning

Hazard statements

H302 Harmful if swallowed.
H316 Causes mild skin irritation.
H317 May cause an allergic skin reaction.
H320 Causes eye irritation.
H335 May cause respiratory irritation.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P260 Do not breathe dust / fume / gas / mist / vapours / spray.
P281 Use personal protective equipment as required.
P302+352 IF ON SKIN: Wash with soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS and NFPA Classification:

	HMIS	NFPA Hazard
Health	1*	1
Flammability	0	0
Reactivity	—	0
Physical hazard	0	—

Potential Health Effects

Inhalation: May be harmful if inhaled.
Skin: May cause skin irritation.
Eyes: Causes severe eye irritation.
Ingestion: May be harmful if swallowed – can enter lungs and cause damage.

3. COMPOSITION

Name	Synonym	CAS	EINECS	Index	Concentration
Calcium carbonate	Limestone	1317-65-3	207-439-9	—	30-60%
Acrylic resin	Polymeric material	—	—	—	10-50%
Water	—	7732-18-5	231-791-2	—	10-50%
3-Hydroxy-2,2,4-trimethylpentyl 2-methylpropanoate	Hydroxy ester	25265-77-4	246-771-9	—	1-10%
Methanol	Methyl alcohol	67-56-1	200-659-6	603-001-00-X	1-5%
Iron oxide	—	51274-00-1	n/a	—	0.3-1.0%
Ammonium hydroxide	—	1336-21-6	215-647-6	007-001-01-2	0.1-0.5%
1,2-Ethanediol	Ethylene glycol	107-21-1	203-473-3	603-027-00-1	0.1-0.5%
Talc	Magnesium silicate	14807-96-6	238-877-9	—	0.1-0.5%
Ethoxylated nonylphenol	—	9016-45-9	500-024-6	—	0.1-0.5%
Crystalline silica	Quartz	14464-46-1	238-878-4	—	0.1-0.5%
Copper (in organometallic compound)	—	Proprietary	n/a	—	<0.03%

4. FIRST AID MEASURES

General advice

Consult a physician. Show this Material Safety Data Sheet to the attending doctor.

If inhaled

Move person to fresh air. If not breathing, give artificial respiration. Obtain proper medical attention.

If on skin

Wash off with soap and water. Consult a physician if needed.

In case of an eye contact

Rinse thoroughly with plenty of running water for at least 15 minutes. Seek medical attention.

If swallowed

Rinse mouth with water. Seek immediate medical attention.

Most important symptoms and effects, both acute and delayed

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media

Product as delivered is water-based and shall not burn.
For dried material that is burning, use water, "alcohol" foam, dry chemical, or carbon dioxide.

Special protective equipment for fire fighters

Do not enter the fire area without proper protection.

Special fire fighting procedure

Prevent run off to sewers and bodies of water from fire fighting involving this product as it contains up to 0.03% of copper, which is a Clean Water Act priority pollutant.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions: Carbon oxides, calcium oxide, nitrogen oxides.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate unnecessary personnel to safe areas.

Environmental precautions

Prevent leakage or spillage if safe to do so. Do not let product enter drains. Highly toxic for aqueous environment.

Methods and materials for containment and cleaning up

Contain spillage, clean affected area using a strong detergent solution. Collect and place in suitable closed container for disposal according to local regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Avoid contact with skin.

Conditions for safe storage

Keep container tightly closed. Recommended storage temperature is 10-30 °C. Do not permit to freeze.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Occupational exposure limits for the product as delivered have not been established.
Information below is provided for individual ingredients, where available. No occupational exposure limits have been established for other ingredients, which does not imply that they might not be harmful or toxic. Unknown hazards may exist and/or the materials may have not been fully tested. The user is required to follow all of the good industrial hygiene practices.

Occupational exposure limits

Calcium carbonate (CAS 1317-65-3):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-1: 15 mg/m^3 TWA
OSHA Permissible Exposure Limit (PEL) for Maritime: 29 CFR 1915.1000 Table Z-Shipyards: 15 mg/m^3 TWA
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 10 mg/m^3 TWA; The value is for particulate matter containing no asbestos and <1% crystalline silica.
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 10 mg/m^3 TWA
Not considered a hazardous substance. Provided exposure limits are established for respirable dust only, particulate matter containing less than 1% of asbestos. They are meaningless for the paint product as delivered, but apply while sanding or abrading dried coating.

Crystalline silica (CAS 14464-46-1):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-3: Limit for dust is calculated per formula: (10 mg/m^3) / (%SiO_2+2).
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 0.05 mg/m^3 TWA; (Respirable fraction).
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 0.05 mg/m^3 TWA; Potential Carcinogen.
NIOSH Immediately Dangerous to Life and Health (IDLH) concentration: 25 mg/m^3.
The established limits are for respirable dust only and are meaningless for the paint product as delivered, but apply while sanding or abrading dried coating.
Carcinogenic Classification: International Agency for Research on Cancer (IARC): Group 2A, probably carcinogenic to humans. Health Effects: Pneumoconiosis.

Ethylene glycol (CAS 107-21-1):

American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 100 mg/m^3 Ceiling (Aerosol only); Appendix A4 - Not Classifiable as a Human Carcinogen
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): Appendix D - Substances With No Established RELs.

Magnesium silicate (CAS 14807-96-6):

OSHA Permissible Exposure Limit (PEL) for General Industry and for Construction Industry: 29 CFR 1910.1000 Table Z-3 Mineral Dusts: 710 particles per cm^3.
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 2 mg/m^3 TWA; The value is for particulate matter containing no asbestos and <1% crystalline silica. Respirable fraction; Appendix A4 (Not Classifiable as a Human Carcinogen).
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 2 mg/m^3 TWA.
International Agency for Research on Cancer (IARC): Group 3, not classifiable as to its carcinogenicity to humans.
Potential Symptoms: Fibrotic pneumoconiosis; Health Effects: Pneumoconiosis (Talcosis).

Methanol (CAS 67-56-1):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-1: 200 ppm, 260 mg/m^3 TWA.
OSHA PEL for Construction Industry: 29 CFR 1926.55 Appendix A: 200 ppm, 260 mg/m^3 TWA.
OSHA PEL for Maritime Industry: 29 CFR 1915.1000 Table Z-Shipyards: 200 ppm, 260 mg/m^3 TWA.
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 200 ppm, 262 mg/m^3 TWA; 250 ppm, 327 mg/m^3 STEL; Skin.
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 200 ppm, 260 mg/m^3 TWA; 250 ppm, 325 mg/m^3 STEL; Skin.
NIOSH Immediately Dangerous to Life and Health (IDLH) concentration: 6,000 ppm, 7860 mg/m^3

Ventilation

Use only where appropriate ventilation is available. This product is designed for outdoor use.

Personal protective equipment

Respiratory protection

When used as designed, outdoors in a well-ventilated area, exceeding of the exposure limits is very unlikely unless caused by misuse.

When the exposure limits are exceeded or when working indoors, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) cartridges.

When sanding or abrading dried film, type N95 (US) or type P1 (EN 143) dust masks are suggested.

Hand protection

Handle with gloves that satisfy the specifications of the standard EN 374. Dispose of contaminated gloves after use in accordance with applicable laws and good work hygiene practices.

Eye protection

Safety glasses with side shields are required. Tightly fitting splash goggles are recommended. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin and body protection

Wear protective clothing.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash your hands thoroughly. Never intentionally inhale the contents. Use only for the intended purpose.

9. PHYSICAL PROPERTIES

Physical state	Viscous liquid
Color	Green
Odor	Mild latex paint, ammonia
Boiling point	±100 °C
Freezing point	±0 °C
Flash point	>100 °C (waterborne product)
Upper explosion limit	No data available
Lower explosion limit	No data available
Solubility in water	Waterborne product
Vapor pressure	No data available
Density	1.3-1.9 $g \cdot cm^{-3}$
Viscosity	80-100 KU at 25 °C
pH	9.0-12.0

10. STABILITY AND REACTIVITY DATA

Chemical stability

Stable.

Possibility of hazardous reactions

None known.

Conditions to avoid

Do not freeze or expose to extreme heat as coalescing may occur.

Materials to avoid

Acids, oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions: Carbon oxides, nitrogen oxides.

Other decomposition products: No data available

11. TOXICOLOGICAL DATA

Information for the product as delivered is not available. Data for the individual ingredients is provided below.

Acute toxicity

Name	Oral LD_{50} (mg/kg) rat	Inhalation LC_{50} (mg/m^3/4 h) rat	Dermal LD_{50} (mg/kg) rabbit
Ammonium hydroxide	350 (Gastrointestinal, Liver, Kidney, Ureter, Bladder)	No data available.	No data available.
Calcium carbonate	6,450	No data available.	No data available.
Ethylene glycol	4,700	No data available.	10,626
Hydroxy ester	3,200	>3,550	>15,200
Methyl alcohol	5,628	83,840	15,800
Titanium dioxide	>10,000	No data available.	>10,000
Other ingredients	No data available.	No data available.	No data available.

Chronic Exposure

Name	Skin corrosion / irritation	Serious eye damage / irritation	Respiratory or skin sensitization
Ethylene glycol	No data available.	Rabbit: Mild eye irritation - 24 h	No data available.
Ammonium hydroxide	No data available.	Rabbit: Severe eye irritation	No data available.
Calcium carbonate	Rabbit: No skin irritation (OECD Test Guideline 404)	Rabbit: Mild eye irritation (OECD Test Guideline 405)	No data available.
Magnesium silicate	Human: Mild irritation - 3 h	No data available.	No data available.
Ethoxylated nonylphenol	Rabbit: Mild skin irritation	Rabbit: Severe eye irritation	Prolonged or repeated exposure may cause allergic reactions.
Methanol	Rabbit: Skin irritation - 24 h	Rabbit: Eye irritation - 24 h	No data available.
Other ingredients	No data available.	No data available.	No data available.

Germ cell mutagenicity

Titanium dioxide	Genotoxicity in vitro – hamster – ovary: Micronucleus test. Genotoxicity in vitro – hamster – lungs: DNA inhibition. Genotoxicity in vitro – hamster – ovary: Sister Chromatoid exchange. Genotoxicity in vivo – mouse – intraperitoneal: Micronucleus test.
All other ingredients	No data available.

Carcinogenicity

Quartz	IARC: 2A - Group 2A: Probably carcinogenic to humans (Quartz) NTP: Known to be human carcinogen (Quartz) OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Talc	Carcinogenicity - rat – Inhalation. Tumorigenic: Carcinogenic by RTECS criteria. Lungs, Thorax, or Respiration: Bronchiogenic carcinoma. Endocrine: Tumors. Carcinogenicity - rat – Inhalation: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Lungs, Thorax, or Respiration: Tumors. This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification. IARC: Group 3 - Not classifiable as to carcinogenicity to humans (Hydrous magnesium silicate) NTP, OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP or OSHA.
Titanium dioxide	Rat – inhalation: Tumorigenic: Carcinogenic by RTECS criteria. Lungs, Thorax, or Respiration: Tumors. Rat – intramuscular: Tumorigenic: Neoplastic by RTECS criteria. Blood: Lymphomas including Hodgkin's disease. Tumors at site or application. IARC: 2B - Group 2B: Possibly carcinogenic to humans (Titanium dioxide).
Other ingredients	Are or contain components that are not classifiable as to their carcinogenicity based on IARC, ACGIH, NTP, or EPA classification.

Reproductive toxicity

Ethylene glycol	Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.
Other ingredients	No data available.

Teratogenicity

Ethylene glycol	Laboratory experiments have shown teratogenic effects.
Other ingredients	No data available.

Specific target organ toxicity - single exposure (Globally Harmonized System)

Methanol	Causes damage to organs.
Ethoxylated nonylphenol	May cause respiratory irritation
Other ingredients	No data available.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
No data available.

Aspiration hazard
No data available

Potential health effects
Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion: Toxic if swallowed.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties of this product (a mixture) have not been thoroughly investigated.

Synergistic effects
No data available.

12. ECOLOGICAL DATA

Toxicity

Ammonium hydroxide	**Fish**: Oncorhynchus tshawytscha (Chinook salmon): 3.57 mg/dm^3 - 3 days (mortality NOEC) **Daphnia and other aquatic invertebrates:** Daphnia magna (water flea): 32 mg/dm^3 - 50 h (LC_{50})
Copper (present in trace amount in an organometallic additive)	**Daphnia and other aquatic invertebrates:** Daphnia magna (water flea): 0.004 mg/dm^3 - 24 h (mortality NOEC) Daphnia magna (water flea): 0.006 mg/dm^3 - 24 h (mortality LOEC) *Extremely toxic for aquatic environment.*
Ethoxylated nonylphenol	**Fish**: Lepomis macrochirus (bluegill): 1.0-9.7 mg/dm^3 - 96 h (LC_{50}) Pimephales promelas (fathead minnow): 2.0 mg/dm^3 -144 h (mortality LOEC) Pimephales promelas (fathead minnow): 1.8 mg/dm^3 - 144 h (mortality NOEC) **Daphnia and other aquatic invertebrates:** Daphnia magna (water flea): 20.0 mg/dm^3 - 144 h (mortality LOEC) Daphnia magna (water flea): 10.0 mg/dm^3 - 144 h (mortality NOEC) Daphnia magna (water flea): 12.2-17.0 mg/dm^3 - 48 h (EC_{50}) **Algae**: Pseudokirchneriella subcapitata: 16.0 mg/dm^3 - 96 h (growth inhibition LOEC) Pseudokirchneriella subcapitata: 8.0 mg/dm^3 - 96 h (growth inhibition NOEC)
Ethylene glycol	**Fish**: Oncorhynchus mykiss (rainbow trout): 18,500 mg/dm^3 - 96 h (LC_{50}) Leuciscus idus (golden orfe): >10,000 mg/dm^3 - 48 h (LC_{50}) Pimephales promelas (fathead minnow): 32,000 mg/dm^3 - 7 d (mortality NOEC) Pimephales promelas (fathead minnow): 39,140 mg/dm^3 - 96 h (mortality NOEC) **Daphnia and other aquatic invertebrates:** Daphnia magna (water flea): 41,000 mg/dm^3 - 48 h (LC_{50}) Daphnia magna (water flea): 74,000 mg/dm^3 - 24 h (EC_{50}) Daphnia magna (water flea): 24,000 mg/dm^3 - 48 h (mortality NOEC)
Hydroxy ester	**Fish**: Other fish: 33 mg/dm^3 - 96 h (mortality NOEC) **Daphnia and other aquatic invertebrates**: Daphnid: 147.8 mg/dm^3 - 48 h (EC_{50}) **Algae**: Algae: 15.0 mg/dm^3 - 96 h (EC_{50})

Methanol	**Fish:** Oncorhynchus mykiss (rainbow trout): 19,000 mg/dm^3 - 96 h (LC_{50}) Cyprinus carpio (carp): 36,000 mg/dm^3 - 48 h (LC_{50}) Pimephales promelas (fathead minnow): 1.8 mg/dm^3 - 144 h (mortality NOEC) **Daphnia and other aquatic invertebrates:** Daphnia magna (water flea): 10,000 mg/dm^3 - 24 h (EC_{100}) Daphnia magna (water flea): 24,500 mg/dm^3 - 48 h (EC_{50})
Titanium dioxide	**Fish:** Other fish: >1,000 mg/dm^3 - 96 h (LC_{50}) **Daphnia and other aquatic invertebrates:** Daphnia magna (water flea): 1,000 mg/dm^3 - 48 h (EC_{50})
Other ingredients	No data available.

Persistence and degradability

Ethoxylated nonylphenol	Result: 86 % - Readily biodegradable. Method: Modified Sturm Test
Hydroxy ester	>77 % (28 days, Ready Biodegradability: CO2 Evolution Test) Readily biodegradable
All other ingredients	No data available.

Bioaccumulative potential

Ethylene glycol	Does not bioaccumulate. Other fish - 61 days: Bioconcentration factor (BCF): 0.60.
All other ingredients	No data available.

Mobility in soil
No data available.

PBT and vPvB assessment
No data available.

Biological oxygen demand
No data available.

Other adverse effects
Data for the entire preparation (a mixture) is not available.

13. DISPOSAL CONSIDERATIONS

Unused or spoiled product
This product may be a hazardous waste per 40 CFR 261 and other regulations. It is the responsibility of the user to determine whether the material meets the hazardous waste criteria and dispose according to the environmental laws. Do not dump into any drain, sewer, or on the ground. Contact a licensed professional waste disposal service to arrange for appropriate removal. Burn the material in a chemical incinerator equipped with an afterburner and scrubber. Do not incinerate closed containers.

Container
Empty packaging may contain product residue and should not be reused. Dispose as of unused product.

14. TRANSPORTATION INFORMATION

Not considered dangerous goods. Not regulated for transportation.
Information is provided for guidance purpose only, not meant to be inclusive. Packaging must be reviewed for suitability and compliance with the applicable regulations prior to shipment.

15. REGULATORY INFORMATION

TSCA and DSL
Listed or exempt.

OSHA Hazards
Irritant, harmful by ingestion.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard.

SARA 302

To the best of our knowledge, no chemicals in this product are subject to the reporting requirements of Superfund Amendments and Reauthorization Act (SARA), Title III, Section 302 (40 CFR 355.30).

SARA 304 (40 CFR 355 and 40 CFR 302): Clean Water Act and CERCLA Information

This product contains trace amount of EPA priority pollutant:

Copper (CAS 7440-58-0), <0.03%, reportable quantity 2,270 kg

SARA 313

The following are subject to reporting levels established by SARA Title III, Section 313 (40 CFR 372.65):

Ammonium hydroxide (CAS 1336-21-6)
Methanol (CAS 67-56-1)
Ethylene glycol (CAS 107-21-1)

California Proposition 65

Warning! This product contains trace amount of a chemicals known to the State of California to cause cancer:

Quartz (CAS 14464-46-1)

To the best of our knowledge, this product does not contain chemicals known to the State of California to cause birth defects or other reproductive harm.

Volatile Organic Compounds

Below 100 g/dm^3 (calculated per 40 CFR 59.406).

16. ADDITIONAL INFORMATION

This safety data sheet complies with 29 CFR 1910.1200 and with EC 1907/2006, as amended.
Last modified: Wednesday, 09 November 2011 14:58 (Fully updated MSDS.)

Disclaimer

All information and data appearing on this Material Safety Data Sheet are provided in good faith and are believed to be reliable and accurate to the best of our knowledge at the date of publication. Although certain hazards are listed herein, there is no guarantee that these are only risks. None of the provided information is to be considered a warranty or quality specification or all-inclusive and is given only as guidance. It is the user's responsibility to determine the safety of use, handling, storage, transportation, disposal, and suitability for the intended utilisation of the product. Unless otherwise specified, the data provided herein is valid only for the described material and may be not applicable for the product used in combination with any other materials or processes. Colorado Paint Company / Swarco shall not be liable for any damage resulting from handling, contact, use, or inability to use of this product. No guarantee, expressed or implied, is made by Colorado Paint Company / Swarco and the user assumes all risk and responsibility.

