SAFETY DATA SHEET

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MSDS Number: R0177840
Version: 3.11

Pyroil™ POWER STEERING FLUID
PYPSF1

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

Ashland P.O. Box 2219 Columbus, OH 43216	Regulatory Information Number Telephone Emergency telephone number	1-800-325-3751 614-790-3333 1-800-ASHLAND (1-800-274-5263)

Product name: Pyroil™ POWER STEERING FLUID

Product code: PYPSF1

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, amber

CAUTION! PROLONGED OR REPEATED CONTACT MAY DRY THE SKIN AND CAUSE IRRITATION AND BURNS.

Potential Health Effects

Exposure routes

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact

May cause mild eye irritation. Symptoms include stinging, tearing, and redness.

Skin contact

May cause slight skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, skin burns, and other skin damage.

Ingestion

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful.

Inhalation

It is possible to breathe this material under certain conditions of handling and use (for example, during heating, spraying, or stirring). Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material:, Skin, lung (for example, asthma-like conditions)

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways)

Target Organs

No data

Carcinogenicity

This material is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA).

Reproductive hazard

There are no data available for assessing risk to the fetus from maternal exposure to this material.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No. / Trade Secret No.	Concentration
HEAVY PARAFFINIC DISTILLATE	64742-54-7	>=90-<=100%
LUBRICATING OILS, PETROLEUM, HYDROTREATED SPENT	64742-58-1	>=5-<10%
MIXTURE OF SEVERELY HYDROTREATED AND HYDROCRACKED BASE OIL (PETROLEUM)		>=1-<1.5%

4. FIRST AID MEASURES

Eyes

If symptoms develop, move individual away from exposure and into fresh air. Flush eyes gently with water while holding eyelids apart. If symptoms persist or there is any visual difficulty, seek medical attention.

Skin

Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician

Hazards: Acute aspiration of large amounts of oil-laden material may produce a serious aspiration pneumonia. Patients who aspirate these oils should be followed for the development of long-term sequelae. Repeated aspiration of small quantities of mineral oil can produce chronic inflammation of the lungs (i.e. lipoid pneumonia) that may progress to pulmonary fibrosis. Symptoms are often subtle and radiological changes appear worse than clinical abnormalities. Occasionally, persistent cough, irritation of the upper respiratory tract, shortness of breath with exertion, fever, and bloody sputum occur. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities.

Treatment: No information available.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Dry chemical, Carbon dioxide (CO2), Water spray

Hazardous combustion products

carbon dioxide and carbon monoxide, Hydrocarbons

Precautions for fire-fighting

Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). DO NOT direct a solid stream of water or foam into hot, burning pools of liquid since this may cause frothing and increase fire intensity. Frothing can be violent and possibly endanger any firefighter standing too close to the burning liquid. Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

NFPA Flammable and Combustible Liquids Classification

Combustible Liquid Class IIIB

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental precautions

Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

Methods for cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Other information

Comply with all applicable federal, state, and local regulations.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Storage

Keep containers closed when not in use.Store in a cool, dry, ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Contains no substances with occupational exposure limit values.

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Not required under normal conditions of use. Wear splash-proof safety goggles if material could be misted or splashed into eyes.

Skin and body protection

Wear normal work clothing including long pants, long-sleeved shirts and foot covering to prevent direct contact of the product with the skin. Launder clothing before reuse. If skin irritation develops, contact your facility health and safety professional or your local safety equipment supplier to determine the proper personal protective equipment for your use.
Wear resistant gloves (consult your safety equipment supplier).

Respiratory protection

Respiratory protection is not required under normal conditions of use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Colour	amber
Boiling point/boiling range	424.99 °F / 218.33 °C @ 1,013.33 hPa Calculated Phase Transition Liquid/Gas
Flash point	347.00 °F / 175.00 °C Open Cup

Evaporation rate	(>)1 Ethyl Ether
Vapour pressure	0.000 hPa Calculated Vapor Pressure
Density	0.87 g/cm3
	7.2200 lb/gal @ 60.00 °F / 15.56 °C

10. STABILITY AND REACTIVITY

Stability
Stable.

Conditions to avoid
None known.

Incompatible products
Strong oxidizing agents

Hazardous decomposition products
carbon dioxide and carbon monoxide, Hydrocarbons

Hazardous reactions
Product will not undergo hazardous polymerization.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

Acute oral toxicity - Product	: no data available

Acute oral toxicity - Components

HEAVY PARAFFINIC DISTILLATE	: LD 50: > 15 g/kg Species: Rat
MIXTURE OF SEVERELY HYDROTREATED AND HYDROCRACKED BASE OIL	: LD50: > 5,000 mg/kg Species: rat

(PETROLEUM)

Acute inhalation toxicity

Acute inhalation toxicity - Product	:	no data available

Acute dermal toxicity

Acute dermal toxicity - Product	:	no data available

Acute dermal toxicity - Components

HEAVY PARAFFINIC DISTILLATE	:	LD 50: > 5 g/kg Species: Rabbit
MIXTURE OF SEVERELY HYDROTREATED AND HYDROCRACKED BASE OIL (PETROLEUM)	:	LD50: > 2,000 mg/kg Species: rabbit

Acute toxicity (other routes of administration)

Acute toxicity (other routes of administration)	:	no data available

12. ECOLOGICAL INFORMATION

Biodegradability

Biodegradability - Product	:	no data available

Bioaccumulation

Bioaccumulation - Product	:	no data available

Ecotoxicity effects

Toxicity to fish

Toxicity to fish - Product	:	no data available

Toxicity to daphnia and other aquatic invertebrates

Toxicity to daphnia and other aquatic invertebrates - Product	:	no data available

Toxicity to algae

Toxicity to algae - Product	:	no data available

Toxicity to bacteria

Toxicity to bacteria - Product	:	no data available

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Dispose of in accordance with all applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.

U.S. DOT - ROAD

Not dangerous goods

U.S. DOT - RAIL

Not dangerous goods

U.S. DOT - INLAND WATERWAYS

Not dangerous goods

TRANSPORT CANADA - ROAD

Not dangerous goods

TRANSPORT CANADA - RAIL

Not dangerous goods

TRANSPORT CANADA - INLAND WATERWAYS

Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

Not dangerous goods

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

Not dangerous goods

***ORM = ORM-D, CBL = COMBUSTIBLE LIQUID**

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65

Proposition 65 warnings are not required for this product based on the results of a risk assessment.	

SARA Hazard Classification **SARA 311/312 Classification** No SARA Hazards

SARA 313 Component(s)
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

New Jersey RTK Label Information

HEAVY PARAFFINIC DISTILLATE	64742-54-7
LUBRICATING OILS, PETROLEUM, HYDROTREATED SPENT	64742-58-1
MIXTURE OF SEVERELY HYDROTREATED AND HYDROCRACKED BASE OIL (PETROLEUM)	

Pennsylvania RTK Label Information

HEAVY PARAFFINIC DISTILLATE	64742-54-7
LUBRICATING OILS, PETROLEUM, HYDROTREATED SPENT	64742-58-1

Notification status

US. Toxic Substances Control Act	y (positive listing)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	y (positive listing)
Australia. Industrial Chemical (Notification and Assessment) Act	y (positive listing)
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	n (Negative listing)
Japan. Kashin-Hou Law List	y (positive listing)
Korea. Toxic Chemical Control Law (TCCL) List	y (positive listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	y (positive listing)
China. Inventory of Existing Chemical Substances	y (positive listing)

	HMIS	NFPA
Health	1	1
Flammability	1	1
Physical hazards	0	

Instability		0
Specific Hazard	--	--

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

SAFETY DATA SHEET

Propane

Section 1. Identification

GHS product identifier : Propane

Chemical name : propane

Other means of identification : Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.

Product use : Synthetic/Analytical chemistry.

Synonym : Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.

SDS # : 001045

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

24-hour telephone : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE GASES - Category 1
GASES UNDER PRESSURE - Liquefied gas

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Extremely flammable gas.
Contains gas under pressure; may explode if heated.
May cause frostbite.
May form explosive mixtures in Air.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.

Prevention : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response : Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage : Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Section 2. Hazards identification

Disposal : Not applicable.

Hazards not otherwise classified : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : propane

Other means of identification : Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.

CAS number/other identifiers

CAS number : 74-98-6

Product code : 001045

Ingredient name	%	CAS number
Propane	100	74-98-6

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Section 4. First aid measures

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Section 6. Accidental release measures

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Propane	**NIOSH REL (United States, 10/2013).** TWA: 1800 mg/m³ 10 hours. TWA: 1000 ppm 10 hours. **OSHA PEL (United States, 2/2013).** TWA: 1800 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 1800 mg/m³ 8 hours. TWA: 1000 ppm 8 hours.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Section 8. Exposure controls/personal protection

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Liquefied compressed gas.]

Color : Colorless.

Molecular weight : 44.11 g/mole

Molecular formula : C3-H8

Boiling/condensation point : -161.48°C (-258.7°F)

Melting/freezing point : -187.6°C (-305.7°F)

Critical temperature : 96.55°C (205.8°F)

Odor : Odorless.BUT MAY HAVE SKUNK ODOR ADDED.

Odor threshold : Not available.

pH : Not available.

Flash point : Closed cup: -104°C (-155.2°F)
Open cup: -104°C (-155.2°F)

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and oxidizing materials.

Lower and upper explosive (flammable) limits : Lower: 1.8%
Upper: 8.4%

Vapor pressure : 109 (psig)

Vapor density : 1.6 (Air = 1)

Section 9. Physical and chemical properties

Specific Volume (ft ^{3}/lb)	:	8.6206
Gas Density (lb/ft ^{3})	:	0.116 (25°C / 77 to °F)
Relative density	:	Not applicable.
Solubility	:	Not available.
Solubility in water	:	0.0244 g/l
Partition coefficient: n-octanol/water	:	1.09
Auto-ignition temperature	:	287°C (548.6°F)
Decomposition temperature	:	Not available.
SADT	:	Not available.
Viscosity	:	Not applicable.