MATERIAL SAFETY DATA SHEET
(Approved by U.S. Department of Labor; Essentially similar to form OSHA-20)

SWARCO REFLEX , INC.
900 NORTH DENTON ROAD
MEXIA, TEXAS 76667
PHONE: 1-254-562-9879
EMERGENCY TELEPHONE NUMBER 1800-874-4173

SECTION I

PRODUCT NAME: Swarco Reflex Glass Bead
CHEMICAL FAMILY: Glass Oxide
CAS NUMBER: 65997-17-3

HMIS: Health 0 **Flammability: 0** **Reactivity: 0**

SECTION II – HAZARDOUS INGREDIENTS

MATERIAL OF COMPONENTS	%	CAS NO.	PEL	TLV
Nuisance Dust	---	----------	15 mg/m 3	10 mg / m 3
Nuisance Dust-Respirator	---	----------	5 mg/m3	5 mg/m3

Glass beads are not considered to be hazardous by the EPA under 29 CFR 1910.1200 and the Federal Register, Vol. 51, No. 221, pp. 41582-41594. The RCRA status of unused material is not hazardous according to the list of CERCLA chemicals. It is not on the toxic chemical list in the Committee Print Number 99-169.

SECTION III –PHYSICAL DATA

VAPOR PRESSURE: N/A
VAPOR DENSITY: N/A
MELTING POINT: > 1100 F
SPECIFIC GRAVITY: 2.4-2.6
BOILING POINT: Not Measurable
SOLUBILITY IN WATER: N/A
APPEARANCE AND ODOR: White, No taste or Odor
EVAPORATION RATE: N/A

SECTION IV- FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: **N/A**
FLAMMABLE LIMITS: **Does not ignite**
EXTINGUISHING MEDIA: **Not a fire hazard**
SPECIAL FIRE FIGHTING PROCEDURES: **None**
UNUSUAL FIRE & EXPLOSION HAZARDS: **None**
LEL & UEL: **N/A**

SECTION V – HEALTH HAZARD DATA

HEALTH HAZARDS: **None**
CARCINOGENIC: **No**
ROUTES OF ENTRY: **Inhalation, Ingestion**
WORK/HYGENIC PRACTICES: **Wash hands after handling beads and before**
EFFECTS OF OVEREXPOSURE: **May cause temporary respiratory and eye irritation**
EMERGENCY & FIRST AID PROCEDURES: **If beads or dust cause eye irritation, flush the affected eye(s) with water or commercial eye wash. If existing respiratory/conditions are aggravated in your use of this product, get to a well ventilated area. Seek medical attention for either emergency if condition is not alleviated.**

SECTION VI-REACTIVITY DATA

STABILITY:	**Stable**
CONDITIONS TO AVOID:	**None**
INCOMPATIBILITY(Materials to avoid):	**None**
HAZARDOUS DECOMPOSITION PRODUCTS:	**None**
HAZARDOUS POLYMERIZATION:	**Will not occur**

SECTION VII – SPILL OR LEAK PROCEDURES

STEPS IN CASE OF SPILLED OR RELEASED MATERIAL:
Vacuum or sweep up excess material to avoid a possible slipping hazard.
WASTE DISPOSAL METHOD:
Glass beads may be disposed in a solid waste landfill if permitted by applicable Federal, State and Local Regulation.

SECTION VIII – SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	**NIOSH approved dust respirator or dust mask**
VENTILATION:	**Mechanical and local exhaust recommended when generating excessive levels of airborne dust.**
PROTECTIVE GLOVES:	**As require per job.**
EYE PROTECTION:	**Safety Glasses or Goggles**
OTHER PROTECTIVE EQUIPMENT:	**None**

SECTION IX – SPECIAL PRECAUTIONS

PRECAUTIONS IN HANDLING AND STORAGE:	**None**
OTHER PRECAUTIONS:	**None**

Safety Data Sheet

according to OSHA Hazard Communication
29 CFR Part 1910.1200

Section 1. Identification

Product Information: 22W-D015

Product Name: WHITE 100 g/l VOC ACRYLIC SOLVENT-BORNE TRAFFIC MARKING PAINT

Recommended Use: Liquid Paint

Application Method: Liquid Surface Paint

Supplied by: Aexcel Corporation
7373 Production Drive.
Mentor, OH 44060

Emergency Telephone: Chemtrec: 800-424-9300

Safety Data Sheet Coordinator: lWebb@AexcelCorp.com

Section 2. Hazard(s) identification

EMERGENCY OVERVIEW: Flammable liquid and vapor.

GHS Classification
Carc. 2, Flam. Liq. 2, STOT SE 3 NE

Symbol(s) of Product

Signal Word
Danger

GHS ADDITIONAL INFORMATION

	H362	Contains one or more Category 1 or Category 2 Reproductive Toxicants at greater than 0.1%. A Safety Data Sheet shall be available for the mixture upon request.

GHS HAZARD STATEMENTS

Flammable Liquid, category 2	H225	Highly flammable liquid and vapour.
STOT, single exposure, category 3, NE	H336	May cause drowsiness or dizziness.
Carcinogenicity, category 2	H351	Suspected of causing cancer.

GHS LABEL PRECAUTIONARY STATEMENTS

P201	Obtain special instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.

P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a POISON CENTER/doctor if you feel unwell.
P370+P378	In case of fire: Use dry chemical, carbon dioxide, or foam to extinguish.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local rules and regulations.

GHS SDS PRECAUTIONARY STATEMENTS

P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.

Section 3. Composition/Information on ingredients

Chemical Name	CAS-No.	Wt. %	GHS Symbols	GHS Statements
ACETONE	67-64-1	10-25	GHS02-GHS07	H225-320-335-336
AROMATIC PETROLEUM DISTILATES	64742-94-5	1.0-2.5	GHS07-GHS08	H227-304-336-351
TOLUENE	108-88-3	1.0-2.5	GHS02-GHS07-GHS08	H225-304-315-319-336-361-373
METHANOL	67-56-1	0.1-1.0	GHS02-GHS06-GHS08	H225-301-311-319-331-360-370

The text for GHS Hazard Statements shown above (if any) is given in the "Other information" Section.

Section 4. First-aid measures

FIRST AID - INHALATION: Move to fresh air in case of accidental inhalation of vapors or decomposition products. Move to fresh air. Oxygen or artificial respiration if needed.

FIRST AID - SKIN CONTACT: If skin irritation persists, call a physician. Wash off immediately with soap and plenty of water. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Wash off with soap and water.

FIRST AID - EYE CONTACT: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Rinse with plenty of water.

FIRST AID - INGESTION: Consult a physician. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

Section 5. Fire-fighting measures

UNUSUAL FIRE AND EXPLOSION HAZARDS: Remove all sources of ignition.

SPECIAL FIREFIGHTING PROCEDURES: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

EXTINGUISHING MEDIA: Alcohol Foam, Carbon Dioxide, Dry Chemical, Foam

Section 6. Accidental release measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Soak up with inert absorbent material and dispose of as hazardous waste.

Section 7. Handling and storage


HANDLING: Containers of this material may be hazardous when emptied. Handle in accordance with good industrial hygiene and safety practice.

STORAGE: Harmful - Store away from foodstuffs. Keep containers tightly closed. Keep in a well-ventilated place. Keep locked-up.

Section 8. Exposure controls/personal protection

Ingredients with Occupational Exposure Limits

Chemical Name	ACGIH TLV-TWA	ACGIH-TLV STEL	OSHA PEL-TWA	OSHA PEL-CEILING
ACETONE	500	750	1000	NE
AROMATIC PETROLEUM DISTILATES	10	15	10	NE
TOLUENE	50	150	200	300
METHANOL	200	250	200	NE

Further Advice: MEL = Maximum Exposure Limit OES = Occupational Exposure Standard SUP = Supplier's Recommendation Sk = Skin Sensitizer N.E. = Not Established

Personal Protection

RESPIRATORY PROTECTION: In the case of respirable dust and/or fumes, use self-contained breathing apparatus.

SKIN PROTECTION: Impervious gloves.

EYE PROTECTION: Safety glasses with side-shields.

OTHER PROTECTIVE EQUIPMENT: Impervious clothing.

HYGIENIC PRACTICES: Contaminated work clothing should not be allowed out of the workplace. Keep working clothes separately.

9. Physical and Chemical Properties

Boiling Range:	56 - 485	**Vapor Density:**	4.00
Odor:	Characteristic	**Odor Threshold:**	NE
Appearance:	Heavy White Liquid	**Evaporation Rate:**	116.00
Solubility in Water:	NE	**Specific Gravity:**	1.544
Freeze Point:	NE	**pH:**	NE
Vapor Pressure:	226.00	**Viscosity:**	NE
Physical State:	Liquid	**Flash Point, °C:**	-20, °F -4

(See section 16 for abbreviation legend)

CHEMICAL NAME	VAPOR DENSITY	EVAPORATION RATE	BOILING POINT	VP mmHg	at DEG. F
ACETONE	2.00	14.40	133	226.00	68

AROMATIC PETROLEUM DISTILATES	4.00	0.09	354	1.00	68
TOLUENE	3.20	2.00	233	16.70	68
METHANOL	1.11	5.20	149	47.30	77

Section 10. Stability and reactivity

STABILITY: Stable under normal conditions.

CONDITIONS TO AVOID: Avoid contact with skin, eyes and clothing.

INCOMPATIBILITY: Keep away from strong oxidizing agents, heat and open flames.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Monoxide, Carbon Dioxide

Section 11. Toxicological information

Practical Experiences

EFFECT OF OVEREXPOSURE - INHALATION: Inhalation may cause irritation to the respiratory tract (nose, mouth, mucous membranes).

EFFECT OF OVEREXPOSURE - SKIN CONTACT: Local ventilation of emission sources may be necessary to maintain ambient concentrations below recommended exposure limits.

EFFECT OF OVEREXPOSURE - EYE CONTACT: Direct eye contact may cause irritation.

EFFECT OF OVEREXPOSURE - INGESTION: Harmful: may cause lung damage if swallowed. Harmful: possible risk of irreversible effects if swallowed. May be fatal or cause blindness.

Acute Toxicity Values
The acute effects of this product have not been tested. Data on individual components are tabulated below:

CAS-No.	Name according to EEC	Oral LD50	Dermal LD50	Vapor LC50
67-64-1	ACETONE	N.I.	N.I.	N.I.
64742-94-5	AROMATIC PETROLEUM DISTILATES	N.I.	N.I.	N.I.
108-88-3	TOLUENE	5580	12196	12500
67-56-1	METHANOL	N.I.	N.I.	N.I.

N.I. - No Information

Section 12. Ecological information

ECOLOGICAL INFORMATION: Do not contaminate ponds, waterways or ditches with chemical or used container.

Section 13. Disposal considerations

Product

DISPOSAL METHOD: Contact waste disposal services.

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Soak up with inert absorbent material and dispose of as hazardous waste.

Section 14. Transport information

SPECIAL TRANSPORT PRECAUTIONS: No Information

DOT Proper Shipping Name:	Paint, Flammable Liquid	**Packing Group:**	II
DOT Technical Name:	Paint	**Hazard SubClass:**	No Information
DOT Hazard Class:	3	**Resp. Guide Page:**	128
DOT UN/NA Number:	1263		

Section 15. Regulatory information

U.S. Federal Regulations:

CERCLA - SARA Hazard Category

This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

SARA SECTION 312:

Chemical Name	CAS-No.
ACETONE	67-64-1
AROMATIC PETROLEUM DISTILATES	64742-94-5
TOLUENE	108-88-3
METHANOL	67-56-1

SARA SECTION 313:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

Chemical Name	CAS-No.
TOLUENE	108-88-3
NAPHTHALENE	91-20-3
METHANOL	67-56-1
1,2,4 TRIMETHYLBENZENE	95-63-6

TOXIC SUBSTANCES CONTROL ACT:

All components of this material are listed on the US Toxic Substance Control Act (TSCA inventory).

U.S. State Regulations:

NEW JERSEY RIGHT-TO-KNOW:

The following materials are non-hazardous, but are among the top five components in this product.

Chemical Name	CAS-No.
CALCIUM CARBONATE	1317-65-3
BUTYL METHACRYLATE COPOLYMER	28262-63-7
TITANIUM DIOXIDE	13463-67-7

PENNSYLVANIA RIGHT-TO-KNOW

The following non-hazardous ingredients are present in the product at greater than 3%.

Chemical Name	CAS-No.
CALCIUM CARBONATE	1317-65-3
BUTYL METHACRYLATE COPOLYMER	28262-63-7
TITANIUM DIOXIDE	13463-67-7

CALIFORNIA PROPOSITION 65 CARCINOGENS

Warning: The following ingredients present in the product are known to the state of California to cause Cancer:

Chemical Name	CAS-No.
NAPHTHALENE	91-20-3

CALIFORNIA PROPOSITION 65 REPRODUCTIVE TOXINS

Warning: The following ingredients present in the product are known to the state of California to cause birth defects, or other reproductive hazards.

Chemical Name	CAS-No.
TOLUENE	108-88-3
METHANOL	67-56-1

International Regulations: As follows -

CANADIAN WHMIS:

All components of this material are listed on the Domestic Substance List.

WHMIS Class: No Information

Section 16. Other information, including date of preparation of the last revision

Revision Date: 3/9/2016 **Supercedes Date:** New MSDS

Reason for revision: GHS

Datasheet produced by: Regulatory Department

HMIS Ratings:

Health:	2	Flammability:	3	Reactivity:	0	Personal Protection:	X

Volatile Organic Compounds, gr/ltr: 97*

Text for GHS Hazard Statements shown in Section 3 describing each ingredient:

H225	Highly flammable liquid and vapour.
H227	Combustible liquid
H301	Toxic if swallowed.
H304	May be fatal if swallowed and enters airways.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H320	Causes eye irritation
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H361	Suspected of damaging fertility or the unborn child.
H370	Causes damage to organs . Classified Category 1 Substances that produced significant toxicity in humans and evidence to produce significant toxicity with single exposure. Cell death, adverse change in biochemistry, haematology or urinalysis parameters, Central or peripheral nervous system and effects senses. multifocal or diffuse necrosis, fibrosis or granuloma formation in organs.
H373	May cause damage to organs through prolonged or repeated exposure.

Icons for GHS Pictograms shown in Section 3 describing each ingredient:

GHS02 

GHS06 

GHS07 

GHS08 

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined, N.I. - No Information

No Information

*Please note: Prior to March 8,2016, this product's VOC were greater than 100 grams per liter.

Safety Data Sheet

according to OSHA Hazard Communication
29 CFR Part 1910.1200

Section 1. Identification

Product Information: 22Y-D014

Product Name: YELLOW 100 g/l VOC ACRYLIC SOLVENT-BORNE TRAFFFIC MARKING PAINT

Recommended Use: Liquid Paint

Application Method: Liquid Surface Paint

Supplied by: Aexcel Corporation
7373 Production Drive.
Mentor, OH 44060

Emergency Telephone: Chemtrec: 800-424-9300

Safety Data Sheet Coordinator: lWebb@AexcelCorp.com

Section 2. Hazard(s) identification

EMERGENCY OVERVIEW: Flammable liquid and vapor.

GHS Classification
Carc. 2, Flam. Liq. 2, STOT SE 3 NE, STOT SE 3 RTI

Symbol(s) of Product

Signal Word
Danger

GHS ADDITIONAL INFORMATION

	H362	Contains one or more Category 1 or Category 2 Reproductive Toxicants at greater than 0.1%. A Safety Data Sheet shall be available for the mixture upon request.

GHS HAZARD STATEMENTS

Flammable Liquid, category 2	H225	Highly flammable liquid and vapour.
STOT, single exposure, category 3, RTI	H335	May cause respiratory irritation.
STOT, single exposure, category 3, NE	H336	May cause drowsiness or dizziness.
Carcinogenicity, category 2	H351	Suspected of causing cancer.

GHS LABEL PRECAUTIONARY STATEMENTS

P201	Obtain special instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.

P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a POISON CENTER/doctor if you feel unwell.
P370+P378	In case of fire: Use dry chemical, carbon dioxide, or foam to extinguish.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local rules and regulations.

GHS SDS PRECAUTIONARY STATEMENTS

P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.

Section 3. Composition/Information on ingredients

Chemical Name	CAS-No.	Wt. %	GHS Symbols	GHS Statements
ACETONE	67-64-1	10-25	GHS02-GHS07	H225-320-335-336
AROMATIC PETROLEUM DISTILATES	64742-94-5	1.0-2.5	GHS07-GHS08	H227-304-336-351
TOLUENE	108-88-3	1.0-2.5	GHS02-GHS07-GHS08	H225-304-315-319-336-361-373
METHANOL	67-56-1	0.1-1.0	GHS02-GHS06-GHS08	H225-301-311-319-331-360-370

The text for GHS Hazard Statements shown above (if any) is given in the "Other information" Section.

Section 4. First-aid measures

FIRST AID - INHALATION: Move to fresh air in case of accidental inhalation of vapors or decomposition products. Move to fresh air. Oxygen or artificial respiration if needed.

FIRST AID - SKIN CONTACT: If skin irritation persists, call a physician. Wash off immediately with soap and plenty of water. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Wash off with soap and water.

FIRST AID - EYE CONTACT: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Rinse with plenty of water.

FIRST AID - INGESTION: Consult a physician. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

Section 5. Fire-fighting measures

UNUSUAL FIRE AND EXPLOSION HAZARDS: Remove all sources of ignition.

SPECIAL FIREFIGHTING PROCEDURES: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

EXTINGUISHING MEDIA: Alcohol Foam, Carbon Dioxide, Dry Chemical, Foam

Section 6. Accidental release measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Soak up with inert absorbent material and dispose of as hazardous waste.

Section 7. Handling and storage


HANDLING: Containers of this material may be hazardous when emptied. Handle in accordance with good industrial hygiene and safety practice.

STORAGE: Harmful - Store away from foodstuffs. Keep containers tightly closed. Keep in a well-ventilated place. Keep locked-up.

Section 8. Exposure controls/personal protection

Ingredients with Occupational Exposure Limits

Chemical Name	ACGIH TLV-TWA	ACGIH-TLV STEL	OSHA PEL-TWA	OSHA PEL-CEILING
ACETONE	500	750	1000	NE
AROMATIC PETROLEUM DISTILATES	10	15	10	NE
TOLUENE	50	150	200	300
METHANOL	200	250	200	NE

Further Advice: MEL = Maximum Exposure Limit OES = Occupational Exposure Standard SUP = Supplier's Recommendation Sk = Skin Sensitizer N.E. = Not Established

Personal Protection

RESPIRATORY PROTECTION: In the case of respirable dust and/or fumes, use self-contained breathing apparatus.