Section 10. Stability and reactivity

Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	:	The product is stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	:	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Incompatible materials	:	Oxidizers
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	:	Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

IDLH : 2100 ppm

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Section 11. Toxicological information

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Propane	1.09	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1978	UN1978	UN1978	UN1978	UN1978
UN proper shipping name	PROPANE	PROPANE	PROPANE	PROPANE	PROPANE
Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	**Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: Forbidden. **Cargo aircraft** Quantity limitation: 150 kg **Special provisions** 19, T50	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2). **Explosive Limit and Limited Quantity Index** 0.125 **ERAP Index** 3000	-	-	**Passenger and Cargo Aircraft** Quantity limitation: 0 Forbidden **Cargo Aircraft Only** Quantity limitation: 150 kg

Section 14. Transport information

		Passenger Carrying Ship Index 65 **Passenger Carrying Road or Rail Index** Forbidden **Special provisions** 29, 42			

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

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

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act (CAA) 112 regulated flammable substances: propane

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Propane	100	Yes.	Yes.	No.	No.	No.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

Section 15. Regulatory information

New Jersey : This material is listed.

Pennsylvania : This material is listed.

International regulations

International lists

National inventory

Australia : This material is listed or exempted.

Canada : This material is listed or exempted.

China : This material is listed or exempted.

Europe : This material is listed or exempted.

Japan : This material is listed or exempted.

Malaysia : This material is listed or exempted.

New Zealand : This material is listed or exempted.

Philippines : This material is listed or exempted.

Republic of Korea : This material is listed or exempted.

Taiwan : This material is listed or exempted.

Canada

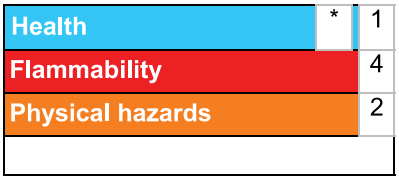
WHMIS (Canada) : Class A: Compressed gas.
Class B-1: Flammable gas.

CEPA Toxic substances: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.
Class B-1: Flammable gas.

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

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Section 16. Other information

Procedure used to derive the classification

Classification	Justification
Flam. Gas 1, H220 Press. Gas Liq. Gas, H280	Expert judgment Expert judgment

History

Date of printing : 10/20/2015

Date of issue/Date of revision : 10/20/2015

Date of previous issue : No previous validation

Version : 0.01

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Indicates information that has changed from previously issued version.

Other special considerations : The information below is given to call attention to the issue of “Naturally occurring radioactive materials”. Although Radon-222 levels in the product represented by this MSDS do not present any direct Radon exposure hazard, customers should be aware of the potential for Radon daughter build up within their processing systems, whatever the source of their product streams. Radon-222 is a naturally occurring radioactive gas which can be a contaminant in natural gas. During subsequent processing , Radon tends to be concentrated in Liquefied Petroleum Gas streams and in product streams having a similar boiling point range. Industry experience has shown that this product may contain small amounts of Radon-222 and its radioactive decay products, called Radon “daughters”. The actual concentration of Radon-222 and radioactive daughters in the delivered product is dependent on the geographical source of the natural gas and storage time prior to delivery. Process equipment (i.e. lines, filters, pumps and reaction units) may accumulate significant levels of radioactive daughters and show a gamma radiation reading during operation. A potential external radiation hazard exists at or near any pipe valve or vessel containing a Radon enriched stream, or containing internal deposits of radioactive material due to the transmission of gamma radiation through its wall. Field studies reported in the literature have not shown any conditions that subject workers to cumulative exposures in excess of general population limits. Equipment emitting gamma radiation should be presumed to be internally contaminated with alpha emitting decay products which may be a hazard if inhaled or ingested. Protective equipment such as coveralls, gloves, and respirator (NIOSH/MHSA approved for high efficiency particulates and radionuclides, or supplied air) should be worn by personnel entering a vessel or working on contaminated process equipment to prevent skin contamination, ingestion, or inhalation of any residues containing alpha radiation. Airborne contamination may be minimized by handling scale and/or contaminated materials in a wet state.

Notice to reader

Section 16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

1. Identification

Product identifier **Regulare Clear Cement**

Other means of identification

Product code 1100EB

Synonyms Part Numbers: 31016RB, 31958RB, 31960RB, 31961RB, 31959RB

Recommended use Joining PVC Pipes

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name Oatey Co.

Address 4700 West 160th St.
Cleveland, OH 44135

Telephone 216-267-7100

E-mail info@oatey.com

Transport Emergency Chemtrec 1-800-424-9300 (Outside the US 1-703-527-3887)

Emergency First Aid 1-877-740-5015

Contact person MSDS Coordinator

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Highly flammable liquid and vapor. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. 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. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. 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. Call a poison center/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. In case of fire: Use appropriate media to extinguish.

Storage	Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May form explosive peroxides. Contains a chemical classified by the US EPA as a suspected possible carcinogen.

Supplemental information

Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Furan, Tetrahydro-	109-99-9	40-60
Acetone	67-64-1	10-25
Polyvinyl chloride	9002-86-2	12-20
Cyclohexanone	108-94-1	5-15
Methyl ethyl ketone	78-93-3	5-15

*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	Take off immediately all contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/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. If eye irritation persists: Get medical advice/attention.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Aspiration may cause pulmonary edema and pneumonitis.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical 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	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Highly flammable liquid and vapor. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

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. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing 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

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. 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.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

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

Components	Type	Value
Polyvinyl chloride (CAS 9002-86-2)	STEL	5 ppm
	TWA	1 ppm

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

Components	Type	Value	Form
Acetone (CAS 67-64-1)	PEL	2400 mg/m3	
		1000 ppm	
Cyclohexanone (CAS 108-94-1)	PEL	200 mg/m3	
		50 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	PEL	590 mg/m3	
		200 ppm	
Methyl ethyl ketone (CAS 78-93-3)	PEL	590 mg/m3	
		200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Acetone (CAS 67-64-1)	STEL	750 ppm	
	TWA	500 ppm	
Cyclohexanone (CAS 108-94-1)	STEL	50 ppm	
	TWA	20 ppm	
Furan, Tetrahydro- (CAS 109-99-9)	STEL	100 ppm	
	TWA	50 ppm	
Methyl ethyl ketone (CAS 78-93-3)	STEL	300 ppm	
	TWA	200 ppm	
Polyvinyl chloride (CAS 9002-86-2)	TWA	1 mg/m3	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m3
		250 ppm
Cyclohexanone (CAS 108-94-1)	TWA	100 mg/m3
		25 ppm
Furan, Tetrahydro- (CAS 109-99-9)	STEL	735 mg/m3
		250 ppm
	TWA	590 mg/m3
		200 ppm
Methyl ethyl ketone (CAS 78-93-3)	STEL	885 mg/m3
		300 ppm
	TWA	590 mg/m3
		200 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	50 mg/l	Acetone	Urine	*
Cyclohexanone (CAS 108-94-1)	80 mg/l	1,2-Cyclohexanediol, with hydrolysis	Urine	*
	8 mg/l	Cyclohexanol, with hydrolysis	Urine	*
Furan, Tetrahydro- (CAS 109-99-9)	2 mg/l	Tetrahydrofuran	Urine	*
Methyl ethyl ketone (CAS 78-93-3)	2 mg/l	MEK	Urine	*

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

Exposure guidelines

US - California OELs: Skin designation

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Cyclohexanone (CAS 108-94-1) Skin designation applies.

US - Tennessee OELs: Skin designation

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.
Furan, Tetrahydro- (CAS 109-99-9) Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards

Cyclohexanone (CAS 108-94-1) Can be absorbed through the skin.

Appropriate engineering controls	Explosion-proof general and local exhaust ventilation. 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	Face shield is recommended. Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear appropriate chemical resistant clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using, do not eat, drink or 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	Opaque liquid.
Color	Gray.
Odor	Solvent.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	151 °F (66.11 °C)
Flash point	-4.0 °F (-20.0 °C)
Evaporation rate	5.5 - 8
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	1.8
Flammability limit - upper (%)	11.8
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	145 mm Hg @ 20 C
Vapor density	2.5
Relative density	0.9 +/- 0.02
Solubility(ies)	
Solubility (water)	Negligible
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	80 - 500 cP
Other information	
VOC (Weight %)	488 g/l SCAQMD 1168/M316A

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	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Strong oxidizing agents. Ammonia. Amines. Isocyanates. Caustics.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May be fatal if swallowed and enters airways. Headache. Nausea, vomiting. May cause irritation to the respiratory system. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May be fatal if swallowed and enters airways. Harmful if swallowed. Harmful if swallowed. 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	Irritation of nose and throat. Aspiration may cause pulmonary edema and pneumonitis. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

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

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Rabbit	20 ml/kg
Inhalation		
LC50	Rat	50 mg/l, 8 Hours
Oral		
LD50	Rat	5800 mg/kg
Cyclohexanone (CAS 108-94-1)		
Acute		
Dermal		
LD50	Rabbit	948 mg/kg
Inhalation		
LC50	Rat	8000 ppm, 4 hours
Oral		
LD50	Rat	1540 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 available.
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 In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Cyclohexanone (CAS 108-94-1)	3 Not classifiable as to carcinogenicity to humans.
Polyvinyl chloride (CAS 9002-86-2)	3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Narcotic effects. May cause drowsiness and dizziness. Respiratory tract irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Prolonged inhalation may be harmful.

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
Acetone (CAS 67-64-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours
Cyclohexanone (CAS 108-94-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	481 - 578 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.

Partition coefficient n-octanol / water (log Kow)

Acetone (CAS 67-64-1)	-0.24
Cyclohexanone (CAS 108-94-1)	0.81
Furan, Tetrahydro- (CAS 109-99-9)	0.46
Methyl ethyl ketone (CAS 78-93-3)	0.29

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. This material and its container must be disposed of as hazardous waste. 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 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

UN number	UN1993
UN proper shipping name	Flammable liquids, n.o.s. (Methyl ethyl ketone RQ = 37202 LBS, Acetone RQ = 37397 LBS)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, T7, TP1, TP8, TP28
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1993
UN proper shipping name	Flammable liquid, n.o.s. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S. (Methyl ethyl ketone, Acetone)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

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

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

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

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Polyvinyl chloride (CAS 9002-86-2)	Cancer
	Central nervous system
	Liver
	Blood
	Flammability

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1)	LISTED
Cyclohexanone (CAS 108-94-1)	LISTED
Furan, Tetrahydro- (CAS 109-99-9)	LISTED
Methyl ethyl ketone (CAS 78-93-3)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - No
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)

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.