SKIN PROTECTION: Impervious gloves.

EYE PROTECTION: Safety glasses with side-shields.

OTHER PROTECTIVE EQUIPMENT: Impervious clothing.

HYGIENIC PRACTICES: Contaminated work clothing should not be allowed out of the workplace. Keep working clothes separately.

9. Physical and Chemical Properties

Boiling Range:	56 - 485	**Vapor Density:**	4.00
Odor:	Characteristic	**Odor Threshold:**	NA
Appearance:	Heavy Yellow Liquid	**Evaporation Rate:**	14.40
Solubility in Water:	NE	**Specific Gravity:**	1.475
Freeze Point:	NE	**pH:**	NE
Vapor Pressure:	226.00	**Viscosity:**	NE
Physical State:	Liquid	**Flash Point, °C:**	-20, °F -4

(See section 16 for abbreviation legend)

CHEMICAL NAME	VAPOR DENSITY	EVAPORATION RATE	BOILING POINT	VP mmHg	at DEG. F
ACETONE	2.00	14.40	133	226.00	68

AROMATIC PETROLEUM DISTILATES	4.00	0.09	354	1.00	68
TOLUENE	3.20	2.00	233	16.70	68
METHANOL	1.11	5.20	149	47.30	77

Section 10. Stability and reactivity

STABILITY: Stable under normal conditions.

CONDITIONS TO AVOID: Avoid contact with skin, eyes and clothing.

INCOMPATIBILITY: Keep away from strong oxidizing agents, heat and open flames.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Monoxide, Carbon Dioxide

Section 11. Toxicological information

Practical Experiences

EFFECT OF OVEREXPOSURE - INHALATION: Inhalation may cause irritation to the respiratory tract (nose, mouth, mucous membranes).

EFFECT OF OVEREXPOSURE - SKIN CONTACT: Local ventilation of emission sources may be necessary to maintain ambient concentrations below recommended exposure limits.

EFFECT OF OVEREXPOSURE - EYE CONTACT: Direct eye contact may cause irritation.

EFFECT OF OVEREXPOSURE - INGESTION: Harmful: may cause lung damage if swallowed. Harmful: possible risk of irreversible effects if swallowed. May be fatal or cause blindness.

Acute Toxicity Values
The acute effects of this product have not been tested. Data on individual components are tabulated below:

CAS-No.	Name according to EEC	Oral LD50	Dermal LD50	Vapor LC50
67-64-1	ACETONE	N.I.	N.I.	N.I.
64742-94-5	AROMATIC PETROLEUM DISTILATES	N.I.	N.I.	N.I.
108-88-3	TOLUENE	5580	12196	12500
67-56-1	METHANOL	N.I.	N.I.	N.I.

N.I. - No Information

Section 12. Ecological information

ECOLOGICAL INFORMATION: Do not contaminate ponds, waterways or ditches with chemical or used container.

Section 13. Disposal considerations

Product

DISPOSAL METHOD: Contact waste disposal services.

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Soak up with inert absorbent material and dispose of as hazardous waste.

Section 14. Transport information

SPECIAL TRANSPORT PRECAUTIONS: No Information

DOT Proper Shipping Name:	Paint, Flammable Liquid	**Packing Group:**	II
DOT Technical Name:	Paint	**Hazard SubClass:**	No Information
DOT Hazard Class:	3	**Resp. Guide Page:**	128
DOT UN/NA Number:	1263		

Section 15. Regulatory information

U.S. Federal Regulations:

CERCLA - SARA Hazard Category

This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

SARA SECTION 312:

Chemical Name	CAS-No.
ACETONE	67-64-1
AROMATIC PETROLEUM DISTILATES	64742-94-5
TOLUENE	108-88-3
METHANOL	67-56-1

SARA SECTION 313:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

Chemical Name	CAS-No.
TOLUENE	108-88-3
NAPHTHALENE	91-20-3
METHANOL	67-56-1
1,2,4 TRIMETHYLBENZENE	95-63-6

TOXIC SUBSTANCES CONTROL ACT:

All components of this material are listed on the US Toxic Substance Control Act (TSCA inventory).

U.S. State Regulations:

NEW JERSEY RIGHT-TO-KNOW:

The following materials are non-hazardous, but are among the top five components in this product.

Chemical Name	CAS-No.
CALCIUM CARBONATE	1317-65-3
BUTYL METHACRYLATE COPOLYMER	28262-63-7
MONOAZO YELLOW	6358-31-2

PENNSYLVANIA RIGHT-TO-KNOW

The following non-hazardous ingredients are present in the product at greater than 3%.

Chemical Name	CAS-No.
CALCIUM CARBONATE	1317-65-3
BUTYL METHACRYLATE COPOLYMER	28262-63-7

CALIFORNIA PROPOSITION 65 CARCINOGENS

Warning: The following ingredients present in the product are known to the state of California to cause Cancer:

Chemical Name	CAS-No.
NAPHTHALENE	91-20-3

CALIFORNIA PROPOSITION 65 REPRODUCTIVE TOXINS

Warning: The following ingredients present in the product are known to the state of California to cause birth defects, or other reproductive hazards.

Chemical Name	CAS-No.
TOLUENE	108-88-3
METHANOL	67-56-1

International Regulations: As follows -

CANADIAN WHMIS:

All components of this material are listed on the Domestic Substance List.

WHMIS Class: No Information

Section 16. Other information, including date of preparation of the last revision

Revision Date: 3/9/2016 **Supercedes Date:** New MSDS

Reason for revision: GHS

Datasheet produced by: Regulatory Department

HMIS Ratings:

Health:	2	Flammability:	3	Reactivity:	0	Personal Protection:	X

Volatile Organic Compounds, gr/ltr: 98*

Text for GHS Hazard Statements shown in Section 3 describing each ingredient:

H225	Highly flammable liquid and vapour.
H227	Combustible liquid
H301	Toxic if swallowed.
H304	May be fatal if swallowed and enters airways.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H320	Causes eye irritation
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H361	Suspected of damaging fertility or the unborn child.
H370	Causes damage to organs . Classified Category 1 Substances that produced significant toxicity in humans and evidence to produce significant toxicity with single exposure. Cell death, adverse change in biochemistry, haematology or urinalysis parameters, Central or peripheral nervous system and effects senses. multifocal or diffuse necrosis, fibrosis or granuloma formation in organs.
H373	May cause damage to organs through prolonged or repeated exposure.

Icons for GHS Pictograms shown in Section 3 describing each ingredient:

GHS02

GHS06 

GHS07 

GHS08 

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined, N.I. - No Information No Information

*Please note: Prior to March 8, 2016, this product's VOC's were greater than 100 grams per liter.

Safety Data Sheet (SDS)

Date Prepared/Revised: 8/10/2015 Version no.: 02 Supersedes: (11/10/2014)

1.) Identification of the Mixture and of the Company

Product identifier**: Striping Paint (solvent based) - Aerosol**

Product name:

710 Traffic White	750 Traffic Blue
715 Field White	760 Traffic Green
720 Traffic Yellow	770 Asphalt Black
730 Traffic Red	780 Clear
740 Traffic Orange	

Relevant identified uses of the substance: May be used on grass, artificial turf, or dirt for line striping playgrounds, football, baseball, softball, soccer, and track fields.
Uses advised against: Poorly ventilated areas

CAS No:	**Not Applicable (mixture)**
EC No:	**Not Applicable (mixture)**
Index No:	**Not Applicable (mixture)**
Manufacturer/Supplier:	**Aervoe Industries Incorporated**
Street address/P.O. Box:	**1100 Mark Circle**
Country ID/Postcode/Place	**Gardnerville, Nevada 89410**
Telephone number:	**001 (0) 1-775-782-0100**
e-mail:	**mailbox@aervoe.com**
National contact:	**Aervoe Industries Incorporated**
For Product Information:	00**1 (0) 1-800-227-0196**
Emergency telephone number:	**001 (0) 1-800-424-9300 (CHEMTREC – 24 hrs)**
	English Language Service

2. Hazards identification

Physical Hazards:
Aerosol - Category 1
Flam. Gas 1
Flam. Liq. 2
Flam. Liq. 3

Health Hazards:
Carc. 1B
Muta. 1B
Asp. Tox. 1
Eye Irrit. 2
STOT SE 3
Repr. 2 (excluding 780)
STOT RE 2 (excluding 780)
Skin Irrit. 2 (excluding 780)
Acute Tox. 4

Environmental Hazards: Aquatic Chronic 2 (excluding 780)

Labeling

Signal Word: Danger

Hazard Statements:
H220 – Extremely flammable gas
H222 – Extremely flammable aerosol
H225 – Highly flammable liquid and vapour.
H226 – Flammable liquid and vapour.
H229 – Pressurized container: may burst if heated
H304 – May be fatal if swallowed and enters airways
H312 – Harmful in contact with skin.
H315 – Causes skin irritation. (excluding 780)
H319 – Causes serious eye irritation.
H332 – Harmful if inhaled.
H336 – May cause drowsiness or dizziness.
H340 – May cause genetic defects
H350 – May cause cancer
H361 – Suspected of damaging fertility or the unborn child . (excluding 780)
H373 – May cause damage to nervous system through prolonged or repeated exposure (Inhalation) (excluding 780)
H400 – Very toxic to aquatic life. (excluding 780)
H410 – Very toxic to aquatic life with long lasting effects. (excluding 780)

Precautionary Statements:
P101 - If medical advice is needed, have product container or label at hand
P102 - Keep out of reach of children
P103 - Read label before use
P210 - Keep away from heat/sparks/open flames/hot surfaces - no smoking
P211 - Do not spray on an open flame or other ignition source
P251 - Pressurized container: Do not pierce or burn, even after use
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray
P262 - Do not get in eyes, on skin, or on clothing
P264 - Wash … thoroughly after handling
P280 - Wear protective gloves/eye protection/face protection

P303+P361+P353 - If on skin or hair, remove/takeoff immediately all contaminated clothing. Rinse skin with water/shower.
P410+P412 - Protect from sunlight. Do not expose to temperatures exceeding 50ºC/122ºF
P501 - Dispose of contents/container in accordance with local/regional/national/international regulation
P251 - Pressurized container: Do not pierce or burn, even after use
P273 – Avoid release to the environment.

Date Prepared/Revised: 8/10/2015 Version no.: 02 Supersedes: (11/10/2014)

Symbols/Pictograms:

3. Composition / Information on Ingredients

Composition

Chemical	Synonyms	CAS Number	EINECS Number	Weight Percent	Hazard Category	H-Code
Hydrocarbon Propellant	LPG	68476-86-8	270-705-8	10-30%	Press. Gas Flam. Gas 1 Carc. 1B Muta. 1B	H220 H350 H340
Hexane	n-Hexane	110-54-3	203-777-6	7-13%	Flam. Liq. 2 Repr. 2 Asp. Tox. 1 STOT RE 2 * Skin Irrit. 2 STOT SE 3 Aquatic Chronic 2	H225 H361f *** H304 H373 ** H315 H336 H411
Aliphatic Petroleum Distillates	Solvent Naphtha	64742-89-8	265-192-2	7-13%	Carc. 1B Muta. 1B Asp. Tox. 1	H350 H340 H304
Acetone	Propanone	67-64-1	200-662-2	3-7%	Flam. Liq. 2 Eye Irrit. 2 STOT SE 3	H225, H319, H336
n-Butyl Acetate	n-Butyl Ester	123-86-4	204-658-1	3-7%	Flam. Liq. 3 STOT SE 3	H226 H336
Ethyl Acetate	Ethanoate	141-78-6	205-500-4	1-5%	Flam. Liq. 2 Eye Irrit. 2 STOT SE 3	H225 H319 H336
2-Butoxyethyl Acetate	Butyl Glycol Acetate	112-07-2	203-933-3	1-5%	Acute Tox. 4	H332 H312
780 contains						
Acetone	Propanone	67-64-1	200-662-2	10-30%	Flam. Liq. 2	H225,

					Eye Irrit. 2 STOT SE 3	H319, H336
Hydrocarbon Propellant	LPG	68476-86-8	270-705-8	10-30%	Press. Gas Flam. Gas 1 Carc. 1B Muta. 1B	H220 H350 H340
n-Butyl Acetate	n-Butyl Ester	123-86-4	204-658-1	10-30%	Flam. Liq. 3 STOT SE 3	H226 H336
Ethyl Acetate	Ethanoate	141-78-6	205-500-4	7-13%	Flam. Liq. 2 Eye Irrit. 2 STOT SE 3	H225 H319 H336
2-Butoxyethyl Acetate	Butyl Glycol Acetate	112-07-2	203-933-3	1-5%	Acute Tox. 4 * Acute Tox. 4 *	H332 H312

Other Product Information

Chemical Identity: Mixture

4.) First Aid Measures

General Advice: If symptoms persist, always call a doctor.

Inhalation First Aid: Remove victim to fresh air and provide oxygen if breathing is difficult. If not breathing, give artificial respiration, preferably mouth to mouth. Get medical attention immediately.

Skin Contact First Aid: Wash with soap and water. Remove contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse.

Eye Contact First Aid: If contact with eyes, immediately flush eyes with plenty of water for at least 15 minutes, while holding eyelids open. Get medical attention immediately.

Ingestion First Aid: If swallowed, wash out mouth with water provided the person is conscious. Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Most Important Symptoms/Effects: Exposure may cause slight irritation to the skin, eyes, and respiratory tract. Excessive exposure may cause central nervous system effects.

5. Fire Fighting Measures

Flammable Properties:	Aerosol
Auto Ignition Temperature:	Not Available
Suitable extinguishing media:	Carbon dioxide, dry chemical, water spray.
Unsuitable extinguishing media:	None known
Special hazards arising from the substance or mixture:	None known
Hazardous combustion products:	Carbon dioxide, Carbon monoxide
Fire & Explosion Hazards:	Closed Containers may rupture due to the buildup of pressure from extreme temperatures.
Precautions for fire-fighters:	Use water spray to cool containers exposed to heat or fire to prevent pressure build up. In the event of a fire, wear full protective clothing and NIOSH- approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

PERSONAL PRECAUTIONARY MEASURES:

1) Follow personal protective equipment recommendations found in section 8.
2) Maintain adequate ventilation.

SPILL CLEAN-UP PROCEDURES:

1.) Evacuate unprotected personnel from the area.
2.) Remove sources of ignition if safe to do so.
3.) Pickup spilled materials using non-sparking tools and place in an appropriate container for disposal.
4.) Contain spill to prevent material from entering sewage or ground water systems.
5.) Always dispose of waste materials in accordance with all EU, National and Local Regulations.

7. Handling and Storage

Handling:

Flammable Aerosol, use in a well ventilated area.
Do not use near sources of ignition.
Do not to eat, drink and smoke while working with this material.
Wash hands after use.

Conditions for safe storage, including any incompatibilities:

Store out of direct sunlight.
Storage Temperature: 32° to 120°F (0° to 49°C).
No known incompatibilities.

8. Exposure Controls / Personal Protection

Appropriate engineering controls:

Ensure adequate ventilation. A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits.

Keep away from sources of ignition.
Take precautionary measures against static discharge.

Personal Protection:
Eye & face protection devices such as safety glasses, safety goggles or face shield are recommended.

Skin protection
Wear the appropriate protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection:
Use only in an adequately ventilated area. For unknown vapor concentrations use a positive-pressure, pressure-demand, self-contained breathing apparatus (SCBA).

Hazardous Ingredient	CAS Number	ACGIH TLV (TWA)	ACGIH TLV (STEL)	OSHA PEL (TWA)	OSHA PEL (STEL)
Hydrocarbon Propellant	68476-86-8	N/AV	N/AV	N/AV	N/AV
Hexane	110-54-3	50ppm	N/AV	500ppm	N/AV
Aliphatic Petroleum Distillates	64742-89-8	N/AV	N/AV	N/AV	N/AV
Acetone	67-64-1	500ppm	750ppm	1000ppm	N/AV
n-Butyl Acetate	123-86-4	150ppm	200ppm	150ppm	N/AV
Ethyl Acetate	141-78-6	400ppm	N/AV	400ppm	N/AV
2-Butoxyethyl Acetate	112-07-2	20ppm	N/AV	N/AV	N/AV

***Values are based on the 2014 Guide to Occupational Exposure Values by ACGIH**

9. Information on Basic Physical and Chemical Properties

Appearance: Color varies by product	Odor: Hydrocarbon odor
Odor Threshold: N/AV	pH: Not Applicable (solvent Base)
Melting Point: N/AV	Freezing Point: N/AV
Initial Boiling Point: N/AV	Boiling Point Range: N/AV
Flash Point: <0° F (-18° C)	Evaporation Rate: Faster than n-Butyl Acetate
Flammability Solid/Gas: Flammable gas	LEL: 1.1% UEL: 18%
Vapor Pressure: N/AV	Vapor Density: Heavier Than Air
Relative Density: N/AV	Solubility: Negligible
Partition Coefficient: N/AV n-octanol/ water: N/AV	Auto-ignition Temperature: N/AV
Decomposition Temperature: N/AV	Viscosity: N/AV

Explosive Properties: N/AV	Oxidizing Properties: N/AV

10. Stability & Reactivity

Possibility of hazardous reactions: Hazardous polymerization will not occur under normal conditions
Chemical stability: Stable under normal conditions
Conditions to avoid: Heat and ignition sources
Incompatible materials: Strong Oxidizing Agents
Hazardous decomposition products: Will not occur

11. Toxicological Information

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage. Repeated overexposure can also damage kidneys, lungs, liver, heart and blood

Routes of exposure: Eyes, skin, ingestion, and/or inhalation

Acute toxicological data:	(Acetone) LD50: 5800 mg/kg (Rat-Oral) (Acetone) LC50: 21000 ppm/8 hr (Rat-Inha) (2-Butoxyethyl Acetate)CD50: 2400mg/kg (Rat-Oral) (2-Butoxyethyl Acetate) LC50:450ppm,4h (Rat-Oral)
Eye irritation data:	N/AV
Skin irritation/sensitization/absorption data:	N/AV
Reproductive toxicity data:	N/AV
Mutagenicity data:	Muta,. 1B
Symptoms associated with physical contact:	N/AV
Acute/chronic effects from short/long term exposure:	Irritating to skin. Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis. Not expected to be a skin sensitizer.
Known reportable carcinogens via the following agencies:	
NTP:	N/AV
IARC:	N/AV
OSHA:	TLV-A4

* Petroleum distillates may contain chemical carcinogens in limited quantities (< 0.01%). These quantities are determined by the supplier/fraction/purity of the distillate during the manufacturing process. Chemicals that may be present within distillates are listed on California's prop 65 list such as ETHYLBENZENE, BENZENE, and TOLUENE.