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
Methyl ethyl ketone (CAS 78-93-3)	6714

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

Acetone (CAS 67-64-1)	35 %WV
Methyl ethyl ketone (CAS 78-93-3)	35 %WV

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1)	6532
Methyl ethyl ketone (CAS 78-93-3)	6714

US state regulations

US. Massachusetts RTK - Substance List

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

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

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)
Polyvinyl chloride (CAS 9002-86-2)

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

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. Rhode Island RTK

Acetone (CAS 67-64-1)
Cyclohexanone (CAS 108-94-1)
Furan, Tetrahydro- (CAS 109-99-9)
Methyl ethyl ketone (CAS 78-93-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies 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 05-28-2015

Revision date -

Version # 01

HMIS® ratings
Health: 2
Flammability: 3
Physical hazard: 0

NFPA ratings

Disclaimer

The information in the sheet was written based on the best knowledge and experience currently available. Oatey Co. 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.

Safety Data Sheet

RUST-OLEUM CORPORATION
* Trusted Quality Since 1921 *
www.rustoleum.com

1. Identification

Product Name: PRO LSPR 6PK MARK FLUORESCENT ORANGE

Revision Date: 6/5/2015

Product Identifier: 2554838

Supercedes Date: New SDS

Product Use/Class: Marking Paint/Aerosols

Supplier: Rust-Oleum Corporation
11 Hawthorn Parkway
Vernon Hills, IL 60061
USA

Manufacturer: Rust-Oleum Corporation
11 Hawthorn Parkway
Vernon Hills, IL 60061
USA

Preparer: Regulatory Department

Emergency Telephone: 24 Hour Hotline: 847-367-7700

2. Hazard Identification

Classification

Symbol(s) of Product

Signal Word
Danger

Possible Hazards
60% of the mixture consists of ingredient(s) of unknown acute toxicity

GHS HAZARD STATEMENTS

Flammable Aerosol, category 1	H222	Extremely flammable aerosol.
Acute Toxicity, Dermal, category 4	H312	Harmful in contact with skin.
Germ Cell Mutagenicity, category 1B	H340	May cause genetic defects . Classified as mutagenic Category 1 if one ingredient is present at or above 0.1% Applies to liquids, Solids (w/w units) and gases (v/v). The substance may also have its own exposure limit. Routes of exposure are dependant on ingredient form.
Carcinogenicity, category 1B	H350	May cause cancer. Classified as carcinogenic Category 1 on the basis of epidemiological and/or animal data. Mixtures are classified as carcinogenic when at least 1 ingredient has been classified as carcinogenic and is present at 0.1% or above Routes of exposure are dependant on ingredient form.

GHS LABEL PRECAUTIONARY STATEMENTS

P201	Obtain special instructions before use.
P211	Do not spray on an open flame or other ignition source.
P251	Do not pierce or burn, even after use.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P410+P412	Protect from sunlight. Do no expose to temperatures exceeding 50°C/ 122°F.

3. Composition/Information On Ingredients

HAZARDOUS SUBSTANCES

Chemical Name	CAS-No.	Wt.% Range	GHS Symbols	GHS Statements
Aliphatic Hydrocarbon	64742-89-8	10-25	GHS08	H304-340-350
Propane	74-98-6	10-25	No Information	No Information
Limestone	1317-65-3	10-25	No Information	No Information
Hydrous Magnesium Silicate	14807-96-6	2.5-10	No Information	No Information
n-Butane	106-97-8	2.5-10	No Information	No Information
Acetone	67-64-1	2.5-10	GHS02-GHS07	H225-319-336
n-Butyl Acetate	123-86-4	2.5-10	GHS02-GHS07	H226-336
Hydrotreated Light Distillate	64742-47-8	2.5-10	GHS06-GHS08	H304-331
Naphtha, Petroleum, Hydrotreated Light	64742-49-0	1.0-2.5	GHS08	H304-340-350
Organoclay	68911-87-5	1.0-2.5	No Information	No Information
Stoddard Solvent	8052-41-3	0.1-1.0	GHS08	H304-340-350-372
Ethylbenzene	100-41-4	0.1-1.0	GHS02-GHS07	H225-332

The text for GHS Hazard Statements shown above (if any) is given in the "16. Other Information" section.

4. First-aid Measures

FIRST AID - EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes holding eyelids open. Get medical attention. Do NOT allow rubbing of eyes or keeping eyes closed.

FIRST AID - SKIN CONTACT: Wash skin with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists.

FIRST AID - INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention. Do NOT use mouth-to-mouth resuscitation. If you experience difficulty in breathing, leave the area to obtain fresh air. If continued difficulty is experienced, get medical assistance immediately.

FIRST AID - INGESTION: Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. Get immediate medical attention. If swallowed, get medical attention.

5. Fire-fighting Measures

EXTINGUISHING MEDIA: Alcohol Film Forming Foam, Carbon Dioxide, Dry Chemical, Dry Sand, Water Fog

UNUSUAL FIRE AND EXPLOSION HAZARDS: FLASH POINT IS LESS THAN 20°F. EXTREMELY FLAMMABLE LIQUID AND VAPOR!Water spray may be ineffective. Closed containers may explode when exposed to extreme heat due to buildup of steam. Closed containers may explode when exposed to extreme heat. Vapors may form explosive mixtures with air. Vapors can travel to a source of ignition and flash back. Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame. Perforation of the pressurized container may cause bursting of the can. No unusual fire or explosion hazards noted.

SPECIAL FIREFIGHTING PROCEDURES: Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion. Full protective equipment including self-contained breathing apparatus should be used. Evacuate area and fight fire from a safe distance. Use water spray to keep fire-exposed containers cool. Containers may explode when heated.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Remove all sources of ignition, ventilate area and remove with inert absorbent and non-sparking tools. Dispose of according to local, state (provincial) and federal regulations. Do not incinerate closed containers. Ventilate area, isolate spilled material, and remove with inert absorbent. Dispose of contaminated absorbent, container, and unused contents in accordance with local, state, and federal regulations.

7. Handling and Storage

HANDLING: Wash thoroughly after handling. Wash hands before eating. Remove contaminated clothing and launder before reuse. Use only in a well-ventilated area. Use only with adequate ventilation. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. Avoid breathing fumes, vapors, or mist. Avoid contact with eyes, skin and clothing.

STORAGE: Store in a dry, well ventilated place. Keep container tightly closed when not in use. Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame. Contents under pressure. Do not store above 120 ° F. Store large quantities in buildings designed and protected for storage of NFPA Class I flammable liquids. Keep away from heat, sparks, flame and sources of ignition. Contents under pressure. Do not expose to heat or store above 120 ° F. Avoid excess heat. Product should be stored in tightly sealed containers and protected from heat, moisture, and foreign materials.

8. Exposure Controls/Personal Protection

Chemical Name	CAS-No.	Weight % Less Than	ACGIH TLV-TWA	ACGIH TLV-STEL	OSHA PEL-TWA	OSHA PEL-CEILING
Aliphatic Hydrocarbon	64742-89-8	20.0	N.E.	N.E.	N.E.	N.E.
Propane	74-98-6	20.0	1000 ppm	N.E.	1000 ppm	N.E.
Limestone	1317-65-3	20.0	N.E.	N.E.	15 mg/m3	N.E.
Hydrous Magnesium Silicate	14807-96-6	10.0	2 mg/m3	N.E.	N.E.	N.E.
n-Butane	106-97-8	10.0	N.E.	1000 ppm	N.E.	N.E.
Acetone	67-64-1	10.0	500 ppm	750 ppm	1000 ppm	N.E.
n-Butyl Acetate	123-86-4	5.0	150 ppm	200 ppm	150 ppm	N.E.
Hydrotreated Light Distillate	64742-47-8	5.0	N.E.	N.E.	N.E.	N.E.
Naphtha, Petroleum, Hydrotreated Light	64742-49-0	5.0	N.E.	N.E.	N.E.	N.E.
Organoclay	68911-87-5	5.0	N.E.	N.E.	N.E.	N.E.
Stoddard Solvent	8052-41-3	1.0	100 ppm	N.E.	500 ppm	N.E.
Ethylbenzene	100-41-4	1.0	20 ppm	N.E.	100 ppm	N.E.

PERSONAL PROTECTION

ENGINEERING CONTROLS: Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof ventilation equipment. Provide general dilution of local exhaust ventilation in volume and pattern to keep TLV of hazardous ingredients below acceptable limits. Prevent build-up of vapors by opening all doors and windows to achieve cross-ventilation.

RESPIRATORY PROTECTION: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. A NIOSH/MSHA approved air purifying respirator with organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits.

SKIN PROTECTION: Use gloves to prevent prolonged skin contact. Use impervious gloves to prevent skin contact and absorption of this material through the skin. Nitrile or Neoprene gloves may afford adequate skin protection.

EYE PROTECTION: Use safety eyewear designed to protect against splash of liquids.

OTHER PROTECTIVE EQUIPMENT: Refer to safety supervisor or industrial hygienist for further guidance regarding types of personal protective equipment and their applications. Refer to safety supervisor or industrial hygienist for further information regarding personal protective equipment and its application.

HYGIENIC PRACTICES: Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing immediately and launder before reuse.

9. Physical and Chemical Properties

Appearance:	Aerosolized Mist	**Physical State:**	Liquid
Odor:	Solvent Like	**Odor Threshold:**	N.E.
Relative Density:	0.871	**pH:**	N.A.
Freeze Point, °C:	N.D.	**Viscosity:**	N.D.
Solubility in Water:	Slight	**Partition Coefficient, n-octanol/ water:**	N.D.
Decompostion Temp., °C:	N.D.		
Boiling Range, °C:	-24 - 537	**Explosive Limits, vol%:**	0.9 - 13.0
Flammability:	Supports Combustion	**Flash Point, °C:**	-96
Evaporation Rate:	Faster than Ether	**Auto-ignition Temp., °C:**	N.D.
Vapor Density:	Heavier than Air	**Vapor Pressure:**	N.D.

(See "Other information" Section for abbreviation legend)

10. Stability and Reactivity

CONDITIONS TO AVOID: Avoid temperatures above 120 °F (49°C)Avoid contact with strong acid and strong bases. Avoid all possible sources of ignition.

INCOMPATIBILITY: Incompatible with strong oxidizing agents, strong acids and strong alkalies.