12. Ecological Information

Ecotoxicity: **No Data Available**
Persistence and degradability: **No Data Available**
Bioaccumulative potential: **No Data Available**
Mobility in soil: **No Data Available**
Results of PBT and vPvB assessment: **No Data Available**
Other adverse effects: **No Data Available**

13. Disposal Considerations

Waste Disposal: Dispose of material in accordance with EU, national and local requirements. For proper disposal of used material, an assessment must be completed to determine the proper and permissible waste management options permitted under applicable rules, regulations and/or laws governing your location.
Product / Packaging disposal: Dispose of packaging in accordance with federal, state and local requirements, regulations and/or laws governing your location.

14. Transportation Information

US DOT

UN Number	Proper Shipping Name	Hazard Class	Packing Group	Marine Pollutant	Special Provisions
UN1950	Aerosols	2.1	Not Applicable	Not Applicable	Reference 49 CFR 172.101

IMDG

UN Number	Proper Shipping Name	Hazard Class	Packing Group	Marine Pollutant	Special Provisions
UN1950	Aerosols	2.1	Not Applicable	Not Applicable	Reference IMDG code part 3

IATA:

UN Number	Proper Shipping Name	Hazard Class	Packing Group	Marine Pollutant	Special Provisions
UN1950	Aerosols, Flammable	2.1	Not Applicable	Not Applicable	Reference IATA Dangerous Goods Regulation

15. Regulatory Information

Workplace classification:
This product is considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200). The Occupational Safety and Health Administration's interpretation of the product's hazard to workers.
SARA Title 3:
Section 311/312 Categorizations (40 CFR 372): This product is a hazardous chemical under 29 CFR 1910.1200, and is categorized as an immediate and delayed health, and flammability physical hazard. Superfund Amendment and Reauthorization Act (SARA) category. SARA requires reporting any spill of any hazardous substance.
TSCA status: All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.
WHMIS: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the (M)SDS contains all of the information required by the CPR.
PROP 65 (CA): WARNING: This product may contain chemicals know to the state of California to cause cancer, birth defects or other reproductive harm.

16. Other Information

This SDS has been completed in accordance with GHS Rev04 (2011): U.S OSHA, CMA, ANSI, Canadian WHMIS standards, and European Directives.

Date of Preparation/Revision: 8/10/2015
Supersedes: 11/10/2014

To the best of our knowledge, the information contained herein is believed to be accurate. However, the above data does not imply any guarantee or warranty of any kind, expressed or implied. The final determination of the suitability of any material is the sole responsibility of the user. All materials made present un-known hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee these are the only hazards existing.

SAFETY DATA SHEET

This Safety Data Sheet conforms to ANSI Z400.5, and to the format requirements and the International Chemical Safety Cards of the Global Harmonizing System.
THIS SDS COMPLIES WITH 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD)
IMPORTANT: Read this SDS before handling & disposing of this product.
Pass this information on to employees, customers, & users of this product.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTITY: TOLUENE
NEW MSDS DATE: 05/04/2010
COMPANY IDENTITY: CSD/Startex
COMPANY ADDRESS: P O Box 3087
COMPANY CITY: Conroe, TX 77305
COMPANY PHONE: 1-936-228-0865
EMERGENCY PHONES: CHEMTREC: 1-800-424-9300 (USA)

SECTION 2. HAZARDS IDENTIFICATION

DANGER!!

EXPOSURE PREVENTION: STRICT HYGIENE!
AVOID EXPOSURE OF (PREGNANT) WOMEN!

RISK STATEMENTS:

R11/13	Highly Flammable! Serious electrostatic hazard!
R36/37/38	Irritating to eyes, respiratory system and skin.
R20/65	Harmful by inhalation, may cause lung damage if swallowed.
R63	Possible risk of harm to the unborn child.
R67	Vapors may cause drowsiness and dizziness.

SAFETY STATEMENTS:

S36/37	Wear suitable protective clothing and gloves.
S46	If swallowed, seek medical advice immediately, and show this container or label.
S62	If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.

SEE SECTION 11 FOR OTHER TOXICOLOGICAL INFORMATION (ACUTE & CHRONIC HAZARDS)

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS#	EINECS#	WT%	TWA (OSHA)	TLV (ACGIH)
Toluene	108-88-3	203-625-9	95-100	200 ppm	50 ppm A4

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS (CONTINUED)

MATERIAL	CAS#	EINECS#	CEILING	STEL(OSHA/ACGIH)	HAP
Toluene	108-88-3	203-625-9	None Known	None Known	Yes

In addition to EPA Hazardous Air Pollutants showing `Yes' under "HAP" above, using manufacturers' data, based on EPA Method 311, the following EPA Hazardous Air Pollutants may be present in trace amounts (less than 0.1%): Benzene, Mixed Xylenes, Ethylbenzene

SECTION 4. FIRST AID MEASURES

EYE CONTACT:
For eyes, flush with plenty of water for 15 minutes & get medical attention.

SKIN CONTACT:
In case of contact with skin immediately remove contaminated clothing. Wash thoroughly with soap & water. Wash contaminated clothing before reuse.

INHALATION:
After high vapor exposure, remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, trained personnel should immediately begin artificial respiration. If the heart has stopped, trained personnel should immediately begin cardiopulmonary resuscitation (CPR).

SWALLOWING:
Rinse mouth. Do NOT induce vomiting. GET MEDICAL ATTENTION IMMEDIATELY. Do NOT give liquids to an unconscious or convulsing person.

SECTION 5. FIRE FIGHTING MEASURES

FIRE & EXPLOSION PREVENTIVE MEASURES
NO open flames, NO sparks, & NO smoking. Use a closed system, ventilation, explosion-proof electrical equipment, lighting.
Do NOT use compressed air for filling, discharging, or handling.

EXTINGUISHING MEDIA
Use dry powder, AFFF, foam, carbon dioxide.

SPECIAL FIRE FIGHTING PROCEDURES
Water spray may be ineffective on fire but can protect fire-fighters & cool closed containers. Use fog nozzles if water is used.
Do not enter confined fire-space without full bunker gear.
(Helmet with face shield, bunker coats, gloves & rubber boots).
Use NIOSH approved positive-pressure self-contained breathing apparatus.

UNUSUAL EXPLOSION AND FIRE PROCEDURES
HIGHLY FLAMMABLE!! VAPORS CAN CAUSE FLASH FIRE
Isolate from oxidizers, heat, sparks, electric equipment & open flame.
Closed containers may explode if exposed to extreme heat.
Applying to hot surfaces requires special precautions.
Empty container very hazardous! Continue all label precautions!

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTIVE MEASURES:
EVACUATE DANGER AREA! Consult an expert!
Vapors may ignite explosively & spread long distances. Prevent vapor buildup.
Keep unprotected personnel away. Ventilate spill area. Remove all ignition sources.
Use self-contained breathing apparatus.

ENVIRONMENTAL PRECAUTIONS:
Do NOT let this chemical enter the environment.
Keep from entering storm sewers and ditches which lead to waterways.

CONTAINMENT AND CLEAN-UP MEASURES:
Stop spill at source. Dike and contain. Collect leaking liquid in sealable containers.
Absorb remaining liquid in sand or inert absorbent. Remove to safe place.

SECTION 7. HANDLING AND STORAGE

HANDLING
Isolate from oxidizers, heat, sparks, electric equipment & open flame.
Use only with adequate ventilation. Avoid breathing of vapor or spray mist.
Avoid contact with skin & eyes.
Wear OSHA Standard goggles or face shield. Consult Safety Equipment Supplier. Wear gloves, apron & footwear impervious to this material. Wash clothing before reuse.
Avoid free fall of liquid. Ground containers when transferring. Do not flame cut, saw, drill, braze, or weld. Empty container very hazardous! Continue all label precautions!
To minimize static discharge when transferring, ensure electrical continuity by bonding and grounding all equipment. Use an inlet line diameter of at least 3.5 inches (8.9 centimeters) with a maximum flow rate of 1 meter/second.

STORAGE
Keep in fireproof surroundings. Keep separated from strong oxidants.
Do not store above 49 C/120 F. Keep container tightly closed & upright when not in use to prevent leakage.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY EXPOSURE CONTROLS
A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z86.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

VENTILATION

LOCAL EXHAUST:	Necessary	MECHANICAL (GENERAL):	Acceptable
SPECIAL:	None	OTHER:	None

Please refer to ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

PERSONAL PROTECTIONS:
Wear OSHA Standard goggles or face shield. Consult Safety Equipment Supplier. Wear gloves, apron & footwear impervious to this material. Wash clothing before reuse.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

WORK & HYGIENIC PRACTICES:
Provide readily accessible eye wash stations & safety showers.
Wash at end of each workshift & before eating, smoking or using the toilet.
Promptly remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

SECTION 9. PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE:	Liquid, Water-White
ODOR:	Aromatic
ODOR THRESHOLD:	Not Available
pH (Neutrality):	Not Applicable
MELTING POINT/FREEZING POINT:	Not Available
BOILING RANGE (IBP,50%,Dry Point):	110 111 111 C / 230 232 232 F
FLASH POINT (TEST METHOD):	7 C / 45 F (TCC)
EVAPORATION RATE (n-BUTYL ACETATE=1):	2.0
FLAMMABILITY CLASSIFICATION:	Class I B
LOWER FLAMMABLE LIMIT IN AIR (% by vol):	1.4
UPPER FLAMMABLE LIMIT IN AIR (% by vol):	6.7
VAPOR PRESSURE (mm of Hg)@20 C	23.0
VAPOR DENSITY (air=1):	3.2
GRAVITY @ 68/68 F / 20/20 C:	
SPECIFIC GRAVITY (Water=1):	0.870
POUNDS/GALLON:	7.247
WATER SOLUBILITY:	Negligible
PARTITION COEFFICIENT (n-Octane/Water):	Not Available
AUTO IGNITION TEMPERATURE:	536 C / 997 F
DECOMPOSITION TEMPERATURE:	Not Available
REFRACTIVE INDEX:	1.495
MIXED ANILINE POINT (Acid Insol):	9 C / 49 F
VOC'S (>0.44 Lbs/Sq In) :	100.0 Vol% / 870.0 g/L / 7.2 Lbs/Gal
TOTAL VOC'S (TVOC):	100.0 Vol% / 870.0 g/L / 7.2 Lbs/Gal
NONEXEMPT VOC'S (CVOC):	100.0 Vol% / 870.0 g/L / 7.2 Lbs/Gal
HAZARDOUS AIR POLLUTANTS (HAPS):	100.0 Wt% / 870.0 g/L / 7.2 Lbs/Gal
NONEXEMPT VOC PARTIAL PRESSURE (mm of Hg @ 20 C)	23.0

SECTION 10. STABILITY & REACTIVITY

STABILITY
Stable under normal conditions.

CONDITIONS TO AVOID
Isolate from oxidizers, heat, sparks, electric equipment & open flame.

MATERIALS TO AVOID
Reacts violently with strong oxidants, causing fire & explosion hazard.
Attacks many plastics, coatings.

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon Monoxide, Carbon Dioxide from burning.

HAZARDOUS POLYMERIZATION
Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

ACUTE HAZARDS

EYE & SKIN CONTACT:
Primary irritation to skin, defatting, dermatitis.
Absorption thru skin increases exposure.
Primary irritation to eyes, redness, tearing, blurred vision.
Liquid can cause eye irritation. Wash thoroughly after handling.

INHALATION:
Anesthetic. Irritates respiratory tract. Acute overexposure can cause serious nervous system depression. Vapor harmful.
Acute overexposure can cause harm to kidneys, blood, nerves, liver, lungs.
Use of alcoholic beverages enhances the harmful effect.

SWALLOWING:
Harmful or fatal if swallowed.
Swallowing can cause abdominal irritation, nausea, vomiting & diarrhea.
The symptoms of chemical pneumonitis may not show up for a few days.

SUBCHRONIC HAZARDS/CONDITIONS AGGRAVATED

CONDITIONS AGGRAVATED
Chronic overexposure can cause harm to kidneys, blood, nerves, liver, lungs.
Persons with severe skin, liver or kidney problems should avoid use.

CHRONIC HAZARDS

CANCER, REPRODUCTIVE & OTHER CHRONIC HAZARDS:
Pregnant women should avoid use. May cause birth defects.
Leukemia been reported in humans from Benzene.
This product contains less than 300 ppm of Benzene.
Not considered hazardous in such low concentrations.
Absorption thru skin may be harmful. Studies with laboratory animals indicate this product can cause damage to fetus.
Depending on degree of exposure, periodic medical examination is indicated.

MAMMALIAN TOXICITY INFORMATION

MATERIAL	CAS#	EINECS#	LOWEST KNOWN LETHAL DOSE DATA
Toluene	108-88-3	203-625-9	LOWEST KNOWN LD50 (ORAL) 3000.0 mg/kg(Rats)
Toluene	108-88-3	203-625-9	LOWEST KNOWN LC50 (VAPORS) 5300 ppm (Mice)
Toluene	108-88-3	203-625-9	LOWEST KNOWN LD50 (SKIN) 4000.0 mg/kg (Rabbits)

SECTION 12. ECOLOGICAL INFORMATION

AQUATIC ANIMAL INFORMATION:
The most sensitive known aquatic group to any component of this product is:
Juvenile Rainbow Trout are adversely affected by
components of this product.
The substance is toxic to aquatic organisms.

MOBILITY IN SOIL
This material is a mobile liquid.

DEGRADABILITY
This product is nonbiodegradable.

ACCUMULATION
This product does not accumulate or biomagnify in the environment.

SECTION 13. DISPOSAL CONSIDERATIONS

Processing, use or contamination may change the waste management options.
Recycle / dispose of observing national, regional, state, provincial and local health, safety & pollution laws. If in doubt, contact appropriate agencies.

SECTION 14. TRANSPORT INFORMATION

DOT SHIPPING NAME: UN1294, RQ, Toluene, 3, PG-II
DRUM LABEL: (FLAMMABLE LIQUID)
IATA / ICAO: UN1294, Toluene, 3, PG-II
IMO / IMDG: UN1294, Toluene, 3, PG-II
EMERGENCY RESPONSE GUIDEBOOK NUMBER: 130

SECTION 15. REGULATORY INFORMATION

EPA REGULATION:
SARA SECTION 311/312 HAZARDS: Acute Health, Fire

All components of this product are on the TSCA list.
SARA Title III Section 313 Supplier Notification
This product contains the indicated <*> toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning & Community Right-To-Know Act of 1986 & of 40 CFR 372. This information must be included in all MSDSs that are copied and distributed for this material.

SARA TITLE III INGREDIENTS	CAS#	EINECS#	WT%	(REG.SECTION)	RQ(LBS)
*Toluene	108-88-3	203-625-9	95-100	(311,312,313,RCRA)	1000

SECTION 15. REGULATORY INFORMATION (CONTINUED)

> 1000 LB / 454 KG OF THIS PRODUCT IN 1 CONTAINER EXCEEDS THE "RQ" OF TOLUENE.
Any release equal to or exceeding the RQ must be reported to the National Response Center (800-424-8802) and appropriate state and local regulatory agencies as described in 40 CFR 302.6 and 40 CFR 355.40 respectively.
Failure to report may result in substantial civil and criminal penalties.
State & local regulations may be more restrictive than federal regulations.

STATE REGULATIONS:
CALIFORNIA PROPOSITION 65: This product contains the following chemical known to the State of California to cause reproductive toxicity: Toluene

INTERNATIONAL REGULATIONS
The components of this product are listed on the chemical inventories of the following countries:
Australia, Canada, China, Europe (EINECS), Japan, Korea, United Kingdom.

CANADA: WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)
B2: Flammable Liquid.
D2B: Irritating to skin / eyes.

SECTION 16. OTHER INFORMATION

HAZARD RATINGS:
HEALTH (NFPA): 1, HEALTH (HMIS): 2, FLAMMABILITY: 3, REACTIVITY: 0
(Personal Protection Rating to be supplied by user based on use conditions.)
This information is intended solely for the use of individuals trained in the NFPA & HMIS hazard rating systems.

EMPLOYEE TRAINING
See Section 2 for Risk & Safety Statements. Employees should be made aware of all hazards of this material (as stated in this SDS) before handling it.

NOTICE

The supplier disclaims all expressed or implied warranties of merchantability or fitness for a specific use, with respect to the product or the information provided herein, except for conformation to contracted specifications. All information appearing herein is based upon data obtained from manufacturers and/or recognized technical sources. While the information is believed to be accurate, we make no representations as to its accuracy or sufficiency.
Conditions of use are beyond our control, and therefore users are responsible for verifying the data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their handling, and disposal of the product. Users also assume all risks in regards to the publication or use of, or reliance upon information contained herein.
This information relates only to the product designated herein, and does not relate to its use in combination with any other material or process.

1150 Waterborne Zone Marking Paint White

1. PRODUCT AND COMPANY INFORMATION

Trade name	1150 Waterborne Latex Zone Marking Paint White
Product codes	ZB1150, B1150, 1150, Waterborne Latex Zone Marking Paint White
Chemical family	Aqueous pigmented resin solution
Intended use	Roadway marking
Company	Colorado Paint Company II, LLC (a Swarco Company) 4747 Holly Street Denver, CO 80216; U. S. A.
Telephone	+1 303-388-9265
Web site	www.swarco.com/americas
Emergency (Chemtrec; 24 h)	1-800-424-9300 (U. S. A. and Canada)

2. HAZARD IDENTIFICATION

Emergency Overview

OSHA Hazards

Target Organ Effect, Irritant

Target Organs

Liver, Kidney

GHS Classification

Specific target organ toxicity - single exposure (Category 2)
Carcinogenicity (Category 1A)
Skin irritation (Category 2)
Eye irritation (Category 2A)

GHS Label elements, including precautionary statements

Pictograms:

Signal word: Danger

Hazard statements

H303 May be harmful if swallowed.
H316 Causes mild skin irritation.
H317 May cause an allergic skin reaction.
H320 Causes eye irritation.
H335 May cause respiratory irritation.
H350 May cause cancer.
H371 May cause damage to organs

Precautionary statements

P260 Do not breathe dust / fume / gas / mist / vapours / spray.
P281 Use personal protective equipment as required.
P302+352 IF ON SKIN: Wash with soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS and NFPA Classification:

	HMIS	NFPA Hazard
Health	2*	2
Flammability	1	1
Reactivity	—	0
Physical hazard	0	—

Potential Health Effects

Inhalation: May be harmful if inhaled.
Skin: May cause skin irritation.
Eyes: Causes severe eye irritation.
Ingestion: May be harmful if swallowed. Aspiration hazard if swallowed – can enter lungs and cause damage.