HAZARDOUS DECOMPOSITION: By open flame, carbon monoxide and carbon dioxide. When heated to decomposition, it emits acrid smoke and irritating fumes. Contains solvents which may form carbon monoxide, carbon dioxide, and formaldehyde.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal storage conditions.

11. Toxicological information

EFFECTS OF OVEREXPOSURE - EYE CONTACT: Causes Serious Eye Irritation

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: Substance may cause slight skin irritation. May cause skin irritation. Allergic reactions are possible. Prolonged or repeated contact may cause skin irritation.

EFFECTS OF OVEREXPOSURE - INHALATION: Harmful if inhaled. High gas, vapor, mist or dust concentrations may be harmful if inhaled. Avoid breathing fumes, spray, vapors, or mist. High vapor concentrations are irritating to the eyes, nose, throat and lungs. Prolonged or excessive inhalation may cause respiratory tract irritation.

EFFECTS OF OVEREXPOSURE - INGESTION: Harmful if swallowed. Aspiration hazard if swallowed; can enter lungs and cause damage.

EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS: May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion, and blurred vision) and/or damage. High concentrations may lead to central nervous system effects (drowsiness, dizziness, nausea, headaches, paralysis, and blurred vision) and/or damage. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. IARC lists Ethylbenzene as a possible human carcinogen (group 2B).

PRIMARY ROUTE(S) OF ENTRY: Eye Contact, Ingestion, Inhalation, Skin Absorption, Skin Contact

ACUTE TOXICITY VALUES

The acute effects of this product have not been tested. Data on individual components are tabulated below:

CAS-No.	Chemical Name	Oral LD50	Dermal LD50	Vapor LC50
64742-89-8	Aliphatic Hydrocarbon	N.I.	3000 mg/kg Rabbit	N.I.
74-98-6	Propane	N.I.	N.I.	658 mg/L Rat
123-86-4	n-Butyl Acetate	N.I.	>17600 mg/kg Rabbit	N.I.
64742-47-8	Hydrotreated Light Distillate	>5000 mg/kg Rat	>2000 mg/kg Rabbit	>5.2 mg/L Rat
64742-49-0	Naphtha, Petroleum, Hydrotreated Light	>5000 mg/kg Rat	>3160 mg/kg Rabbit	N.I.
100-41-4	Ethylbenzene	3500 mg/kg Rat	15354 mg/kg Rabbit	17.2 mg/L Rat

N.I. - No Information

12. Ecological Information

ECOLOGICAL INFORMATION: Product is a mixture of listed components. Product is a mixture of listed components.

13. Disposal Information

DISPOSAL INFORMATION: Dispose of material in accordance to local, state, and federal regulations and ordinances. Do not allow to enter waterways, wastewater, soil, storm drains or sewer systems.

14. Transport Information

	Domestic (USDOT)	International (IMDG)	Air (IATA)	TDG (Canada)
UN Number:	N.A.	1950	1950	N.A.
Proper Shipping Name:	Paint Products in Limited Quantities	Aerosols	Aerosols	Paint Products in Limited Quantities
Hazard Class:	N.A.	2.1	2.1	N.A.
Packing Group:	N.A.	N.A.	N.A.	N.A.
Limited Quantity:	Yes	Yes	Yes	Yes

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, Pressure Hazard, Acute Health Hazard, Chronic Health Hazard

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.
Ethylbenzene	100-41-4

Toxic Substances Control Act:

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(b) if exported from the United States:

No TSCA 12(b) components exist in this product.

16. Other Information

HMIS RATINGS

Health:	2*	**Flammability:**	4	**Physical Hazard:**	0	**Personal Protection:**	X

NFPA RATINGS

Health:	2	**Flammability:**	4	**Instability**	0

VOLATILE ORGANIC COMPOUNDS, g/L: 522

MSDS REVISION DATE: 6/5/2015

REASON FOR REVISION:

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined

Text for GHS Hazard Statements shown in Section 3 describing each ingredient:

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H336	May cause drowsiness or dizziness.
H340	May cause genetic defects.
H350	May cause cancer.
H372	Causes damage to organs through prolonged or repeated exposure.

Icons for GHS Pictograms shown in Section 3 describing each ingredient:

GHS02

GHS06

GHS07

GHS08

Rust-Oleum Corporation believes, to the best of its knowledge, information and belief, the information contained herein to be accurate and reliable as of the date of this safety data sheet. However, because the conditions of handling, use, and storage of these materials are beyond our control, we assume no responsibility or liability for personal injury or property damage incurred by the use of these materials. Rust-Oleum Corporation makes no warranty, expressed or implied, regarding the accuracy or reliability of the data or results obtained from their use. All materials may present unknown hazards and should be used with caution. The information and recommendations in this material safety data sheet are offered for the users' consideration and examination. It is the responsibility of the user to determine the final suitability of this information and to comply with all applicable international, federal, state, and local laws and regulations.

SAFETY DATA SHEET

Document number	First issued	Revision date	Revision	Issued by	Page
SA12641051-ENG-3	2004-02-25	2012-12-01	2	Christine Diedrich	1 of 10

Shell Retinax Grease LX 2

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Shell Retinax Grease LX 2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Area of use: Automotive and industrial grease.

1.3 Details of the supplier of the safety data sheet

Supplier:
ALFA LAVAL Tumba AB
Hans Stahles väg
SE-147 80 Tumba
Sweden
Tel: +46 8 53 06 50 00
Fax: + 46 8 53 06 52 59

Manufacture:
Univar AB
Box 4072
SE-203 11 Malmö
Sweden
Tel: 040-352800
Fax: 040-125172

e-mail: sds.question@alfalaval.com

1.4 Emergency telephone number: Dial in case of emergency poisoning and ask for Poison Information both day and night. Dial + 46 (0) 8-331231 if you have other questions concerning acute poisonings mon-fri 9.00-17.00

2. Hazards identification

2.1 Classification of the substance or mixture

This product is not classified as hazardous according to current regulations.

2.2 Label elements

Safety data sheet available for professional users on request.

2.3 Other hazards

Expected to cause slight irritation to skin and eyes.
Inhalation of vapors or mists may cause irritation.
Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. High-pressure injection under the skin may cause serious damage including local necrosis. Used oil may contain harmful impurities.

3. Composition/information on ingredients

3.2 Mixtures
Declaration of the constituents according to CLP 1272/2008/EC

Substances	Registration No.	Weight - (%)	CAS No.	EC No	Classification
Zinc naphthenate	-	1,00-2,00	12001-85-3	234-409-2	Eye irrit. 2; H319 Skinn Irrit. 2; H315 Aquatic Chronic 2; H411

Declaration of ingredients constituents to 1999/45/EC

Substances	Registration No.	Weight - (%)	CAS No.	EC No	Classification
Zinc naphthenate	-	1,00-2,00	12001-85-3	234-409-2	Xi; R36/38; N; R51/53

Preparation Description: A lubricating grease containing highly-refined mineral oils and additives.
The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

See section 16 for explanation to R-phrases and/or Hazard statements

4. First aid measures

4.1 Description of first aid measures

General recommendations
Not expected to be a health hazard when used under normal conditions. Consult a physician. Show this safety data sheet to a physician.

First aid – eye contact
Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

First aid- skin contact
Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop. Obtain medical attention even in the absence of apparent wounds.

First aid- ingestion
In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

First aid- inhalation
No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.

4.2 Most important symptoms and effects, both acute and delayed
Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Local necrosis is evidenced by delayed onset of pain and tissue damage a few hours following injection. Ingestion may result in nausea, vomiting and/or diarrhoea.

4.3 Indication of any immediate medical attention and special treatment needed	Treat symptomatically. High pressure injection injuries require prompt surgical intervention and possibly steroid therapy, to minimise tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential.

5. Firefighting measures

5.1 Extinguishing media **a) Suitable extinguishing media**	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
b) Unsuitable extinguishing media	Do not use water jet.
5.2 Special hazards arising from the substance or mixture	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
5.3 Advice for firefighters	Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures	Use personal protection clothing according to section 8. Avoid contact with spilled or released material. Avoid contact with skin and eyes.
6.2 Environmental precautions	Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
6.3 Methods and material for containment and cleaning up Large/Small spills	Shovel into a suitable clearly marked container for disposal or reclamation in accordance with local regulations.
6.4 Reference to other sections	Personal protection, see section 8. Disposal, see section 13.

7. Handling and storage

7.1 Precautions for safe handling

Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Storage Temperature: 0 - 50 °C / 32 - 122 °F.
Recommended materials: For containers or container linings, use mild steel or high density polyethylene.
Unsuitable Materials : PVC
Additional Information: Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

7.3 Specific end use

No information.

8. Exposure controls/personal protection

8.1 Control parameters

National occupational exposure limit values that correspond to Community occupational exposure limit values in accordance with Directive 98/24/EC, including any notations as referred to in Article 2(1) of Commission Decision 95/320/EC

Substance	CAS No	*Limit value – Short term*		*Limit value - 8 h*		Notifications
		ppm	*mg/m³*	*ppm*	*mg/m³*	
Oil mist, metal working fluids GESTIS United Kingdom					1	

8.2 Exposure controls

Appropriate engineering controls

Ensure adequate ventilation.

Eye/face protection

Wear safety glasses or full face shield if splashes are likely to occur. Approved by EU-standard EN166.