3. COMPOSITION

Name	Synonym	CAS	EINECS	Index	Concentration
Calcium carbonate	Limestone	1317-65-3	207-439-9	—	30-60%
Acrylic resin	Polymeric material	n/a	n/a	—	10-50%
Titanium dioxide	Titanium(IV) oxide	13463-67-7	236-675-5	—	5-15%
3-Hydroxy-2,2,4-trimethylpentyl 2-methylpropanoate	Hydroxy ester	25265-77-4	246-771-9	—	1-10%
Methanol	Methyl alcohol	67-56-1	200-659-6	603-001-00-X	1-5%
Ammonium hydroxide	Ammonia	1336-21-6	215-647-6	007-001-01-2	0.1-0.5%
Crystalline silica	Quartz	14464-46-1	238-878-4	—	0.1-0.5%

4. FIRST AID MEASURES

General advice

Consult a physician. Show this Safety Data Sheet to the attending doctor.

If inhaled

Move person to fresh air. If not breathing, give artificial respiration. Obtain proper medical attention.

If on skin

Wash off with soap and water. Consult a physician if needed.

In case of an eye contact

Rinse thoroughly with plenty of running water for at least 15 minutes. Seek medical attention.

If swallowed

Rinse mouth with water. Seek immediate medical attention.

Most important symptoms and effects, both acute and delayed

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media

Product as delivered is water-based and shall not burn.
For dried material that is burning, use water, "alcohol" foam, dry chemical, or carbon dioxide.

Special protective equipment for fire fighters

Do not enter the fire area without proper protection.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions: Carbon oxides, calcium oxide, nitrogen oxides.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate unnecessary personnel to safe areas.

Environmental precautions

Prevent leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Contain spillage, clean affected area using a detergent solution. Collect and place in suitable closed container for disposal according to local regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Avoid contact with skin.

Conditions for safe storage

Keep container tightly closed. Recommended storage temperature is 10-30 °C. Do not permit to freeze.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Occupational exposure limits for the product as delivered have not been established.

Information below is provided for individual ingredients, where available. No occupational exposure limits have been established for other ingredients, which does not imply that they might not be harmful or toxic. Unknown hazards may exist and/or the materials may have not been fully tested. The user is required to follow all of the good industrial hygiene practices

Occupational exposure limits

Calcium carbonate (CAS 1317-65-3):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-1: 15 mg/m^3 TWA

OSHA Permissible Exposure Limit (PEL) for Maritime: 29 CFR 1915.1000 Table Z-Shipyards: 15 mg/m^3 TWA

American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 10 mg/m^3 TWA; The value is for particulate matter containing no asbestos and <1% crystalline silica.

National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 10 mg/m^3 TWA

Not considered a hazardous substance. Provided exposure limits are established for respirable dust only, particulate matter containing less than 1% of asbestos. They are meaningless for the paint product as delivered, but apply while sanding or abrading dried coating.

Crystalline silica (CAS 14464-46-1):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-3: Limit for dust is calculated per formula: (10 mg/m^3) / (%SiO_2+2).

American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 0.05 mg/m^3 TWA; (Respirable fraction).

National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 0.05 mg/m^3 TWA; Potential Carcinogen.

NIOSH Immediately Dangerous to Life and Health (IDLH) concentration: 25 mg/m^3.

The established limits are for respirable dust only and are meaningless for the paint product as delivered, but apply while sanding or abrading dried coating.

Carcinogenic Classification: International Agency for Research on Cancer (IARC): Group 2A, probably carcinogenic to humans. Health Effects: Pneumoconiosis.

Methanol (CAS 67-56-1):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-1: 200 ppm, 260 mg/m^3 TWA.

OSHA PEL for Construction Industry: 29 CFR 1926.55 Appendix A: 200 ppm, 260 mg/m^3 TWA.

OSHA PEL for Maritime Industry: 29 CFR 1915.1000 Table Z-Shipyards: 200 ppm, 260 mg/m^3 TWA.

American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 200 ppm, 262 mg/m^3 TWA; 250 ppm, 327 mg/m^3 STEL; Skin.

National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 200 ppm, 260 mg/m^3 TWA; 250 ppm, 325 mg/m^3 STEL; Skin.

NIOSH Immediately Dangerous to Life and Health (IDLH) concentration: 6,000 ppm, 7860 mg/m^3

Titanium dioxide (CAS 13463-67-7):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-1: 15 mg/m^3 TWA

OSHA Permissible Exposure Limit (PEL) for Maritime: 29 CFR 1915.1000 Table Z-Shipyards: 15 mg/m^3 TWA

American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 10 mg/m^3 TWA; Appendix A4 - Not Classifiable as a Human Carcinogen.

National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): Fine particles: 2.4 mg/m^3, Ultrafine particles: 0.3 mg/m^3. Appendix A: NIOSH Potential Occupational Carcinogens.

NIOSH Immediately Dangerous to Life and Health (IDLH) concentration: 25 mg/m^3.

The established limits are for respirable dust only and are meaningless for the paint product as delivered, but apply while sanding or abrading dried coating.

Lower Respiratory Tract irritation. Slight lung fibrosis (carcinogenic in rats). Health Effect: Nuisance particulate, accumulation in lungs. Not classifiable as a human carcinogen. No increase in risk for lung cancer (or any other specific cause of death) was reported among titanium dioxide manufacturing workers.

Ventilation

Use only where appropriate ventilation is available. This product is designed for outdoor use by trained professional personnel only.

Personal protective equipment

Respiratory protection

When used as designed, outdoors in a well-ventilated area, exceeding of the exposure limits is very unlikely unless caused by misuse.

When the exposure limits are exceeded or when working indoors, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) cartridges.

When sanding or abrading dried film, type N95 (US) or type P1 (EN 143) dust masks are suggested.

Hand protection

Handle with gloves that satisfy the specifications of the standard EN 374. Dispose of contaminated gloves after use in accordance with applicable laws and good work hygiene practices.

Eye protection

Safety glasses with side shields are required. Tightly fitting splash goggles are recommended. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin and body protection

Wear protective clothing.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash your hands thoroughly. Never intentionally inhale the contents. Use only for the intended purpose.

9. PHYSICAL PROPERTIES

Physical state	Viscous liquid
Color	White
Odor	Mild latex paint, ammonia
Boiling point	±100 ºC
Freezing point	±0 ºC
Flash point	≥200°F (93.3ºC)
Upper explosion limit	No data available
Lower explosion limit	No data available
Solubility in water	Waterborne product
Vapor pressure	No data available
Density	1.5-2.0 g/ml
Viscosity	80-100 KU at 25 ºC
pH	9.0-12.0

10. STABILITY AND REACTIVITY DATA

Chemical stability

Stable.

Possibility of hazardous reactions

None known.

Conditions to avoid

Do not freeze or expose to extreme heat as coalescing may occur.

Materials to avoid

Acids, strong oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions: Carbon oxides, nitrogen oxides.
Other decomposition products: No data available

11. TOXICOLOGICAL DATA

Information for the product as delivered is not available. Data for the individual ingredients is provided below.

Acute toxicity

Name	Oral LD_{50} (mg/kg) rat	Inhalation LC_{50} (mg/m^3/4 h) rat	Dermal LD_{50} (mg/kg) rabbit
Ammonium hydroxide	350 (Gastrointestinal, Liver, Kidney, Ureter, and Bladder)	No data available.	No data available.
Calcium carbonate	6,450	No data available.	No data available.
Hydroxy ester	3,200	>3,550	>15,200
Methyl alcohol	5,628	83,840	15,800
Titanium dioxide	>10,000	No data available.	>10,000
Other ingredients	No data available.	No data available.	No data available.

Chronic Exposure

Name	Skin corrosion / irritation	Serious eye damage / irritation	Respiratory or skin sensitization
Ammonium hydroxide	No data available.	Rabbit: Severe eye irritation	No data available.

Calcium carbonate	Rabbit: No skin irritation (OECD Test Guideline 404)	Rabbit: Mild eye irritation (OECD Test Guideline 405)	No data available.
Methanol	Rabbit: Skin irritation (24 h)	Rabbit: Eye irritation (24 h)	No data available.
Titanium dioxide	Human: Mild skin irritation (3 h)	Rabbit: No eye irritation	Will not occur.
Other ingredients	No data available.	No data available.	No data available.

Germ cell mutagenicity

Titanium dioxide	Genotoxicity in vitro – hamster – ovary: Micronucleus test. Genotoxicity in vitro – hamster – lungs: DNA inhibition. Genotoxicity in vitro – hamster – ovary: Sister Chromatoid exchange. Genotoxicity in vivo – mouse – Intraperitoneal: Micronucleus test.
Other ingredients	No data available.

Carcinogenicity

Quartz	IARC: 2A - Group 2A: Probably carcinogenic to humans (Quartz) NTP: Known to be human carcinogen (Quartz) OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Titanium dioxide	Rat – Inhalation: Tumorigenic: Carcinogenic by RTECS criteria. Lungs, Thorax, or Respiration: Tumors. Rat – Intramuscular: Tumorigenic: Neoplastic by RTECS criteria. Blood: Lymphomas including Hodgkin's disease. Tumors at site or application. IARC: 2B - Group 2B: Possibly carcinogenic to humans (Titanium dioxide).
Other ingredients	Are or contain components that are not classifiable as to their carcinogenicity based on IARC, ACGIH, NTP, or EPA classification.

Reproductive toxicity

No data available.

Teratogenicity

No data available.

Specific target organ toxicity - single exposure (Globally Harmonized System)

Methanol	Causes damage to organs.
Other ingredients	No data available.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

No data available.

Aspiration hazard

No data available

Potential health effects

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion: Harmful if swallowed.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.

Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties of this product (a mixture) have not been thoroughly investigated.

Synergistic effects

No data available.

12. ECOLOGICAL DATA

Toxicity

Ammonium hydroxide	**Fish**: Oncorhynchus tshawytscha (Chinook salmon): 3.57 mg/l - 3 days (mortality NOEC) **Daphnia and other aquatic invertebrates**: Daphnia magna (water flea): 32 mg/l - 50 h (LC_{50})
Hydroxy ester	**Fish**: Other fish: 33 mg/l - 96 h (mortality NOEC) **Daphnia and other aquatic invertebrates**: Daphnid: 147.8 mg/l - 48 h (EC_{50}) **Algae**: Algae: 15.0 mg/l - 96 h (EC_{50})

Methanol	**Fish**: Oncorhynchus mykiss (rainbow trout): 19,000 mg/l - 96 h (LC_{50}) Cyprinus carpio (carp): 36,000 mg/l - 48 h (LC_{50}) Pimephales promelas (fathead minnow): 1.8 mg/l - 144 h (mortality NOEC) **Daphnia and other aquatic invertebrates**: Daphnia magna (water flea): 10,000 mg/l - 24 h (EC_{100}) Daphnia magna (water flea): 24,500 mg/l - 48 h (EC_{50})
Titanium dioxide	**Fish**: Other fish: >1,000 mg/dm^3 - 96 h (LC_{50}) **Daphnia and other aquatic invertebrates**: Daphnia magna (water flea): 1,000 mg/dm^3 - 48 h (EC_{50})
Other ingredients	No data available.

Persistence and degradability

Hydroxy ester	> 77 % (28 days, Ready Biodegradability: CO_2 Evolution Test). Readily biodegradable
All other ingredients	No data available.

Bioaccumulative potential
No data available.
Mobility in soil
No data available.
PBT and vPvB assessment
No data available.
Biological oxygen demand
No data available.
Other adverse effects
Data for the entire preparation (a mixture) is not available.

13. DISPOSAL CONSIDERATIONS

Unused or spoiled product
This product may be a hazardous waste per 40 CFR 261 and other regulations. It is the responsibility of the user to determine whether the material meets the hazardous waste criteria and dispose according to the environmental laws. Do not dump into any drain, sewer, or on the ground. Contact a licensed professional waste disposal service to arrange for appropriate removal. Burn the material in a chemical incinerator equipped with an afterburner and scrubber. Do not incinerate closed containers.
Container
Empty packaging may contain product residue and should not be reused. Dispose as of unused product.

14. TRANSPORTATION INFORMATION

Not considered dangerous goods. Not regulated for transportation.
Information is provided for guidance purpose only, not meant to be inclusive. Packaging must be reviewed for suitability and compliance with the applicable regulations prior to shipment.

15. REGULATORY INFORMATION

TSCA and DSL
Listed or exempt.
OSHA Hazards
Irritant, harmful by ingestion.
SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard.
SARA 302 and 304
To the best of our knowledge, no chemicals in this product are subject to the reporting requirements of SARA Title III, Section 302 (40 CFR 355.30) or Section 304 (40 CFR 355 and 40 CFR 302).
SARA 313
The following are subject to reporting levels established by SARA Title III, Section 313 (40 CFR 372.65):
Ammonium hydroxide (CAS 1336-21-6)
Methanol (CAS 67-56-1)
California Proposition 65
Warning! This product contains trace amount of a chemicals known to the State of California to cause cancer:
Quartz (CAS 14464-46-1)

To the best of our knowledge, this product does not contain chemicals known to the State of California to cause birth defects or other reproductive harm.

Volatile Organic Compounds

Below 100 g/l (calculated per 40 CFR 59.406).

16. ADDITIONAL INFORMATION

This safety data sheet complies with 29 CFR 1910.1200 and with EC 1907/2006, as amended.
Unlimited paper copies of this publication may be made by the users for internal purposes only.
Last modified: Tuesday, 23 February 2016 10:19 (Fully updated SDS.)

Disclaimer

All information and data appearing on this Safety Data Sheet are provided in good faith and are believed to be reliable and accurate to the best of our knowledge at the date of publication. Although certain hazards are listed herein, there is no guarantee that these are only risks. None of the provided information is to be considered a warranty or quality specification or all-inclusive and is given only as guidance. It is the user's responsibility to determine the safety of use, handling, storage, transportation, disposal, and suitability for the intended utilisation of the product. Unless otherwise specified, the data provided herein is valid only for the described material and may be not applicable for the product used in combination with any other materials or processes. Colorado Paint Company / Swarco shall not be liable for any damage resulting from handling, contact, use, or inability to use of this product. No guarantee, expressed or implied, is made by Colorado Paint Company / Swarco and the user assumes all risk and responsibility.

1151 Waterborne Zone Marking Paint Red

1. PRODUCT AND COMPANY INFORMATION

Trade name	1151 Waterborne Zone Marking Paint Red
Product codes	ZB1151, B1151, 1151, Waterborne Zone Marking Paint Red
Chemical family	Aqueous pigmented resin solution
Intended use	Roadway marking
Company	Colorado Paint Company II, LLC (a Swarco Company) 4747 Holly Street Denver, CO 80216; U. S. A.
Telephone	+1 303-388-9265
Web site	www.swarco.com/americas
Emergency (Chemtrec; 24 h)	1-800-424-9300 (U. S. A. and Canada)

2. HAZARD IDENTIFICATION

Emergency Overview

OSHA Hazards

Target Organ Effect, Irritant

Target Organs

Liver, Kidney

GHS Classification

Specific target organ toxicity - single exposure (Category 2)
Carcinogenicity (Category 1A)
Skin irritation (Category 2)
Eye irritation (Category 2A)

GHS Label elements, including precautionary statements

Pictograms:

Signal word: Danger

Hazard statements

H303 May be harmful if swallowed.
H316 Causes mild skin irritation.
H317 May cause an allergic skin reaction.
H320 Causes eye irritation.
H335 May cause respiratory irritation.
H350 May cause cancer.
H371 May cause damage to organs

Precautionary statements

P260 Do not breathe dust / fume / gas / mist / vapours / spray.
P281 Use personal protective equipment as required.
P302+352 IF ON SKIN: Wash with soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS and NFPA Classification:

	HMIS	NFPA Hazard
Health	2*	2
Flammability	1	1
Reactivity	—	0
Physical hazard	0	—

Potential Health Effects

Inhalation: May be harmful if inhaled.
Skin: May cause skin irritation.
Eyes: Causes eye irritation.
Ingestion: May be harmful if swallowed. Aspiration hazard if swallowed – can enter lungs and cause damage.

3. COMPOSITION

Name	Synonym	CAS	EINECS	Index	Concentration
Calcium carbonate	Limestone	1317-65-3	207-439-9	—	30-60%
Acrylic resin	Polymeric material	n/a	n/a	—	10-20%
3-Hydroxy-2,2,4-trimethylpentyl 2-methylpropanoate	Hydroxy ester	25265-77-4	246-771-9	—	1-10%
Methanol	Methyl alcohol	67-56-1	200-659-6	603-001-00-X	1-5%
1-(4-Methyl-2-nitrophenylazo)-2-naphthol	Pigment red 3	2425-85-6	219-372-2	—	0.1-2.0%
Ammonium hydroxide	Ammonia	1336-21-6	215-647-6	007-001-01-2	0.1-0.5%
Crystalline silica	Quartz	14464-46-1	238-878-4	—	0.1-0.5%

4. FIRST AID MEASURES

General advice

Consult a physician. Show this Safety Data Sheet to the attending doctor.

If inhaled

Move person to fresh air. If not breathing, give artificial respiration. Obtain proper medical attention.

If on skin

Wash off with soap and water. Consult a physician if needed.

In case of an eye contact

Rinse thoroughly with plenty of running water for at least 15 minutes. Seek medical attention.

If swallowed

Rinse mouth with water. Seek immediate medical attention.

Most important symptoms and effects, both acute and delayed

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media

Product as delivered is water-based and shall not burn.
For dried material that is burning, use water, "alcohol" foam, dry chemical, or carbon dioxide.

Special protective equipment for fire fighters

Do not enter the fire area without proper protection.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions: Carbon oxides, calcium oxide, nitrogen oxides.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate unnecessary personnel to safe areas.

Environmental precautions

Prevent leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Contain spillage, clean affected area using a detergent solution. Collect and place in suitable closed container for disposal according to local regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Avoid contact with skin.

Conditions for safe storage

Keep container tightly closed. Recommended storage temperature is 10-30 °C. Do not permit to freeze.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Occupational exposure limits for the product as delivered have not been established.

Information below is provided for individual ingredients, where available. No occupational exposure limits have been established for other ingredients, which does not imply that they might not be harmful or toxic. Unknown hazards may exist and/or the materials may have not been fully tested. The user is required to follow all of the good industrial hygiene practices

Occupational exposure limits

Calcium carbonate (CAS 1317-65-3):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-1: 15 mg/m^3 TWA

OSHA Permissible Exposure Limit (PEL) for Maritime: 29 CFR 1915.1000 Table Z-Shipyards: 15 mg/m^3 TWA

American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 10 mg/m^3 TWA; The value is for particulate matter containing no asbestos and <1% crystalline silica.

National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 10 mg/m^3 TWA

Not considered a hazardous substance. Provided exposure limits are established for respirable dust only, particulate matter containing less than 1% of asbestos. They are meaningless for the paint product as delivered, but apply while sanding or abrading dried coating.