Shell Retinax Grease LX 2

Hand protection	Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
Respiratory protection	No respiratory protection is ordinarily required under normal conditions of use. Select respiratory protection equipment suitable for the specific conditions of use. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65 °C (149 °F)].
Other protection	Skin protection not ordinarily required beyond standard issue work clothes.
Environmental exposure controls	See section 6.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Red. Semi-solid.
Odour	Slight hydrocarbon.
Odour threshold	No information
pH (X ºC)	Not applicable.
Melting point/freezing point	No information
Initial boiling point and boiling range	No information
Flash point	> 150 °C / 302 °F (COC)
Evaporation rate	No information
Flammability (solid, gas)	No information
Upper/lower flammability or explosive limits	Typical 1 - 10 %(V) (based on mineral oil)
Vapour pressure	< 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Vapour density	Relative vapour density (air=1): > 1 (estimated value(s))
Relative density	No information
Solubility(ies)	Water solubility: Negligible.
Partition coefficient: n-octanol/water	> 6 (based on information on similar products)
Auto-ignition temperature	> 320 °C / 608 °F
Decomposition temperature	No information
Viscosity	Kinematic viscosity: not applicable
Explosive properties	No information
Oxidising properties	No information
9.2 Other information	Pour point: Typical >245 °C / 473 °F Density: Typical 900 kg/m³ at 15 °C / 59 °F

10. Stability and reactivity

10.1 Reactivity	May react with strong oxidising agents.
10.2 Chemical stability	Stable.
10.3 Possibility of hazardous reactions	No information.
10.4 Conditions to avoid	Extremes of temperature and direct sunlight.
10.5 Incompatible materials	Strong oxidising agents.
10.6 Hazardous decomposition products	Hazardous decomposition products are not expected to form during normal storage.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit
Irritation	Expected to be slightly irritating to skin and eyes. Inhalation of vapours or mists may cause irritation.
Corrosivity	No information.
Sensitisation	Not expected to be a skin sensitiser.
Repeated dose toxicity	Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Carcinogenicity	Product contains mineral oils of types shown to be noncarcinogenic in animal skin-painting studies. Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC). Other components are not known to be associated with carcinogenic effects.
Mutagenicity	Not considered a mutagenic hazard.
Toxicity for reproduction.	Not expected to be a hazard.
Additional information	Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible. High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed. Information given is based on data on the components and the toxicology of similar products.

Shell Retinax Grease LX 2

12. Ecological information

12.1 Toxicity	Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract). Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.
12.2 Persistence and degradability	Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.
12.3 Bio accumulative potential	Contains components with the potential to bio accumulate.
12.4 Mobility in soil	Semi-solid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.
12.5 Results of PBT and vPvB assessment	No information.
12.6 Other adverse effects	None known.
Other Adverse Effects	Eco toxicological data have not been determined specifically for this product. Information given is based on knowledge of the components and the ecotoxicology of similar products. Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

13. Disposal considerations

13.1 Waste treatment methods

Material Disposal: Do not dispose into the environment, in drains or in water courses.
Product residues, waste, etc. are hazardous waste. Disposal, transport, storage and handling of waste shall be in accordance with applicable regulations.

Container Disposal: Dispose in accordance with applicable regulations, preferably to a recognized collector or contractor.

Local regulations: Disposal should be in accordance with applicable regional, national and local laws and regulations.

EWC code:

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

Example of EWC codes:
12 01 12 spent waxes and fats.
Proposal for empty packaging: 15 01 02 plastic packaging 15 01 04 metallic packaging. Packaging containing residues that have not been emptied until drip dry must be handled as hazardous waste and must be properly sealed before disposal. Examples of waste code: 15 01 10: packaging containing residues of or contaminated by dangerous substances.

14. Transport information

	ADR/RID-S	IMDG	IATA
14.1 UN number	Not classified as dangerous goods.	Not classified as dangerous goods.	Not classified as dangerous goods.
14.2 UN proper shipping name	Not relevant.	Not relevant.	Not relevant.
14.3 Transport hazard class(es)	Not relevant.	Not relevant.	Not relevant.
14.4 Packing group	Not relevant.	Not relevant.	Not relevant.
14.5 Environmental hazards	Not relevant.	Not relevant.	Not relevant.
14.6 Special precautions for user	Not relevant.	Not relevant.	Not relevant.

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

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture	Gestis, International Limit Values European Waste Catalouge and Hazardous Waste List
15.2 Chemical safety assessment	No.

16. Other information

Hazard statements/Risk phrases	R36/38 Irritating to eyes and skin. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment H315 Causes skin irritation. H319 Causes serious eye irritation. H411 Toxic to aquatic life with long lasting effects.
Important changes have been made in section	General update according to EU 453/2010.

LIMITATION OF LIABILITY

This document is only intended to be used as guidance as regards the risks of which we are aware that are associated with the product. Every individual who works with the product or in close proximity of it must receive suitable training. Individuals who come into contact with the product must be capable of using their own judgement as regards conditions or methods for handling, storing and using the product. Alfa Laval is not liable for demands, losses or damage of any kind that arise from flaws or deficiencies in this document or from using, handling, storing or disposing of the product unless it can be proven that Alfa Laval has acted in a grossly negligent manner. **Beyond what has been agreed upon and specified in writing with Alfa Laval in the individual case, Alfa Laval makes no promises or assumes any liability, including but not limited to implicit guarantees regarding marketability or appropriateness in terms of both the information provided in this document and the product to which the information refers.**

Section 1: PRODUCT & COMPANY IDENTIFICATION

Product Name: Simple Green® All-Purpose Cleaner
Additional Names: Simple Green® Industrial Cleaner & Degreaser

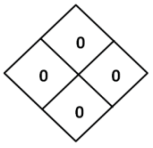
Manufacturer's Part Number: **Please refer to Section 16*

Company: Sunshine Makers, Inc.
15922 Pacific Coast Highway
Huntington Beach, CA 92649 USA
Telephone: 800-228-0709 ● 562-795-6000 Fax: 562-592-3830
Monday – Friday, 8am – 5pm PST
Emergency Phone: Chem-Tel 24-Hour Emergency Service: 800-255-3924

Section 2: HAZARDS IDENTIFICATION

Emergency Overview: **This is a green colored liquid with a sassafras added odor. No expected health hazards.**

Routes of Exposures: Eye Contact, Skin Contact, Inhalation



NFPA/HMIS Rating:
Health, Fire, Reactivity, and Special = 0 = minimal

Potential Health Effects
Eye Contact: Not expected to cause eye irritation.
Skin Contact: Not expected to cause skin irritation.
Ingestion: May cause upset stomach. See section 11.
Inhalation: Not expected to cause respiratory irritation.
Medical Conditions Aggravated by Exposure: Dermally sensitive users may experience dry skin.
Target Organs: None.
Environmental Effects: Not harmful.

This mixture is not considered Hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS Number	Percent by weight
Water	7732-18-5	≥ 85%
Ethoxylated Alcohol	68439-46-3	≤ 5%
Sodium Citrate	68-04-2	≤ 5%
Tetrasodium *N,N*-bis(carboxymethyl)-L-glutamate	51981-21-6	≤ 1%
Sodium Carbonate	497-19-8	≤ 1%
Citric Acid	77-92-9	≤ 1%
Fragrance	Proprietary Mixture	≤ 1%
Colorant	Proprietary Mixture	≤ 1%

Section 4: FIRST AID MEASURES

If Inhaled: If adverse effect occurs, move to fresh air.
If on skin: If adverse effect occurs, rinse skin with water.
If in eyes: If adverse effect occurs, flush eyes with water.
If ingested: Drink plenty of water to dilute.

Section 5: FIRE FIGHTING MEASURES

Flammability: Non-flammable.
Flash Point: No flash point seen at or below 212°F (100°C), ASTM D-93

Suitable Extinguishing Media: Use Dry chemical, CO2, water spray or "alcohol" foam.
Extinguishing Media to Avoid: High volume jet water.
Products of Combustion: In event of fire, fire created carbon oxides may be formed.
Special Protective Equipment: Firefighters should wear self-contained breathing apparatus and full fire-fighting turn-out gear.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Use personal protection recommended in section 8.

Environmental Precautions: Prevent runoff from entering drains, sewers or waterways.

Method for Containment: Dike or soak up with inert absorbent material.

Method for Clean Up: Dilute with water and rinse into sanitary sewer system or dispose into suitable container.

Section 7: HANDLING AND STORAGE

Handling: Ensure adequate ventilation. Keep out of reach of children. Keep away from heat, sparks, open flame and direct sunlight. Do not pierce any part of the container.

Storage: Keep container tightly closed. Keep in cool dry area. Avoid prolonged exposure to sunlight. Do not store at temperatures above 109°F (42.7°C). If separation occurs, mix the product for reconstitution.

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limit Values: No components listed with TWA or STEL values under OSHA or ACGIH.
Engineering Controls: Not applicable.

Exposure Controls:
Eye Contact: Use protective glasses if splashing or spray-back is likely.
Respiratory: Use in well ventilated areas.
Skin Contact: Dermal sensitive individuals should use protective gloves.
General Hygiene Considerations: Wash thoroughly after handling and before eating or drinking.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Green Liquid
Physical State: Liquid
Odor: Added sassafras (sweet herbal) odor
Odor Threshold: Not available

Boiling Point ASTM D-1120**:** 101°C (213.8°F)
Freezing Point ASTM D-1177**:** 0 - 3.33°C (32 - 38°F)
Specific Gravity ASTM D-891**:** 1.01 – 1.03
Evaporation Rate ASTM D-1901**:** ½ Butyl Acetate @ 25°C
Vapor Pressure ASTM D-323**:** 0.60 PSI @77°F, 2.05 PSI @100°F
Vapor Density: Not applicable
pH ASTM D-1293**:** 9.0 ± 0.5

Flash Point ASTM D-93**:** Not applicable
Flammability: Not applicable
Autoignition Temperature: Not applicable
Decomposition Temperature: Not applicable
Density ASTM D-4017**:** 8.552 lb/gal
Water Solubility: 100%
Partial Coefficient: Not available

Section 9: PHYSICAL AND CHEMICAL PROPERTIES - continued

VOCs:	SCAQMD 304-91 / EPA 24:	0 g/L	0 lb/gal	0 %	
	CARB Method 310**:	2.5 g/L	0.021 lb/gal	0.25%	***Water & fragrance exemption in calculation*
	SCAQMD Method 313:	Not tested			

VOC composite Partial Pressure: Not Determined
Nutrient Content: Phosphorous: 0.0%

Section 10: STABILITY AND REACTIVITY

Stability: Stable under normal conditions 70°F (21°C) and 14.7 psig (760 mmHg).
Reactivity: Non-Reactive.
Conditions to Avoid: None known.
Incompatible Materials: None known.
Hazardous Decomposition Products: Normal products of combustion - CO, CO2.
Possibility of Hazardous Reactions: None known.

Section 11: TOXICOLOGICAL INFORMATION

Effects of Exposure: Not expected to be hazardous under typical use conditions.

Acute Toxicity:

Oral LD_{50} (rat)	> 5 g/kg body weight
Dermal LD_{50} (rabbit)	> 5 g/kg body weight

calculated via OECD Harmonized Integrated Classification System for Human Health & Environmental Hazards of Chemical Substances & Mixtures

Carcinogens: No ingredients are listed by OSHA, IARC, or NTP as known or suspected carcinogens.

Eyes: Minimal irritant per Ocular Irritection® assay modeling. No animal testing performed.
Skin: Non-irritant per Dermal Irritection® assay modeling. No animal testing performed.

Section 12: ECOLOGICAL INFORMATION

Aquatic Toxicity: Low, based on OECD 201, 202, 203 + Microtox: EC_{50} & IC_{50} ≥100 mg/L.

Terrestrial Toxicity: Low, based on toxicology profile.

Persistence and degradability: Readily Biodegradable per OECD 301D, Closed Bottle Test.
Mobility: No data available.
Bioaccumulation: Not applicable.

Section 13: DISPOSAL CONSIDERATIONS

Appropriate Method for Disposal:

Unused Product:	*Dilute with water and dispose by sanitary sewer.
Used Product:	*Used product may be hazardous depending on the cleaning application and resulting contaminants.
Empty Containers:	*Triple-rinse with water and offer for recycling if available in your area.

*Dispose of used or unused product, and empty containers in accordance with the local, State, Provincial, and Federal regulations for your location. Never dispose of used degreasing rinsates into lakes, streams, and open bodies of water or storm drains.

Section 14: TRANSPORT INFORMATION

U.S. (DOT) / Canadian TDG: Not Regulated for shipping.
IMO / IDMG: Not classified as Hazardous
ICAO/ IATA: Not classified as Hazardous
ADR/RID: Not classified as Hazardous

U.N. Number:	Not applicable	Proper Shipping Name:	Detergent/Cleaning Solution
Hazard Class:	Non-Hazardous	Marine Pollutant:	No

Section 15: REGULATORY INFORMATION

All components are listed on: EINECS, TSCA, DSL, AICS and NZIoC Inventory.

SARA Title III: Sections 311/312 – Not applicable.
Sections 313 – Not applicable.
Sections 302 – Not applicable.

State Right To Know Lists No ingredients listed.
CA Prop 65: None listed.
Texas ESL:

Ethoxylated Alcohol	68439-46-3	60 µg/m3 long term	600 µg/m3 short term
Sodium Citrate	68-04-2	5 µg/m3 long term	50 µg/m3 short term
Sodium Carbonate	497-19-8	5 µg/m3 long term	50 µg/m3 short term
Citric Acid	77-92-9	10 µg/m3 long term	100 µg/m3 short term

WHMIS Classification – Non Hazardous, not classifiable.

Name	Toxic Substances List – Schedule 1 – CEPA	NPRI Inventory
No	No	No

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by Canada's Controlled Products Regulation.

Section 16: OTHER INFORMATION

PART NUMBER:	**SIZE:**
2710001213022	22 oz. Trigger Spray 12/case
2710001213012	24 oz. Trigger Spray 12/case
2710001213033	32 oz. Trigger Spray 12/case
2710200613005	1-gallon Bottle 6/case
2740116800128	1-gallon Bottle
2710000213225	2.5-gallon Bottle 2/case
2700000113006	5-gallon Pail each
2700000113008	55-gallon Drum each
2700000113275	275-gallon Tote each
2710001213013	24 oz. Trigger Spray 12/case

BATCH CODING:
Containers of this formula will be batch coded as follows:
Example: *AT3001002, GG3001002* where…
AT & *GG* are codes for production facilities,
"*3*" is the last digit of the year product was produced,
"*001*" is the Julian date product was produced, and
"*002*" is the batch number for that product in that year.

USA part numbers listed only. Not all part numbers listed. USA part numbers may not be valid for international sale.

Prepared / Revised By: Sunshine Makers, Inc., Regulatory Department.
This SDS has been revised in the following sections: ALL

DISCLAIMER: The information provided with this MSDS is furnished in good faith and without warranty of any kind. Personnel handling this material must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of this material and the safety and health of employees and customers. Sunshine Makers, Inc. assumes no additional liability or responsibility resulting from the use of, or reliance on this information.

SAFETY DATA SHEET

Issue Date 23-Jun-2011 **Revision Date** 3-Mar-2015 **Version** 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier
Product Name Smart Strip

Other Means of Identification
SDS # DCI-039

Recommended Use of the Chemical and Restrictions on Use
Recommended Use Paint remover.

Details of the Supplier of the Safety Data Sheet
Supplier Address
Dumond Chemicals, Inc.
83 General Warren Blvd
Suite 190
Malvern, PA 19355

Emergency Telephone Number
Company Phone Number 1-609-655-7700
Emergency Telephone INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Classification

Appearance White viscous liquid **Physical State** Liquid **Odor** Faint aromatic odor

Hazards Not Otherwise Classified (HNOC)
May be harmful if swallowed
May be harmful in contact with skin

Other Hazards
Toxic to aquatic life with long lasting effects
Toxic to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Water	7732-18-5	40-60

Benzyl alcohol	100-51-6	30-50
Titanium dioxide	13463-67-7	1-5

4. FIRST AID MEASURES

First Aid Measures

Inhalation Remove to fresh air. Oxygen or artificial respiration if needed. Get medical attention if necessary.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention if necessary.

Ingestion If conscious give 2 glasses of water to dilute. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if necessary.

Skin Contact Wash thoroughly with soap and water until no traces of the chemical remain. Remove contaminated clothing and shoes. Get medical attention if irritation occurs.

Most Important Symptoms and Effects, both Acute and Delayed

Symptoms May cause skin and eye irritation. May be harmful if absorbed through the skin. Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract.

Indication of any Immediate Medical Attention and Special Treatment Needed

Note to Physicians Treat symptomatically. Individuals with chronic respiratory or skin diseases may be at risk from exposure.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Water spray (fog). Foam. Dry chemical or CO2.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical
Decomposition may be hazardous. Vapors may form explosive mixtures with air in confined areas. Sealed containers may rupture when heated. Cool containers exposed to flames with water until well after the fire is out.

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 Use personal protective equipment as required.

Environmental Precautions Do not allow into any sewer, on the ground or into any body of water. See Section 12 for additional ecological information.

Methods and Material for Containment and Cleaning Up

Methods for Containment Prevent further leakage or spillage if safe to do so. Remove all sources of ignition. Dike spill and prevent spill from entering sewers and waterways. Collect using an inert absorbent material and place in appropriate containers for disposal.

Methods for Cleaning Up Keep in suitable, closed containers for disposal. Wash spill area with plenty of water. Spills and releases may have to be reported to Federal and/or local authorities. See section 15.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Advice on Safe Handling Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Protect container from physical damage. Avoid breathing vapors or mists. Remove contaminated clothing and shoes. Wash thoroughly after handling before eating, drinking, smoking, or using toilet facilities. Since empty container retains residue, follow all label warnings even after container is empty.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from oxidizers and incompatible materials.

Incompatible Materials Strong acids. Bases. Reducing agent. Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Titanium dioxide 13463-67-7	TWA: 10 mg/m^3	TWA: 15 mg/m^3 total dust (vacated) TWA: 10 mg/m^3 total dust	IDLH: 5000 mg/m^3

Appropriate Engineering Controls

Engineering Controls For operations where contact can occur, a safety shower and an eye wash facility should be available. Provide natural or mechanical ventilation to control exposure levels below airborne exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection Chemical safety goggles/faceshield. Do not wear contact lenses.

Skin and Body Protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Butyl rubber or other impervious gloves are required.

Respiratory Protection If occupational exposure limits are exceeded, use NIOSH approved respirator with organic vapor cartridges and dust/mist pre-filter. For higher concentrations (greater than10 times the recommended exposure limit) an approved supplied air respirator (with escape bottle if required) or self–contained breathing apparatus may be required. Selection of respiratory protection depends on the contaminant type, form, and concentration. Select in accordance with OSHA 1910.134 and good industrial hygiene practice.

General Hygiene Considerations 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	White viscous liquid	**Odor**	Faint aromatic odor
Color	White	**Odor threshold**	Not determined

Property	**Values**	**Remarks • Method**
pH	6	
Melting point/freezing point	-15 °C / 5 °F	
Boiling point/boiling range	96 °C / 205 °F	
Flash point	None	
Evaporation rate	< 1	
Flammability (solid, gas)	Not determined	
Flammability limits in air		
Upper flammability limits	Not available	
Lower flammability limit	Not available	
Vapor pressure	0.1 mmHg	@ 30 °C
Vapor density	3-4	(Air=1)
Specific gravity	10.54 lbs/gal	
Water solubility	Partially soluble	
Solubility in other solvents	Not determined	
Partition coefficient	Not available	
Autoignition temperature	Not available	
Decomposition temperature	Not determined	
Kinematic viscosity	Not determined	
Dynamic viscosity	Not determined	
Explosive properties	Not determined	
Oxidizing Properties	Not determined	

Other Information

VOC Content (%)	0%
VOC Content	0 lbs/gal

10. STABILITY AND REACTIVITY

Reactivity
Not reactive under normal conditions

Chemical Stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to Avoid
Keep out of reach of children.

Incompatible Materials
Strong acids. Bases. Reducing agent. Strong oxidizing agents.

Hazardous Decomposition Products
Carbon monoxide. Carbon dioxide (CO2). Nitrogen oxides (NOx). May oxidize with air to form benzaldehyde and benzoic acid.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation Avoid breathing vapors or mists.

Eye Contact Avoid contact with eyes.

Skin Contact May be harmful in contact with skin.

Ingestion May be harmful if swallowed.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water 7732-18-5	> 90 mL/kg (Rat)	-	-
Benzyl alcohol 100-51-6	= 1230 mg/kg (Rat)	= 2000 mg/kg (Rabbit)	= 8.8 mg/L (Rat) 4 h
Titanium dioxide 13463-67-7	> 10000 mg/kg (Rat)	-	-

Information on Physical, Chemical and Toxicological Effects

Symptoms May cause skin and eye irritation. May be harmful if absorbed through the skin. Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-term Exposure

Carcinogenicity Titanium dioxide is a possible carcinogen when it appears as a respirable dust.

Chemical Name	ACGIH	IARC	NTP	OSHA
Titanium dioxide 13463-67-7		Group 2B		X

Chronic toxicity Individuals with chronic respiratory or skin diseases may be at risk from exposure.