Crystalline silica (CAS 14464-46-1):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-3: Limit for dust is calculated per formula: (10 mg/m^3) / (%SiO_2+2).

American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 0.05 mg/m^3 TWA; (Respirable fraction).

National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 0.05 mg/m^3 TWA; Potential Carcinogen.

NIOSH Immediately Dangerous to Life and Health (IDLH) concentration: 25 mg/m^3.

The established limits are for respirable dust only and are meaningless for the paint product as delivered, but apply while sanding or abrading dried coating.

Carcinogenic Classification: International Agency for Research on Cancer (IARC): Group 2A, probably carcinogenic to humans. Health Effects: Pneumoconiosis.

Methanol (CAS 67-56-1):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-1: 200 ppm, 260 mg/m^3 TWA.

OSHA PEL for Construction Industry: 29 CFR 1926.55 Appendix A: 200 ppm, 260 mg/m^3 TWA.

OSHA PEL for Maritime Industry: 29 CFR 1915.1000 Table Z-Shipyards: 200 ppm, 260 mg/m^3 TWA.

American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 200 ppm, 262 mg/m^3 TWA; 250 ppm, 327 mg/m^3 STEL; Skin.

National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 200 ppm, 260 mg/m^3 TWA; 250 ppm, 325 mg/m^3 STEL; Skin.

NIOSH Immediately Dangerous to Life and Health (IDLH) concentration: 6,000 ppm, 7860 mg/m^3

Ventilation

Use only where appropriate ventilation is available. This product is designed for outdoor use by trained professional personnel only.

Personal protective equipment

Respiratory protection

When used as designed, outdoors in a well-ventilated area, exceeding of the exposure limits is very unlikely unless caused by misuse.

When the exposure limits are exceeded, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) cartridges.

When sanding or abrading dried film, type N95 (US) or type P1 (EN 143) dust masks are suggested.

Hand protection

Handle with gloves that satisfy the specifications of the standard EN 374. Dispose of contaminated gloves after use in accordance with applicable laws and good work hygiene practices.

Eye protection

Safety glasses with side shields are required. Tightly fitting splash goggles are recommended. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin and body protection

Wear protective clothing.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash your hands thoroughly. Never intentionally inhale the contents. Use only for the intended purpose.

9. PHYSICAL PROPERTIES

Physical state	Viscous liquid
Color	Red
Odor	Mild latex paint, ammonia
Boiling point	±100 ºC
Freezing point	±0 ºC
Flash point	≥200°F (93.3ºC)
Upper explosion limit	No data available
Lower explosion limit	No data available
Solubility in water	Waterborne product
Vapor pressure	No data available
Density	1.5-2.0 g/ml
Viscosity	80-100 KU at 25 ºC
pH	9.0-12.0

10. STABILITY AND REACTIVITY DATA

Chemical stability

Stable.

Possibility of hazardous reactions

None known.

Conditions to avoid

Do not freeze or expose to extreme heat as coalescing may occur.

Materials to avoid

Acids, oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions: Carbon oxides, nitrogen oxides.
Other decomposition products: No data available

11. TOXICOLOGICAL DATA

Information for the product as delivered is not available. Data for the individual ingredients is provided below.

Acute toxicity

Name	Oral LD_{50} (mg/kg) rat	Inhalation LC_{50} (mg/m^3/4 h) rat	Dermal LD_{50} (mg/kg) rabbit
Ammonium hydroxide	350 (Gastrointestinal, Liver, Kidney, Ureter, Bladder.)	No data available.	No data available.
Calcium carbonate	6,450	No data available.	No data available.
Hydroxy ester	3,200	>3,550	>15,200
Methyl alcohol	5,628	83,840	15,800
Other ingredients	No data available.	No data available.	No data available.

Prolonged Exposure

Name	Skin corrosion / irritation	Serious eye damage / irritation	Respiratory or skin sensitization
Calcium carbonate	Rabbit: No skin irritation (OECD Test Guideline 404)	Rabbit: Mild eye irritation (OECD Test Guideline 405)	No data available.
Ammonium hydroxide	No data available.	Rabbit: Severe eye irritation	No data available.
Methanol	Rabbit: Skin irritation - 24 h	Rabbit: Eye irritation - 24 h	No data available.
Other ingredients	No data available.	No data available.	No data available.

Carcinogenicity

Quartz	IARC: 2A - Group 2A: Probably carcinogenic to humans (Quartz) NTP: Known to be human carcinogen (Quartz) OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Other ingredients	Are or contain components that are not classifiable as to their carcinogenicity based on IARC, ACGIH, NTP, or EPA classification.

Reproductive toxicity
No data available.

Teratogenicity
No data available.

Specific target organ toxicity - single exposure (Globally Harmonized System)

Methanol	Causes damage to organs.
Other ingredients	No data available.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
No data available.

Aspiration hazard
No data available

Potential health effects
Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion: Harmful if swallowed.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties of this product (a mixture) have not been thoroughly investigated.

Synergistic effects
No data available.

12. ECOLOGICAL DATA

Toxicity

Ammonium hydroxide	**Fish**: Oncorhynchus tshawytscha (Chinook salmon): 3.57 mg/l - 3 days (mortality NOEC) **Daphnia**: Daphnia magna (water flea): 32 mg/l - 50 h (LC_{50})
Hydroxy ester	**Fish**: Other fish: 33 mg/l - 96 h (mortality NOEC) **Daphnia**: Daphnid: 147.8 mg/l - 48 h (EC_{50}) **Algae**: Algae: 15.0 mg/l - 96 h (EC_{50})
Methanol	**Fish**: Oncorhynchus mykiss (rainbow trout): 19,000 mg/l - 96 h (LC_{50}) Cyprinus carpio (carp): 36,000 mg/l - 48 h (LC_{50}) Pimephales promelas (fathead minnow): 1.8 mg/l - 144 h (mortality NOEC) **Daphnia**: Daphnia magna (water flea): 10,000 mg/l - 24 h (EC_{100}) Daphnia magna (water flea): 24,500 mg/l - 48 h (EC_{50})
Other ingredients	No data available.

Persistence and degradability

Hydroxy ester	> 77 % (28 d, Ready Biodegradability: CO_2 Evolution Test) Readily biodegradable
All other ingredients	No data available.

Bioaccumulative potential
No data available.

Mobility in soil
No data available.

PBT and vPvB assessment
No data available.

Biological oxygen demand
No data available.

Other adverse effects
Data for the entire preparation (a mixture) is not available.

13. DISPOSAL CONSIDERATIONS

Unused or spoiled product

This product may be a hazardous waste per 40 CFR 261 and other regulations. It is the responsibility of the user to determine whether the material meets the hazardous waste criteria and dispose according to the environmental laws. Do not dump into any drain, sewer, or on the ground. Contact a licensed professional waste disposal service to arrange for appropriate removal. Burn the material in a chemical incinerator equipped with an afterburner and scrubber. Do not incinerate closed containers.

Container

Empty packaging may contain product residue and should not be reused. Dispose as of unused product.

14. TRANSPORTATION INFORMATION

Not considered dangerous goods. Not regulated for transportation.
Information is provided for guidance purpose only, not meant to be inclusive. Packaging must be reviewed for suitability and compliance with the applicable regulations prior to shipment.

15. REGULATORY INFORMATION

TSCA and DSL

Listed or exempt.

OSHA Hazards

Irritant, harmful by ingestion.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard.

SARA 302 and 304

To the best of our knowledge, no chemicals in this product are subject to the reporting requirements of SARA Title III, Section 302 (40 CFR 355.30) or Section 304 (40 CFR 355 and 40 CFR 302).

SARA 313

The following are subject to reporting levels established by SARA Title III, Section 313 (40 CFR 372.65):

Ammonium hydroxide (CAS 1336-21-6)
Methanol (CAS 67-56-1)

California Proposition 65

Warning! This product contains trace amount of a chemicals known to the State of California to cause cancer:

Quartz (CAS 14464-46-1)

To the best of our knowledge, this product does not contain chemicals known to the State of California to cause birth defects or other reproductive harm.

Volatile Organic Compounds

Below 100 g/l (calculated per 40 CFR 59.406).

16. ADDITIONAL INFORMATION

This safety data sheet complies with 29 CFR 1910.1200 and with EC 1907/2006, as amended.
Unlimited paper copies of this publication may be made by the users for internal purposes only.
Last modified: Tuesday, 23 February 2016 10:20 (Fully updated SDS.)

Disclaimer

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1156 Waterborne Zone Marking Paint Yellow

1. PRODUCT AND COMPANY INFORMATION

Trade name	1156 Waterborne Zone Marking Paint Yellow
Product codes	ZB1156, B1156, 1156, Waterborne Zone Marking Paint Yellow
Chemical family	Aqueous pigmented resin solution
Intended use	Roadway marking
Company	Colorado Paint Company II, LLC (a Swarco Company) 4747 Holly Street Denver, CO 80216; U. S. A.
Telephone	+1 303-388-9265
Web site	www.swarco.com/americas
Emergency (Chemtrec; 24 h)	1-800-424-9300 (U. S. A. and Canada)

2. HAZARD IDENTIFICATION

Emergency Overview

OSHA Hazards

Target Organ Effect, Irritant

Target Organs

Liver, Kidney

GHS Classification

Specific target organ toxicity - single exposure (Category 2)
Carcinogenicity (Category 1A)
Skin irritation (Category 2)
Eye irritation (Category 2A)

GHS Label elements, including precautionary statements

Pictograms:

Signal word: Danger

Hazard statements

H303 May be harmful if swallowed.
H316 Causes mild skin irritation.
H317 May cause an allergic skin reaction.
H320 Causes eye irritation.
H335 May cause respiratory irritation.
H350 May cause cancer.
H371 May cause damage to organs

Precautionary statements

P260 Do not breathe dust / fume / gas / mist / vapours / spray.
P281 Use personal protective equipment as required.
P302+352 IF ON SKIN: Wash with soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS and NFPA Classification:

	HMIS	NFPA Hazard
Health	2*	2
Flammability	1	1
Reactivity	—	0
Physical hazard	0	—

Potential Health Effects

Inhalation: May be harmful if inhaled.
Skin: May cause skin irritation.
Eyes: Causes severe eye irritation.
Ingestion: May be harmful if swallowed. Aspiration hazard if swallowed – can enter lungs and cause damage.

3. COMPOSITION

Name	Synonym	CAS	EINECS	Index	Concentration
Calcium carbonate	Limestone	1317-65-3	207-439-9	—	30-60%
Acrylic resin	Polymeric material	n/a	n/a	—	10-50%
3-Hydroxy-2,2,4-trimethylpentyl 2-methylpropanoate	Hydroxy ester	25265-77-4	246-771-9	—	1-10%
Titanium dioxide	Titanium(IV) oxide	13463-67-7	236-675-5	—	1-10%
Methanol	Methyl alcohol	67-56-1	200-659-6	603-001-00-X	1-5%
2-[(4-Methoxy-2-nitrophenyl)azo]-*N*-(2-methoxyphenyl)-3-oxo-butyramide	Pigment yellow 65	6528-34-3	229-419-9	—	1-5%
Ammonium hydroxide	—	1336-21-6	215-647-6	007-001-01-2	0.1-0.5%
Crystalline silica	Quartz	14464-46-1	238-878-4	—	0.1-0.5%

4. FIRST AID MEASURES

General advice

Consult a physician. Show this Safety Data Sheet to the attending doctor.

If inhaled

Move person to fresh air. If not breathing, give artificial respiration. Obtain proper medical attention.

If on skin

Wash off with soap and water. Consult a physician if needed.

In case of an eye contact

Rinse thoroughly with plenty of running water for at least 15 minutes. Seek medical attention.

If swallowed

Rinse mouth with water. Seek immediate medical attention.

Most important symptoms and effects, both acute and delayed

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media

Product as delivered is water-based and shall not burn.
For dried material that is burning, use water, "alcohol" foam, dry chemical, or carbon dioxide.

Special protective equipment for fire fighters

Do not enter the fire area without proper protection.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions: Carbon oxides, calcium oxide, nitrogen oxides.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate unnecessary personnel to safe areas.

Environmental precautions

Prevent leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Contain spillage, clean affected area using a strong detergent solution. Collect and place in suitable closed container for disposal according to local regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Avoid contact with skin.

Conditions for safe storage

Keep container tightly closed. Recommended storage temperature is 10-30 °C. Do not permit to freeze.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Occupational exposure limits

Occupational exposure limits for the product as delivered have not been established.
Information below is provided for individual ingredients, where available. No occupational exposure limits have been established for other ingredients, which does not imply that they might not be harmful or toxic. Unknown hazards may exist and/or the materials may have not been fully tested. The user is required to follow all of the good industrial hygiene practices

Occupational exposure limits

Calcium carbonate (CAS 1317-65-3):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-1: 15 mg/m^3 TWA
OSHA Permissible Exposure Limit (PEL) for Maritime: 29 CFR 1915.1000 Table Z-Shipyards: 15 mg/m^3 TWA
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 10 mg/m^3 TWA; The value is for particulate matter containing no asbestos and <1% crystalline silica.
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 10 mg/m^3 TWA
Not considered a hazardous substance. Provided exposure limits are established for respirable dust only, particulate matter containing less than 1% of asbestos. They are meaningless for the paint product as delivered, but apply while sanding or abrading dried coating.

Crystalline silica (CAS 14464-46-1):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-3: Limit for dust is calculated per formula: (10 mg/m^3) / (%SiO_2+2).
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 0.05 mg/m^3 TWA; (Respirable fraction).
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 0.05 mg/m^3 TWA; Potential Carcinogen.
NIOSH Immediately Dangerous to Life and Health (IDLH) concentration: 25 mg/m^3.
The established limits are for respirable dust only and are meaningless for the paint product as delivered, but apply while sanding or abrading dried coating.
Carcinogenic Classification: International Agency for Research on Cancer (IARC): Group 2A, probably carcinogenic to humans. Health Effects: Pneumoconiosis.

Methanol (CAS 67-56-1):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-1: 200 ppm, 260 mg/m^3 TWA.
OSHA PEL for Construction Industry: 29 CFR 1926.55 Appendix A: 200 ppm, 260 mg/m^3 TWA.
OSHA PEL for Maritime Industry: 29 CFR 1915.1000 Table Z-Shipyards: 200 ppm, 260 mg/m^3 TWA.
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 200 ppm, 262 mg/m^3 TWA; 250 ppm, 327 mg/m^3 STEL; Skin.
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 200 ppm, 260 mg/m^3 TWA; 250 ppm, 325 mg/m^3 STEL; Skin.
NIOSH Immediately Dangerous to Life and Health (IDLH) concentration: 6,000 ppm, 7860 mg/m^3

Titanium dioxide (CAS 13463-67-7):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-1: 15 mg/m^3 TWA
OSHA Permissible Exposure Limit (PEL) for Maritime: 29 CFR 1915.1000 Table Z-Shipyards: 15 mg/m^3 TWA
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 10 mg/m^3 TWA; Appendix A4 - Not Classifiable as a Human Carcinogen.
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): Fine particles: 2.4 mg/m^3, Ultrafine particles: 0.3 mg/m^3. Appendix A: NIOSH Potential Occupational Carcinogens.
NIOSH Immediately Dangerous to Life and Health (IDLH) concentration: 25 mg/m^3.
The established limits are for respirable dust only and are meaningless for the paint product as delivered, but apply while sanding or abrading dried coating.
Lower Respiratory Tract irritation. Slight lung fibrosis (carcinogenic in rats). Health Effect: Nuisance particulate, accumulation in lungs. Not classifiable as a human carcinogen. No increase in risk for lung cancer (or any other specific cause of death) was reported among titanium dioxide manufacturing workers.

Ventilation

Use only where appropriate ventilation is available. This product is designed for outdoor use by trained professional personnel only.

Personal protective equipment

Respiratory protection

When used as designed, outdoors in a well-ventilated area, exceeding of the exposure limits is very unlikely unless caused by intentional misuse.

When the exposure limits are exceeded or when working indoors, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) cartridges.

When sanding or abrading dried film, type N95 (US) or type P1 (EN 143) dust masks are suggested.

Hand protection

Handle with gloves that satisfy the specifications of the standard EN 374. Dispose of contaminated gloves after use in accordance with applicable laws and good work hygiene practices.

Eye protection

Safety glasses with side shields are required. Tightly fitting splash goggles are recommended. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin and body protection

Wear protective clothing.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash your hands thoroughly. Never intentionally inhale the contents. Use only for the intended purpose.

9. PHYSICAL PROPERTIES

Physical state	Viscous liquid
Color	Yellow
Odor	Mild latex paint, ammonia
Boiling point	±100 ºC
Freezing point	±0 ºC
Flash point	≥200°F (93.3ºC)
Upper explosion limit	No data available
Lower explosion limit	No data available
Solubility in water	Waterborne product
Vapor pressure	No data available
Density	1.5-2.0 g/ml
Viscosity	80-100 KU at 25 ºC
pH	9.0-12.0

10. STABILITY AND REACTIVITY DATA

Chemical stability

Stable.

Possibility of hazardous reactions

None known.

Conditions to avoid

Do not freeze or expose to extreme heat as coalescing may occur.

Materials to avoid

Acids, oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions: Carbon oxides, nitrogen oxides.

Other decomposition products: No data available

11. TOXICOLOGICAL DATA

Information for the product as delivered is not available. Data for the individual ingredients is provided below.

Germ cell mutagenicity

Titanium dioxide	Genotoxicity in vitro – hamster – ovary: Micronucleus test. Genotoxicity in vitro – hamster – lungs: DNA inhibition. Genotoxicity in vitro – hamster – ovary: Sister Chromatoid exchange. Genotoxicity in vivo – mouse – Intraperitoneal: Micronucleus test.
Other ingredients	No data available.

Acute toxicity

Name	Oral LD_{50} (mg/kg) rat	Inhalation LC_{50} (mg/m^3/4 h) rat	Dermal LD_{50} (mg/kg) rabbit
Ammonium hydroxide	350 (Gastrointestinal, Liver, Kidney, Ureter, and Bladder)	No data available.	No data available.
Calcium carbonate	6,450	No data available.	No data available.
Hydroxy ester	3,200	>3,550	>15,200
Methyl alcohol	5,628	83,840	15,800
Pigment yellow 65	>5,000 (Not tested: Data from similar products.)	No data available.	No data available.
Titanium dioxide	>10,000	No data available.	>10,000
Other ingredients	No data available.	No data available.	No data available.

Prolonged Exposure

Name	Skin corrosion / irritation	Serious eye damage / irritation	Respiratory or skin sensitization
Ammonium hydroxide	No data available.	Rabbit: Severe eye irritation	No data available.
Calcium carbonate	Rabbit: No skin irritation (OECD Test Guideline 404)	Rabbit: Mild eye irritation (OECD Test Guideline 405)	No data available.
Methanol	Rabbit: Skin irritation (24 h)	Rabbit: Eye irritation (24 h)	No data available.
Pigment yellow 65	No data available.	Not irritant.	No data available.
Titanium dioxide	Human: Mild skin irritation (3 h)	Rabbit: No eye irritation	Will not occur.
Other ingredients	No data available.	No data available.	No data available.