Numerical Measures of Toxicity- Product
Not determined

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 3047 mg/kg
ATEmix (dermal) 5000 mg/kg
ATEmix (inhalation-gas) 1750 mg/l
ATEmix (inhalation-dust/mist) 0.1 mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicity

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Benzyl alcohol 100-51-6	35: 3 h Anabaena variabilis mg/L EC50	460: 96 h Pimephales promelas mg/L LC50 static 10: 96 h Lepomis macrochirus mg/L LC50 static	EC50 = 50 mg/L 5 min EC50 = 63.7 mg/L 15 min EC50 = 63.7 mg/L 5 min EC50 = 71.4 mg/L 30 min	23: 48 h water flea mg/L EC50

Persistence and Degradability
Material is readily biodegradable.

Bioaccumulation
The product has low potential for bioaccumulation.

Mobility
Not determined.

Chemical Name	Partition coefficient
Benzyl alcohol 100-51-6	1.1

Other Adverse Effects Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances

DOT Not regulated

IATA Not regulated

IMDG Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Listed
DSL	Listed

Legend:
TSCA *- United States Toxic Substances Control Act Section 8(b) Inventory*
DSL/NDSL *- Canadian Domestic Substances List/Non-Domestic Substances List*
EINECS/ELINCS *- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances*
ENCS *- Japan Existing and New Chemical Substances* ***IECSC***
- China Inventory of Existing Chemical Substances ***KECL*** *-*
Korean Existing and Evaluated Chemical Substances
PICCS *- Philippines Inventory of Chemicals and Chemical Substances*

US Federal Regulations

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

US State Regulations

Chemical Name	California Proposition 65
Titanium dioxide - 13463-67-7	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Benzyl alcohol 100-51-6		X	X
Titanium dioxide 13463-67-7	X	X	X

U.S. EPA Label Information

16. OTHER INFORMATION

NFPA	**Health Hazards**	**Flammability**	**Instability**	**Special Hazards**
	2	1	0	Not determined
HMIS	**Health Hazards**	**Flammability**	**Physical Hazards**	**Personal Protection**
	Not determined	Not determined	Not determined	Not determined

Issue Date	23-Jun-2011
Revision Date	12-Dec-2012
Revision Note	New format

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.

End of Safety Data Sheet

SAFETY DATA SHEET

Issue Date 21-Aug-2012 **Revision Date** 3-Mar-2015 **Version** 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier
Product Name Smart Strip Pro

Other Means of Identification
SDS # DCI-66

Recommended Use of the Chemical and Restrictions on Use
Recommended Use Paint remover.

Details of the Supplier of the Safety Data Sheet
Supplier Address
Dumond Chemicals, Inc.
83 General Warren Blvd
Suite 190
Malvern, PA 19355

Emergency Telephone Number
Company Phone Number 1-609-655-7700
Emergency Telephone INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Classification

Skin corrosion/irritation	Category 2

Signal Word
Warning

Hazard Statements
Causes skin irritation

Appearance White paste **Physical State** Paste **Odor** Slight characteristic odor

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response

IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse

Hazards Not Otherwise Classified (HNOC)
May be harmful if swallowed
May be harmful in contact with skin

Other Hazards
Toxic to aquatic life with long lasting effects
Toxic to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Water	7732-18-5	40-60
Benzyl alcohol	100-51-6	30-50
Titanium dioxide	13463-67-7	1-5
Formic acid	64-18-6	1-5

4. FIRST AID MEASURES

First Aid Measures

Inhalation Remove to fresh air. Oxygen or artificial respiration if needed. Get medical attention if necessary.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention if necessary.

Ingestion If conscious give 2 glasses of water to dilute. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if necessary.

Skin Contact Wash thoroughly with soap and water until no traces of the chemical remain. Remove contaminated clothing and shoes. Get medical attention if irritation occurs.

Most Important Symptoms and Effects, both Acute and Delayed

Symptoms May cause skin and eye irritation. May be harmful if absorbed through the skin. Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract.

Indication of any Immediate Medical Attention and Special Treatment Needed

Note to Physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Water spray (fog). Foam. Dry chemical or CO2.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical
Sealed containers may rupture when heated. At elevated temperatures, vapors may form explosive mixtures with air in confined areas. Decomposition may be hazardous. Cool containers exposed to flames with water until well after the fire is out.

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 Wear appropriate protective clothing and equipment to prevent contact.

Environmental Precautions See Section 12 for additional ecological information. Do not allow into any sewer, on the ground or into any body of water.

Methods and Material for Containment and Cleaning Up

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

Methods for Cleaning Up Scoop up and collect with an inert absorbent and place into closable containers for disposal. Wash spill area with plenty of water. Spills and releases may have to be reported to Federal and/or local authorities. See section 15.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Advice on Safe Handling Avoid contact with skin, eyes or clothing. Avoid breathing vapors or mists. Use personal protective equipment as required. Remove Personal Protective Equipment immediately after handling this product. Wash thoroughly after handling before eating, drinking, smoking, or using toilet facilities. Protect container from physical damage. Follow all SDS/label precautions even after container is emptied because it may retain product residues.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions Keep in a dry, cool and well-ventilated place. Keep away from oxidizers and incompatible materials.

Incompatible Materials Strong acids. Bases. strong oxidizers and reducing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Titanium dioxide 13463-67-7	TWA: 10 mg/m^3 In Powder Form	TWA: 15 mg/m^3 total dust (vacated) TWA: 10 mg/m^3 total dust	IDLH: 5000 mg/m^3
Formic acid 64-18-6	STEL: 10 ppm TWA: 5 ppm	TWA: 5 ppm TWA: 9 mg/m^3 (vacated) TWA: 5 ppm (vacated) TWA: 9 mg/m^3	IDLH: 30 ppm TWA: 5 ppm TWA: 9 mg/m^3

Appropriate Engineering Controls

Engineering Controls For operations where contact can occur, a safety shower and an eye wash facility should be available. Good general room ventilation (equivalent to outdoors) should be adequate under normal conditions.

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection Chemical safety goggles/faceshield. Do not wear contact lenses.

Skin and Body Protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Butyl rubber or other impervious gloves are required.

Respiratory Protection None needed under normal use conditions with adequate ventilation. If the occupational exposure limits are exceeded, a NIOSH approved respirator with acid gas cartridges or supplied air respirator appropriate for the form and concentration of the contaminants should be used. Selection and use of respiratory equipment must be in accordance with OSHA 1910.134 and good industrial hygiene practice.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	Paste		
Appearance	White paste	**Odor**	Slight characteristic odor
Color	White	**Odor threshold**	28.2 ppm (formic acid)

Property	**Values**	**Remarks • Method**
pH	2	
Melting point/freezing point	Not available	
Boiling point/boiling range	Not available	
Flash point	None	
Evaporation rate	Not determined	
Flammability (solid, gas)	Not determined	
Flammability limits in air		
Upper flammability limits	Not available	
Lower flammability limit	Not available	
Vapor pressure	Not determined	
Vapor density	Not determined	
Specific gravity	1.085	
Water solubility	Partially soluble	
Solubility in other solvents	Not determined	
Partition coefficient	Not available	
Autoignition temperature	Not determined	
Decomposition temperature	Not determined	
Kinematic viscosity	Not determined	
Dynamic viscosity	Not determined	
Explosive properties	Not determined	
Oxidizing Properties	Not determined	

Other Information

VOC Content	**35.2 g/l**
VOC Content (%)	5%
VOC Content	0.5 lbs/gal

10. STABILITY AND REACTIVITY

Reactivity
Not reactive under normal conditions

Chemical Stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to Avoid
Keep out of reach of children.

Incompatible Materials
Strong acids. Bases. strong oxidizers and reducing agents.

Hazardous Decomposition Products
Carbon monoxide. Carbon dioxide (CO2). Nitrogen oxides (NOx). May oxidize with air to form benzaldehyde and benzoic acid.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information The product has not been tested

Inhalation Avoid breathing vapors or mists.

Eye Contact Avoid contact with eyes.

Skin Contact May be harmful in contact with skin. Causes skin irritation.

Ingestion May be harmful if swallowed.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water 7732-18-5	> 90 mL/kg (Rat)	-	-
Benzyl alcohol 100-51-6	= 1230 mg/kg (Rat)	= 2000 mg/kg (Rabbit)	= 8.8 mg/L (Rat) 4 h
Titanium dioxide 13463-67-7	> 10000 mg/kg (Rat)	-	-
Formic acid 64-18-6	= 730 mg/kg (Rat)	-	-

Information on Physical, Chemical and Toxicological Effects

Symptoms May cause skin and eye irritation. May be harmful if absorbed through the skin. Mists and vapors cause irritation of the eyes, mucous membranes, and upper respiratory tract.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-term Exposure

Carcinogenicity Titanium dioxide is a possible carcinogen when it appears as a respirable dust.

Chemical Name	ACGIH	IARC	NTP	OSHA
Titanium dioxide 13463-67-7		Group 2B		X

Numerical Measures of Toxicity- Product
Not determined

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 2708 mg/kg
ATEmix (dermal) 5000 mg/kg
ATEmix (inhalation-dust/mist) 22 mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life with long lasting effects

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Benzyl alcohol 100-51-6	35: 3 h Anabaena variabilis mg/L EC50	460: 96 h Pimephales promelas mg/L LC50 static 10: 96 h Lepomis macrochirus mg/L LC50 static	EC50 = 50 mg/L 5 min EC50 = 63.7 mg/L 15 min EC50 = 63.7 mg/L 5 min EC50 = 71.4 mg/L 30 min	23: 48 h water flea mg/L EC50
Formic acid 64-18-6	25: 96 h Desmodesmus subspicatus mg/L EC50 26.9: 72 h Desmodesmus subspicatus mg/L EC50	175: 24 h Lepomis macrochirus mg/L LC50 static	EC50 = 46.7 mg/L 17 h	120: 48 h Daphnia magna mg/L EC50 138 - 165.6: 48 h Daphnia magna mg/L EC50 Static

Persistence and Degradability
Material is readily biodegradable.

Bioaccumulation
The product has low potential for bioaccumulation.

Mobility
Not determined.