Carcinogenicity

Quartz	IARC: 2A - Group 2A: Probably carcinogenic to humans (Quartz) NTP: Known to be human carcinogen (Quartz) OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Pigment yellow 65	No data available. Supplier's statement: Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses.
Titanium dioxide	Rat – Inhalation: Tumorigenic: Carcinogenic by RTECS criteria. Lungs, Thorax, or Respiration: Tumors. Rat – Intramuscular: Tumorigenic: Neoplastic by RTECS criteria. Blood: Lymphomas including Hodgkin's disease. Tumors at site or application. IARC: 2B - Group 2B: Possibly carcinogenic to humans (Titanium dioxide).
Other ingredients	Are or contain components that are not classifiable as to their carcinogenicity based on IARC, ACGIH, NTP, or EPA classification.

Reproductive toxicity

No data available.

Teratogenicity

No data available.

Specific target organ toxicity - single exposure (Globally Harmonized System)

Methanol	Causes damage to organs.
Other ingredients	No data available.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

No data available.

Aspiration hazard

No data available

Potential health effects

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion: Harmful if swallowed.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.

Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties of this product (a mixture) have not been thoroughly investigated.

Synergistic effects

No data available.

12. ECOLOGICAL DATA

Toxicity

Ammonium hydroxide	**Fish**: Oncorhynchus tshawytscha (Chinook salmon): 3.57 mg/dm^3 - 3 days (mortality NOEC) **Daphnia and other aquatic invertebrates**: Daphnia magna (water flea): 32 mg/dm^3 - 50 h (LC_{50})
Hydroxy ester	**Fish**: Other fish: 33 mg/dm^3 - 96 h (mortality NOEC) **Daphnia and other aquatic invertebrates**: Daphnid: 147.8 mg/dm^3 - 48 h (EC_{50}) **Algae**: Algae: 15.0 mg/dm^3 - 96 h (EC_{50})
Methanol	**Fish**: Oncorhynchus mykiss (rainbow trout): 19,000 mg/dm^3 - 96 h (LC_{50}) Cyprinus carpio (carp): 36,000 mg/dm^3 - 48 h (LC_{50}) Pimephales promelas (fathead minnow): 1.8 mg/dm^3 - 144 h (mortality NOEC) **Daphnia and other aquatic invertebrates**: Daphnia magna (water flea): 10,000 mg/dm^3 - 24 h (EC_{100}) Daphnia magna (water flea): 24,500 mg/dm^3 - 48 h (EC_{50})
Titanium dioxide	**Fish**: Other fish: >1,000 mg/dm^3 - 96 h (LC_{50}) **Daphnia and other aquatic invertebrates**: Daphnia magna (water flea): 1,000 mg/dm^3 - 48 h (EC_{50})
Other ingredients	No data available.

Persistence and degradability

Hydroxy ester	>77 % (28 days, Ready Biodegradability: CO_2 Evolution Test) Readily biodegradable
All other ingredients	No data available.

Bioaccumulative potential

No data available.

Mobility in soil

No data available.

PBT and vPvB assessment

No data available.

Biological oxygen demand

No data available.

Other adverse effects

Data for the entire preparation (a mixture) is not available.

13. DISPOSAL CONSIDERATIONS

Unused or spoiled product

This product may be a hazardous waste per 40 CFR 261 and other regulations. It is the responsibility of the user to determine whether the material meets the hazardous waste criteria and dispose according to the environmental laws. Do not dump into any drain, sewer, or on the ground. Contact a licensed professional waste disposal service to arrange for appropriate removal. Burn the material in a chemical incinerator equipped with an afterburner and scrubber. Do not incinerate closed containers.

Container

Empty packaging may contain product residue and should not be reused. Dispose as of unused product.

14. TRANSPORTATION INFORMATION

Not considered dangerous goods. Not regulated for transportation.
Information is provided for guidance purpose only, not meant to be inclusive. Packaging must be reviewed for suitability and compliance with the applicable regulations prior to shipment.

15. REGULATORY INFORMATION

TSCA and DSL

Listed or exempt.

OSHA Hazards

Irritant, harmful by ingestion.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard.

SARA 302 and 304

To the best of our knowledge, no chemicals in this product are subject to the reporting requirements of SARA Title III, Section 302 (40 CFR 355.30) or Section 304 (40 CFR 355 and 40 CFR 302).

SARA 313

The following are subject to reporting levels established by SARA Title III, Section 313 (40 CFR 372.65):

Ammonium hydroxide (CAS 1336-21-6)
Methanol (CAS 67-56-1)

California Proposition 65

Warning! This product contains trace amount of a chemicals known to the State of California to cause cancer:

Quartz (CAS 14464-46-1)

To the best of our knowledge, this product does not contain chemicals known to the State of California to cause birth defects or other reproductive harm.

Volatile Organic Compounds

Below 100 g/l (calculated per 40 CFR 59.406).

16. ADDITIONAL INFORMATION

This safety data sheet complies with 29 CFR 1910.1200 and with EC 1907/2006, as amended.
Unlimited paper copies of this publication may be made by the users for internal purposes only.
Last modified: Tuesday, 23 February 2016 10:20 (Fully updated SDS.)

Disclaimer

All information and data appearing on this Safety Data Sheet are provided in good faith and are believed to be reliable and accurate to the best of our knowledge at the date of publication. Although certain hazards are listed herein, there is no guarantee that these are only risks. None of the provided information is to be considered a warranty or quality specification or all-inclusive and is given only as guidance. It is the user's responsibility to determine the safety of use, handling, storage, transportation, disposal, and suitability for the intended utilisation of the product. Unless otherwise specified, the data provided herein is valid only for the described material and may be not applicable for the product used in combination with any other materials or processes. Colorado Paint Company / Swarco shall not be liable for any damage resulting from handling, contact, use, or inability to use of this product. No guarantee, expressed or implied, is made by Colorado Paint Company / Swarco and the user assumes all risk and responsibility.

1164 Waterborne Traffic Marking Paint Blue

1. PRODUCT AND COMPANY INFORMATION

Trade name	1164 Waterborne Traffic Marking Paint Blue
Product codes	ZB1164, B1164, 1164, Waterborne Traffic Marking Paint Blue
Chemical family	Aqueous pigmented resin solution
Intended use	Roadway marking
Company	Colorado Paint Company II, LLC (a Swarco Company) 4747 Holly Street Denver, CO 80216; U. S. A.
Telephone	+1 303-388-9265
Web site	www.swarco.com/americas
Emergency (Chemtrec; 24 h)	1-800-424-9300 (U. S. A. and Canada)

2. HAZARD IDENTIFICATION

Emergency Overview

OSHA Hazards

Target Organ Effect, Irritant

Target Organs

Liver, Kidney

GHS Classification

Specific target organ toxicity - single exposure (Category 2)
Carcinogenicity (Category 1A)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictograms:

Signal word: Danger

Hazard statements

H303 May be harmful if swallowed.
H316 Causes mild skin irritation.
H317 May cause an allergic skin reaction.
H320 Causes eye irritation.
H335 May cause respiratory irritation.
H350 May cause cancer.
H371 May cause damage to organs
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P260 Do not breathe dust / fume / gas / mist / vapours / spray.
P281 Use personal protective equipment as required.
P302+352 IF ON SKIN: Wash with soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS and NFPA Classification:

	HMIS	NFPA Hazard
Health	2*	2
Flammability	1	1
Reactivity	—	0
Physical hazard	0	—

Potential Health Effects

Inhalation: May be harmful if inhaled.
Skin: May cause skin irritation.
Eyes: Causes severe eye irritation.
Ingestion: May be harmful if swallowed. Aspiration hazard if swallowed – can enter lungs and cause damage.

3. COMPOSITION

Name	Synonym	CAS	EINECS	Index	Concentration
Calcium carbonate	Limestone	1317-65-3	207-439-9	—	30-60%
Acrylic resin (a polymer)	—	—	—	—	10-50%
3-Hydroxy-2,2,4-trimethylpentyl 2-methylpropanoate	Hydroxy ester	25265-77-4	246-771-9	—	1-10%
Methanol	Methyl alcohol	67-56-1	200-659-6	603-001-00-X	1-3%
Titanium dioxide	Titanium(IV) oxide	13463-67-7	236-675-5	—	0.5-1.5%
Ammonium hydroxide	Ammonia	1336-21-6	215-647-6	007-001-01-2	0.1-0.5%
Crystalline silica	Quartz	14464-46-1	238-878-4	—	0.1-0.5%
Copper compound **	Pigment blue	Proprietary	—	—	0.1-0.5%
** Copper, as integral part of the compound		7440-50-8	231-159-6	—	<0.05%

4. FIRST AID MEASURES

General advice

Consult a physician. Show this Safety Data Sheet to the attending doctor.

If inhaled

Move person to fresh air. If not breathing, give artificial respiration. Obtain proper medical attention.

If on skin

Wash off with soap and water. Consult a physician if needed.

In case of an eye contact

Rinse thoroughly with plenty of running water for at least 15 minutes. Seek medical attention.

If swallowed

Rinse mouth with water. Seek immediate medical attention.

Most important symptoms and effects, both acute and delayed

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media

Product as delivered is water-based and shall not burn.
For dried material that is burning, use water, "alcohol" foam, dry chemical, or carbon dioxide.

Special protective equipment for fire fighters

Do not enter the fire area without proper protection.

Special fire fighting procedure

Prevent run off to sewers and bodies of water from fire fighting involving this product as it contains up to 0.05% of copper, which is a Clean Water Act priority pollutant.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions: Carbon oxides, calcium oxide, nitrogen oxides.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate unnecessary personnel to safe areas.

Environmental precautions

Prevent leakage or spillage if safe to do so. Do not let product enter drains. Highly toxic for aqueous environment.

Methods and materials for containment and cleaning up

Contain spillage, clean affected area using a strong detergent solution. Collect and place in suitable closed container for disposal according to local regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Avoid contact with skin.

Conditions for safe storage

Keep container tightly closed. Recommended storage temperature is 10-30 °C. Do not permit to freeze.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Occupational exposure limits for the product as delivered have not been established.
Information below is provided for individual ingredients, where available. No occupational exposure limits have been established for other ingredients, which does not imply that they might not be harmful or toxic. Unknown hazards may exist and/or the materials may have not been fully tested. The user is required to follow all of the good industrial hygiene practices

Occupational exposure limits

Calcium carbonate (CAS 1317-65-3):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-1: 15 mg/m^3 TWA
OSHA Permissible Exposure Limit (PEL) for Maritime: 29 CFR 1915.1000 Table Z-Shipyards: 15 mg/m^3 TWA
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 10 mg/m^3 TWA; The value is for particulate matter containing no asbestos and <1% crystalline silica.
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 10 mg/m^3 TWA
Not considered a hazardous substance. Provided exposure limits are established for respirable dust only, particulate matter containing less than 1% of asbestos. They are meaningless for the paint product as delivered, but apply while sanding or abrading dried coating.

Crystalline silica (CAS 14464-46-1):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-3: Limit for dust is calculated per formula: (10 mg/m^3) / (%SiO_2+2).
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 0.05 mg/m^3 TWA; (Respirable fraction).
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 0.05 mg/m^3 TWA; Potential Carcinogen.
NIOSH Immediately Dangerous to Life and Health (IDLH) concentration: 25 mg/m^3.
The established limits are for respirable dust only and are meaningless for the paint product as delivered, but apply while sanding or abrading dried coating.
Carcinogenic Classification: International Agency for Research on Cancer (IARC): Group 2A, probably carcinogenic to humans. Health Effects: Pneumoconiosis.

Methanol (CAS 67-56-1):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-1: 200 ppm, 260 mg/m^3 TWA.
OSHA PEL for Construction Industry: 29 CFR 1926.55 Appendix A: 200 ppm, 260 mg/m^3 TWA.
OSHA PEL for Maritime Industry: 29 CFR 1915.1000 Table Z-Shipyards: 200 ppm, 260 mg/m^3 TWA.
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 200 ppm, 262 mg/m^3 TWA; 250 ppm, 327 mg/m^3 STEL; Skin.
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 200 ppm, 260 mg/m^3 TWA; 250 ppm, 325 mg/m^3 STEL; Skin.
NIOSH Immediately Dangerous to Life and Health (IDLH) concentration: 6,000 ppm = 7860 mg/m^3

Ventilation

Use only where appropriate ventilation is available. This product is designed for outdoor use.

Personal protective equipment

Respiratory protection

When used as designed, outdoors in a well-ventilated area, exceeding of the exposure limits is very unlikely unless caused by intentional misuse.

When the exposure limits are exceeded or when working indoors, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) cartridges.

When sanding or abrading dried film, type N95 (US) or type P1 (EN 143) dust masks are suggested.

Hand protection

Handle with gloves that satisfy the specifications of the standard EN 374. Dispose of contaminated gloves after use in accordance with applicable laws and good work hygiene practices.

Eye protection

Safety glasses with side shields are required. Tightly fitting splash goggles are recommended. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin and body protection

Wear protective clothing.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash your hands thoroughly. Never intentionally inhale the contents. Use only for the intended purpose.

9. PHYSICAL PROPERTIES

Physical state	Viscous liquid
Color	Blue
Odor	Mild latex paint, ammonia
Boiling point	±100 ºC
Freezing point	±0 ºC
Flash point	≥200°F (93.3ºC)
Upper explosion limit	No data available
Lower explosion limit	No data available
Solubility in water	Waterborne product
Vapor pressure	No data available
Density	1.2-1.8 g/ml
Viscosity	80-100 KU at 25 ºC
pH	9.0-12.0

10. STABILITY AND REACTIVITY DATA

Chemical stability

Stable.

Possibility of hazardous reactions

None known.

Conditions to avoid

Do not freeze or expose to extreme heat as coalescing may occur.

Materials to avoid

Acids, oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions: Carbon oxides, nitrogen oxides.

Other decomposition products: No data available

11. TOXICOLOGICAL DATA

Information for the product as delivered is not available. Data for the individual ingredients is provided below, if available.

Acute toxicity

Name	Oral LD_{50} (mg/kg) rat	Inhalation LC_{50} (mg/m^3/4 h) rat	Dermal LD_{50} (mg/kg) rabbit
Ammonium hydroxide	350 (Gastrointestinal, Liver, Kidney, Ureter, Bladder)	No data available.	No data available.
Calcium carbonate	6,450	No data available.	No data available.

Name	Oral LD_{50} (mg/kg) rat	Inhalation LC_{50} (mg/m^3/4 h) rat	Dermal LD_{50} (mg/kg) rabbit
Hydroxy ester	3,200	>3,550	>15,200
Methyl alcohol	5,628	83,840	15,800
Titanium dioxide	>10,000	No data available.	>10,000

Chronic Exposure

Name	Skin corrosion / irritation	Serious eye damage / irritation	Respiratory or skin sensitization
Ammonium hydroxide	No data available.	Rabbit: Severe eye irritation	No data available.
Calcium carbonate	Rabbit: No skin irritation	Rabbit: Mild eye irritation	No data available.
Methanol	Rabbit: Skin irritation - 24 h	Rabbit: Eye irritation - 24 h	No data available.

Germ cell mutagenicity

Titanium dioxide	Genotoxicity in vitro – hamster – ovary: Micronucleus test. Genotoxicity in vitro – hamster – lungs: DNA inhibition. Genotoxicity in vitro – hamster – ovary: Sister Chromatoid exchange. Genotoxicity in vivo – mouse – intraperitoneal: Micronucleus test.

Carcinogenicity

Quartz	IARC: 2A - Group 2A: Probably carcinogenic to humans (Quartz) NTP: Known to be human carcinogen (Quartz) OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Titanium dioxide	Rat – inhalation: Tumorigenic: Carcinogenic by RTECS criteria. Lungs, Thorax, or Respiration: Tumors. Rat – intramuscular: Tumorigenic: Neoplastic by RTECS criteria. Blood: Lymphomas including Hodgkin's disease. Tumors at site or application. IARC: 2B - Group 2B: Possibly carcinogenic to humans (Titanium dioxide).
All other ingredients	Are or contain components that are not classifiable as to their carcinogenicity based on IARC, ACGIH, NTP, or EPA classification.

Reproductive toxicity
No data available.
Teratogenicity
No data available.

Specific target organ toxicity - single exposure (Globally Harmonized System)

Methanol	Causes damage to organs.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
No data available.
Aspiration hazard
No data available
Potential health effects
Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion: Harmful if swallowed.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.
Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties of this product (a mixture) have not been thoroughly investigated.
Synergistic effects
No data available.

12. ECOLOGICAL DATA

Information for the product as delivered is not available. Data for the individual ingredients is provided below, if available.

Toxicity

Ammonium hydroxide	**Fish**: Oncorhynchus tshawytscha (Chinook salmon): 3.57 mg/dm^3 - 3 days (mortality NOEC) **Daphnia and other aquatic invertebrates**: Daphnia magna (water flea): 32 mg/dm^3 - 50 h (LC_{50})
Copper	**Daphnia and other aquatic invertebrates**: Daphnia magna (water flea): 0.004 mg/dm^3 - 24 h (mortality NOEC) Daphnia magna (water flea): 0.006 mg/dm^3 - 24 h (mortality LOEC) *Extremely toxic for aquatic environment.*
Hydroxy ester	**Fish**: Other fish: 33 mg/dm^3 - 96 h (mortality NOEC) **Daphnia and other aquatic invertebrates**: Daphnid: 147.8 mg/dm^3 - 48 h (EC_{50}) **Algae**: Algae: 15.0 mg/dm^3 - 96 h (EC_{50})
Methanol	**Fish**: Oncorhynchus mykiss (rainbow trout): 19,000 mg/dm^3 - 96 h (LC_{50}) Cyprinus carpio (carp): 36,000 mg/dm^3 - 48 h (LC_{50}) Pimephales promelas (fathead minnow): 1.8 mg/dm^3 - 144 h (mortality NOEC) **Daphnia and other aquatic invertebrates**: Daphnia magna (water flea): 10,000 mg/dm^3 - 24 h (EC_{100}) Daphnia magna (water flea): 24,500 mg/dm^3 - 48 h (EC_{50})
Titanium dioxide	**Fish**: Other fish: >1,000 mg/dm^3 - 96 h (LC_{50}) **Daphnia**: Daphnia magna (water flea): 1,000 mg/dm^3 - 48 h (EC_{50})

Persistence and degradability

Hydroxy ester	>77 % (28 days, Ready Biodegradability: CO_2 Evolution Test) Readily biodegradable

Bioaccumulative potential
No data available.

Mobility in soil
No data available.

PBT and vPvB assessment
No data available.

Biological oxygen demand
No data available.

Other adverse effects
Data for the entire preparation (a mixture) is not available.

13. DISPOSAL CONSIDERATIONS

Unused or spoiled product
This product may be a hazardous waste per 40 CFR 261 and other regulations. It is the responsibility of the user to determine whether the material meets the hazardous waste criteria and dispose according to the environmental laws. Do not dump into any drain, sewer, or on the ground. Contact a licensed professional waste disposal service to arrange for appropriate removal. Burn the material in a chemical incinerator equipped with an afterburner and scrubber. Do not incinerate closed containers.

Container
Empty packaging may contain product residue and should not be reused. Dispose as of unused product.

14. TRANSPORTATION INFORMATION

Not considered dangerous goods. Not regulated for transportation.
Information is provided for guidance purpose only, not meant to be inclusive. Packaging must be reviewed for suitability and compliance with the applicable regulations prior to shipment.

15. REGULATORY INFORMATION

TSCA and DSL
Listed or exempt.

OSHA Hazards
Irritant, harmful by ingestion.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard.

SARA 302

To the best of our knowledge, no chemicals in this product are subject to the reporting requirements of Superfund Amendments and Reauthorization Act (SARA), Title III, Section 302 (40 CFR 355.30).

SARA 304

This product contains trace amount of EPA priority pollutant (per 40 CFR 355 and 43024): Clean Water Act and CERCLA:
Copper (CAS 7440-58-0), <0.05%, reportable quantity 2,270 kg

SARA 313

The following are subject to reporting levels established by SARA Title III, Section 313 (40 CFR 372.65):
Ammonium hydroxide (CAS 1336-21-6)
Methanol (CAS 67-56-1)

California Proposition 65

Warning! This product contains trace amount of a chemicals known to the State of California to cause cancer:
Quartz (CAS 14464-46-1)

To the best of our knowledge, this product does not contain chemicals known to the State of California to cause birth defects or other reproductive harm.

Volatile Organic Compounds

Below 100 g/l (calculated per 40 CFR 59.406).

16. ADDITIONAL INFORMATION

This safety data sheet complies with 29 CFR 1910.1200 and with EC 1907/2006, as amended.
Last modified: Tuesday, 23 February 2016 10:22 (Fully updated SDS.)

Disclaimer

All information and data appearing on this Safety Data Sheet are provided in good faith and are believed to be reliable and accurate to the best of our knowledge at the date of publication. Although certain hazards are listed herein, there is no guarantee that these are only risks. None of the provided information is to be considered a warranty or quality specification or all-inclusive and is given only as guidance. It is the user's responsibility to determine the safety of use, handling, storage, transportation, disposal, and suitability for the intended utilisation of the product. Unless otherwise specified, the data provided herein is valid only for the described material and may be not applicable for the product used in combination with any other materials or processes. Colorado Paint Company / Swarco shall not be liable for any damage resulting from handling, contact, use, or inability to use of this product. No guarantee, expressed or implied, is made by Colorado Paint Company / Swarco and the user assumes all risk and responsibility.

1167 Waterborne Traffic Marking Paint Black

1. PRODUCT AND COMPANY INFORMATION

Trade name	1167 Waterborne Traffic Marking Paint Black
Product codes	ZB1167, B1167, 1167, Waterborne Traffic Marking Paint Black
Chemical family	Aqueous pigmented resin solution
Intended use	Roadway marking
Company	Colorado Paint Company II, LLC (a Swarco Company) 4747 Holly Street Denver, CO 80216; U. S. A.
Telephone	+1 303-388-9265
Web site	www.swarco.com/americas
Emergency (Chemtrec; 24 h)	1-800-424-9300 (U. S. A. and Canada)

2. HAZARD IDENTIFICATION

Emergency Overview

OSHA Hazards

Target Organ Effect, Irritant

Target Organs

Liver, Kidney

GHS Classification

Specific target organ toxicity - single exposure (Category 2)
Carcinogenicity (Category 1A)
Skin irritation (Category 2)
Eye irritation (Category 2A)

GHS Label elements, including precautionary statements

Pictograms:

Signal word: Danger

Hazard statements

H303 May be harmful if swallowed.
H316 Causes mild skin irritation.
H317 May cause an allergic skin reaction.
H320 Causes eye irritation.
H335 May cause respiratory irritation.
H350 May cause cancer.
H371 May cause damage to organs

Precautionary statements

P260 Do not breathe dust / fume / gas / mist / vapours / spray.
P281 Use personal protective equipment as required.
P302+352 IF ON SKIN: Wash with soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS and NFPA Classification:

	HMIS	NFPA Hazard
Health	2*	2
Flammability	1	1
Reactivity	—	0
Physical hazard	0	—

Potential Health Effects

Inhalation: May be harmful if inhaled.
Skin: May cause skin irritation.
Eyes: Causes severe eye irritation.
Ingestion: May be harmful if swallowed. Aspiration hazard if swallowed – can enter lungs and cause damage.

3. COMPOSITION

Name	Synonym	CAS	EINECS	Index	Concentration
Calcium carbonate	Limestone	1317-65-3	207-439-9	—	30-60%
Acrylic resin	Polymeric material	n/a	n/a	—	10-50%
3-Hydroxy-2,2,4-trimethylpentyl 2-methylpropanoate	Hydroxy ester	25265-77-4	246-771-9	—	1-10%
Methanol	Methyl alcohol	67-56-1	200-659-6	603-001-00-X	1-5%
Carbon black	—	1333-86-4	215-609-9	—	0.1-1%
Ammonium hydroxide	Ammonia	1336-21-6	215-647-6	007-001-01-2	0.1-0.5%
Crystalline silica	Quartz	14464-46-1	238-878-4	—	0.1-0.5%

4. FIRST AID MEASURES

General advice

Consult a physician. Show this Safety Data Sheet to the attending doctor.

If inhaled

Move person to fresh air. If not breathing, give artificial respiration. Obtain proper medical attention.

If on skin

Wash off with soap and water. Consult a physician if needed.

In case of an eye contact

Rinse thoroughly with plenty of running water for at least 15 minutes. Seek medical attention.

If swallowed

Rinse mouth with water. Seek immediate medical attention.

Most important symptoms and effects, both acute and delayed

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media

Product as delivered is water-based and shall not burn.
For dried material that is burning, use water, "alcohol" foam, dry chemical, or carbon dioxide.

Special protective equipment for fire fighters

Do not enter the fire area without proper protection.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions: Carbon oxides, calcium oxide, nitrogen oxides.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate unnecessary personnel to safe areas.

Environmental precautions

Prevent leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up

Contain spillage, clean affected area using a strong detergent solution. Collect and place in suitable closed container for disposal according to local regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Avoid contact with skin.

Conditions for safe storage

Keep container tightly closed. Recommended storage temperature is 10-30 °C. Do not permit to freeze.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Occupational exposure limits for the product as delivered have not been established.
Information below is provided for individual ingredients, where available. No occupational exposure limits have been established for other ingredients, which does not imply that they might not be harmful or toxic. Unknown hazards may exist and/or the materials may have not been fully tested. The user is required to follow all of the good industrial hygiene practices

Occupational exposure limits

Calcium carbonate (CAS 1317-65-3):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-1: 15 mg/m^3 TWA
OSHA Permissible Exposure Limit (PEL) for Maritime: 29 CFR 1915.1000 Table Z-Shipyards: 15 mg/m^3 TWA
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 10 mg/m^3 TWA;
The value is for particulate matter containing no asbestos and <1% crystalline silica.
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 10 mg/m^3 TWA
Not considered a hazardous substance. Provided exposure limits are established for respirable dust only, particulate matter containing less than 1% of asbestos. They are meaningless for the paint product as delivered, but apply while sanding or abrading dried coating.

Carbon black (CAS 1333-86-4):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-1: 3.5 mg/m^3 TWA
OSHA Permissible Exposure Limit (PEL) for Construction Industry: 29 CFR 1926.55 Appendix A: 3.5 mg/m^3 TWA
OSHA Permissible Exposure Limit (PEL) for Maritime: 29 CFR 1915.1000 Table Z-Shipyards: 3.5 mg/m^3 TWA
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 3.5 mg/m^3 TWA;
Appendix A4 - Not Classifiable as a Human Carcinogen.
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 3.5 mg/m^3 TWA;
Limit poly aromatic hydrocarbons (PAHs) to 0.1 mg/m^3 TWA;
Appendix A - NIOSH Potential Occupational Carcinogens;
Appendix C - Supplementary Exposure Limits.
NIOSH Immediately Dangerous To Life or Health Concentration (IDLH): 1750 mg/m^3
International Agency for Research on Cancer (IARC): Group 2B, possibly carcinogenic to humans.
Per manufacturer: There are no well-demonstrated health effects from exposure. Any adverse properties are most likely due to absorbed impurities. Eye contact may produce conjunctivitis and corneal hypoplasia. Skin contact can produce eczema. Inhalation may result in bronchitis. Any reported carcinogenic effects are most likely due to the presence of traces of polynuclear aromatic compounds, which are strongly adsorbed on the carbon black particles. Evidence indicates that such adsorption renders them biologically inactive. Some studies have linked exposure to carbon black dust to lung effects. IARC classifies carbon black as a category 2B carcinogen (known animal carcinogen, possible human carcinogen) based on inhalation studies. However, the manufacturers of carbon black state that epidemiological studies of workers in the carbon black industry in the U.S.A. and Europe show no significant adverse health effects due to occupational exposure

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Crystalline silica (CAS 14464-46-1):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-3: Limit for dust is calculated per formula: (10 mg/m^3) / (%SiO_2+2).
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 0.05 mg/m^3 TWA;
(Respirable fraction).
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 0.05 mg/m^3 TWA;
Potential Carcinogen.
NIOSH Immediately Dangerous to Life and Health (IDLH) concentration: 25 mg/m^3.
The established limits are for respirable dust only and are meaningless for the paint product as delivered, but apply while sanding or abrading dried coating.
Carcinogenic Classification: International Agency for Research on Cancer (IARC): Group 2A, probably carcinogenic to humans. Health Effects: Pneumoconiosis.

Methanol (CAS 67-56-1):

OSHA Permissible Exposure Limit (PEL) for General Industry: 29 CFR 1910.1000 Table Z-1: 200 ppm, 260 mg/m^3 TWA.
OSHA PEL for Construction Industry: 29 CFR 1926.55 Appendix A: 200 ppm, 260 mg/m^3 TWA.
OSHA PEL for Maritime Industry: 29 CFR 1915.1000 Table Z-Shipyards: 200 ppm, 260 mg/m^3 TWA.
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): 200 ppm, 262 mg/m^3 TWA; 250 ppm, 327 mg/m^3 STEL; Skin.
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL): 200 ppm, 260 mg/m^3 TWA; 250 ppm, 325 mg/m^3 STEL; Skin.
NIOSH Immediately Dangerous to Life and Health (IDLH) concentration: 6,000 ppm, 7860 mg/m^3

Ventilation

Use only where appropriate ventilation is available. This product is designed for outdoor use by trained professional personnel only.

Personal protective equipment

Respiratory protection

When used as designed, outdoors in a well-ventilated area, exceeding of the exposure limits is very unlikely unless caused by misuse.

When the exposure limits are exceeded or when working indoors, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) cartridges.

When sanding or abrading dried film, type N95 (US) or type P1 (EN 143) dust masks are suggested.

Hand protection

Handle with gloves that satisfy the specifications of the standard EN 374. Dispose of contaminated gloves after use in accordance with applicable laws and good work hygiene practices.

Eye protection

Safety glasses with side shields are required. Tightly fitting splash goggles are recommended. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin and body protection

Wear protective clothing.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash your hands thoroughly. Never intentionally inhale the contents. Use only for the intended purpose.

9. PHYSICAL PROPERTIES

Physical state	Viscous liquid
Color	Black
Odor	Mild latex paint, ammonia
Boiling point	±100 ºC
Freezing point	±0 ºC
Flash point	≥200°F (93.3ºC)
Upper explosion limit	No data available
Lower explosion limit	No data available
Solubility in water	Waterborne product
Vapor pressure	No data available
Density	1.5-2.0 g/ml
Viscosity	80-100 KU at 25 ºC
pH	9.0-12.0

10. STABILITY AND REACTIVITY DATA

Chemical stability

Stable.

Possibility of hazardous reactions

None known.

Conditions to avoid

Do not freeze or expose to extreme heat as coalescing may occur.

Materials to avoid

Acids, oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions: Carbon oxides, nitrogen oxides.
Other decomposition products: No data available

11. TOXICOLOGICAL DATA

Information for the product as delivered is not available. Data for the individual ingredients is provided below.

Acute toxicity

Name	Oral LD_{50} (mg/kg) rat	Inhalation LC_{50} (mg/m^3/4 h) rat	Dermal LD_{50} (mg/kg) rabbit
Ammonium hydroxide	350 (Gastrointestinal, Liver, Kidney, Ureter, and Bladder)	No data available.	No data available.
Calcium carbonate	6,450	No data available.	No data available.
Carbon black	>15,400 (Behavioral: Somnolence, general depressed activity)	>3,000	No data available.
Hydroxy ester	3,200	>3,550	>15,200
Methyl alcohol	5,628	83,840	15,800
Other ingredients	No data available.	No data available.	No data available.

Chronic Exposure

Name	Skin corrosion / irritation	Serious eye damage / irritation	Respiratory or skin sensitization
Ammonium hydroxide	No data available.	Rabbit: Severe eye irritation	No data available.
Calcium carbonate	Rabbit: No skin irritation (OECD Test Guideline 404)	Rabbit: Mild eye irritation (OECD Test Guideline 405)	No data available.
Methanol	Rabbit: Skin irritation - 24 h	Rabbit: Eye irritation - 24 h	No data available.
Other ingredients	No data available.	No data available.	No data available.

Germ cell mutagenicity

Carbon black	Genotoxicity in vivo – mouse – inhalation: DNA damage.
Other ingredients	No data available.

Carcinogenicity

Carbon black	Carcinogenicity – rat – inhalation: Tumorigenic: Carcinogenic by RTECS criteria. Lungs, Thorax, or Respiration: Tumors. This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification. Limited evidence of carcinogenicity in animal studies. IARC: 2B - Group 2B: Possibly carcinogenic to humans (Carbon black). NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.
Quartz	IARC: 2A - Group 2A: Probably carcinogenic to humans (Quartz) NTP: Known to be human carcinogen (Quartz) OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Other ingredients	Are or contain components that are not classifiable as to their carcinogenicity based on IARC, ACGIH, NTP, or EPA classification.

Reproductive toxicity

No data available.

Teratogenicity

No data available.

Specific target organ toxicity - single exposure (Globally Harmonized System)

Methanol	Causes damage to organs.
Other ingredients	No data available.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
No data available.

Aspiration hazard
No data available

Potential health effects
Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion: Harmful if swallowed.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties of this product (a mixture) have not been thoroughly investigated.

Synergistic effects
No data available.

12. ECOLOGICAL DATA

Toxicity

Ammonium hydroxide	**Fish**: Oncorhynchus tshawytscha (Chinook salmon): 3.57 mg/l - 3 days (mortality NOEC) **Daphnia**: Daphnia magna (water flea): 32 mg/l - 50 h (LC_{50})
Carbon Black	**Fish:** Danio rerio (zebra fish): >1,000 mg/dm^3 - 96 h (LC_{50}). **Daphnia**: Daphnia magna (water flea): >5,600 mg/dm^3 - 28 h (EC_{50}). **Algae**: Desmodesmus subspicatus (green algae): >10,000 mg/dm^3 - 72 h (EC_{50})
Hydroxy ester	**Fish**: Other fish: 33 mg/l - 96 h (mortality NOEC) **Daphnia**: Daphnid: 147.8 mg/l - 48 h (EC_{50}) **Algae**: Algae: 15.0 mg/l - 96 h (EC_{50})
Methanol	**Fish**: Oncorhynchus mykiss (rainbow trout): 19,000 mg/l - 96 h (LC_{50}) Cyprinus carpio (carp): 36,000 mg/l - 48 h (LC_{50}) Pimephales promelas (fathead minnow): 1.8 mg/l - 144 h (mortality NOEC) **Daphnia**: Daphnia magna (water flea): 10,000 mg/l - 24 h (EC_{100}) Daphnia magna (water flea): 24,500 mg/l - 48 h (EC_{50})
Other ingredients	No data available.

Persistence and degradability

Hydroxy ester	> 77 % (28 d, Ready Biodegradability: CO_2 Evolution Test) Readily biodegradable
All other ingredients	No data available.

Bioaccumulative potential
No data available.
Mobility in soil
No data available.
PBT and vPvB assessment
No data available.
Biological oxygen demand
No data available.
Other adverse effects
Data for the entire preparation (a mixture) is not available.

13. DISPOSAL CONSIDERATIONS

Unused or spoiled product

This product may be a hazardous waste per 40 CFR 261 and other regulations. It is the responsibility of the user to determine whether the material meets the hazardous waste criteria and dispose according to the environmental laws. Do not dump into any drain, sewer, or on the ground. Contact a licensed professional waste disposal service to arrange for appropriate removal. Burn the material in a chemical incinerator equipped with an afterburner and scrubber. Do not incinerate closed containers.

Container

Empty packaging may contain product residue and should not be reused. Dispose as of unused product.

14. TRANSPORTATION INFORMATION

Not considered dangerous goods. Not regulated for transportation.
Information is provided for guidance purpose only, not meant to be inclusive. Packaging must be reviewed for suitability and compliance with the applicable regulations prior to shipment.

15. REGULATORY INFORMATION

TSCA and DSL

Listed or exempt.

OSHA Hazards

Irritant, harmful by ingestion.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard.

SARA 302 and 304

To the best of our knowledge, no chemicals in this product are subject to the reporting requirements of SARA Title III, Section 302 (40 CFR 355.30) or Section 304 (40 CFR 355 and 40 CFR 302).

SARA 313

The following are subject to reporting levels established by SARA Title III, Section 313 (40 CFR 372.65):

Ammonium hydroxide (CAS 1336-21-6)
Methanol (CAS 67-56-1)

California Proposition 65

Warning! This product contains chemicals known to the State of California to cause cancer:

Quartz (CAS 14464-46-1)
Carbon Black (CAS 1333-86-4)

To the best of our knowledge, this product does not contain chemicals known to the State of California to cause birth defects or other reproductive harm.

Volatile Organic Compounds

Below 100 g/l (calculated per 40 CFR 59.406).

16. ADDITIONAL INFORMATION

This safety data sheet complies with 29 CFR 1910.1200 and with EC 1907/2006, as amended.
Unlimited paper copies of this publication may be made by the users for internal purposes only.
Last modified: 10/01/2013 (Fully updated SDS.)

Disclaimer

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