Chemical Name	Partition coefficient
Benzyl alcohol 100-51-6	1.1
Formic acid 64-18-6	-0.54

Other Adverse Effects Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Formic acid 64-18-6	U123	Included in waste streams: K009, K010		U123

Chemical Name	California Hazardous Waste Status
Formic acid 64-18-6	Toxic Corrosive

14. TRANSPORT INFORMATION

Note	Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances
DOT	Not regulated
IATA	Not regulated
IMDG	Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Listed
DSL	Listed

Legend:
TSCA *- United States Toxic Substances Control Act Section 8(b) Inventory*
DSL/NDSL *- Canadian Domestic Substances List/Non-Domestic Substances List*
EINECS/ELINCS *- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances*
ENCS *- Japan Existing and New Chemical Substances* ***IECSC***
- China Inventory of Existing Chemical Substances ***KECL*** *-*
Korean Existing and Evaluated Chemical Substances
PICCS *- Philippines Inventory of Chemicals and Chemical Substances*

US Federal Regulations

Chemical Name	CAS No	Weight-%	SARA 313 - Threshold Values %
Formic acid - 64-18-6	64-18-6	1-5	1.0

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Formic acid 64-18-6	5000 lb			X

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Formic acid 64-18-6	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

Chemical Name	California Proposition 65
Titanium dioxide - 13463-67-7	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Benzyl alcohol 100-51-6		X	X
Titanium dioxide 13463-67-7	X	X	X
Formic acid 64-18-6	X	X	X

U.S. EPA Label Information

16. OTHER INFORMATION

NFPA	**Health Hazards**	**Flammability**	**Instability**	**Special Hazards**
	2	1	0	Not determined
HMIS	**Health Hazards**	**Flammability**	**Physical Hazards**	**Personal Protection**
	Not determined	Not determined	Not determined	Not determined

Issue Date	21-Aug-2012
Revision Date	12-Dec-2012
Revision Note	New format

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.

End of Safety Data Sheet

Safety Data Sheet

Conforms to HCS 2012 (29 CFR 1910.1200)

Section 1. Identification

Product identifier

Product Name:	**STIHL HP ULTRA 2-CYCLE ENGINE OIL**
Other names:	F2020, Stihl High Performance Ultra "Fully Synthetic" Engine Oil
Part/Product Number(s):	**0781-313-8002**, 0781-313-8004, **0781-313-8005**, 0781-313-8007, **0781-313-8008**, 0781-313-8010, **0781-313-8011**, 0781-313-8013, **0781-313-8014**, **0781-313-8016**, **0781-313-8017**, **7010-871-0173**, 7010-871-0210.
Material Use:	2-cycle engine fuel additive
Uses advised against:	Not for use in non-2-cycle engines
Manufacturer:	Omni Specialty Packaging, LLC 10399 Hwy 1 South Shreveport, LA 71115 1-318-524-1100
Issuing date:	May 21, 2015
Revision date:	June 2, 2015
Revision number:	001
Company contact:	OMNI EHS Department; E-Mail: sds@osp.cc; Contact phone: 318-524-1100 (Monday-Friday, 8:00 AM – 4:00 PM, CST)
In case of emergency:	CHEMTREC: Within USA and Canada: 1 (800) 524-9300 (24/7) CHEMTREC Outside USA and Canada: +1 703-527-3887 (24/7)

Section 2. Hazards Identification

OSHA/HCS Status: This product is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or Mixture: Not classified

GHS Label Elements

Hazard pictograms:

Signal word: None

Appearance: Green **Physical State:** Liquid **Odor:** Petroleum distillates

Hazard statement: None

Precautionary statements

General: Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention: Not applicable

Response: Not applicable

Storage: Not applicable

Disposal: Not applicable

Hazards not otherwise classified (HNOC): Defatting to the skin.

Other information: Product diluted with gasoline must be handled with the same precautions used for gasoline. Before mixing, the Safety Data Sheet for gasoline should be consulted for any precautionary measures necessary.

Section 3. Composition/Information on Ingredients

Petroleum mineral oil lubricant base stock with proprietary performance additives mixture.

Substance/mixture: Mixture

Components Name	CAS number	Weight %*
Base Oil: Trimethylolpropane Complex Ester	Various	80 – 100
2-Cycle Engine Oil Additives Mixture	Proprietary	0 – 20

This product does not contain known hazardous materials at the ≥ 1% level or known carcinogens at the ≥ 0.1% level as defined by 29 CFR 1910.1200.

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

Section 4. First Aid Measures

Description of necessary first aid measures

General Advice: No specific first aid measures are required. Get medical attention if irritation develops and persists.

Eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention if irritation develops and persists.

Skin contact: Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation or allergic reaction develops and persists.

Inhalation: In case of inhalation of decomposition products in a fire, symptoms may be delayed. If inhaled, remove to fresh air. The exposed person may need to be kept under medical surveillance for 48 hours. Get medical attention if symptoms occur.

Ingestion: Do NOT induce vomiting. Drink plenty of water. If symptoms persist, call a physician.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

Most Important Symptoms and Effects: Personnel with pre-existing skin disorders should avoid contact with this product. Under normal use conditions, no adverse effects to health are known.

Eye contact: Not expected to cause prolonged or significant eye irritation.

Skin contact: Contact with skin is not expected to cause prolonged or significant irritation. Contact with skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

Inhalation: Not expected to be harmful if inhaled. Contains petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficult breathing.

Ingestion: Not expected to be harmful if swallowed.

Note to physician: Treat symptomatically.

Section 5. Fire-Fighting Measures

Uniform Fire Code: Class IIIB

Flash Point: 220°C (428°F)

Extinguishing Media

Suitable Media: In case of fire, use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water fog, alcohol resistant foam, dry chemical, carbon dioxide (CO2) extinguisher or spray.

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

Specific Hazards Arising from the Chemical: Keep product and empty container away from heat and sources of ignition as product will burn. Contact with strong oxidizers may cause fire. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be contained, prevented from being discharged to any waterway, sewer or drain and disposed of in accordance with local regulations.

Hazardous Combustion Products: Combustion products may include the following: Carbon dioxide (CO2) Carbon monoxide (CO), and Nitrogen oxides.

Protection of Fire Fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch or walk through spilled material. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling.

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. See also the information in "For non-emergency personnel".

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). See Section 12 for ecological information.

Methods and materials for containment and cleaning up

Small Spills: Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large Spills: Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non- combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor.

NOTE: If RQ (Reportable Quantity) is exceeded or if spills enter a body of water, report immediately to the USEPA's National Response Center at (800) 424-8802. Check with your local and state regulators regarding their reporting requirements.

Section 7. Handling and Storage

Precautions for safe handling

Protective measures: Eye protection and face shield should be used if material is used under conditions that increase the chances of splattering. Put on appropriate personal protective equipment (see Section 8). Keep out of reach of children.

NOTE: Product diluted with gasoline must be handled with the same precautions used for gasoline. Before mixing, the Safety Data Sheet for gasoline should be consulted for any precautionary measures necessary.

Advice on general occupational hygiene: Do not get in eyes, on skin or on clothing. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas.
See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials, strong oxidizing agents (see Section 10) and food and drink. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Use appropriate containment to avoid environmental contamination. Avoid contaminating soil or releases into sewage or drainage systems and bodies of water.

Section 8. Exposure Controls/Personal Protection

Control parameters

Occupational Exposure Limits

Chemical name	ACGIH		OSHA		NIOSH	
	TLV	STEL	PEL	STEL	TWA	Ceiling
Base Oil: Trimethylolpropane Complex Ester	-	-	-	-	-	-

Appropriate engineering controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants. Emergency shower and eyewash station.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/Face Protection: Wear safety glasses with side shields. A face shield may be necessary under some conditions.

Skin and Body Protection

Hand protection: Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves. Recommended: Nitrile gloves. Consult your supervisor or Standard Operating Procedure (SOP) for special handling instructions.

Body protection: No protective equipment is needed under normal use conditions. For non-routine tasks, personal protection equipment for the body should be selected based on the task being performed and the risks involved.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved.

Respiratory protection: No respiratory protection is normally required. If user operation generates an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from measured concentrations of this material. The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Section 9. Physical and Chemical Properties

Appearance	(Typical or Target)
Physical State:	Liquid
Color:	Green
Odor:	Petroleum distillates
Odor threshold:	Not available
pH:	Not applicable
Boiling Point:	Not available
Flash Point (Closed cup):	220°C (428°F) (Typical or Target)
Pour Point:	-39°C (-38.2°F) (Typical or Target)
Evaporation rate (Butyl acetate = 1):	Not available
Flammability (solid, gas):	Not applicable. Based on - Physical state
Flammable) Limit in Air	Not available
Vapor pressure:	Not available
Vapor density (Air = 1):	>1
Relative density:	0.93 - 0.94 g/cm3 at 15°C (Typical or Target)
Solubility:	In soluble in water
Partition coefficient (n-Octanol/water):	Not available
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity – Kinematic (cSt (mm2/s)@ 40°C):	46.0 to 52.0
Viscosity – Kinematic (cSt (mm2/s) @ 100°C):	7.9 to 8.9
VOC %:	<0.026%

Section 10. Stability and Reactivity

Reactivity:	Not reactive under normal storage conditions
Chemical stability:	Stable under normal storage conditions
Possibility of hazardous reactions:	None under normal processing.
Hazardous polymerization:	Hazardous polymerization does not occur.
Conditions to avoid:	Heat, flames and sparks.
Incompatible materials:	Oxidizing agents, Halogens, Halogenated compounds
Hazardous decomposition products:	May include: Fumes, Oil vapors, Smoke, Carbon Oxides (including carbon monoxide and carbon dioxide), Aldehydes, Nitrogen oxides, and incomplete combustion products.

Section 11. Toxicological Information

Information on toxicological effects

Basis for Assessment: Information given is based on product data, a knowledge of the components and the toxicity of similar products.

Likely Routs of Exposure: Exposure may occur via skin absorption, skin or eye contact, inhalation, ingestion.

Substance/Mixture

Acute Toxicity	Oral LD50	Dermal LD50	Inhalation LC50
Base Oil: Trimethylolpropane Complex Ester	Not Classified	Not Classified	Not Classified

Aspiration hazard:	Not expected to be an aspiration hazard.
Skin Corrosion/Irritation:	No known significant effects or critical hazards.
Serious Eye Damage/Irritation:	No known significant effects or critical hazards.
Skin Sensitization:	No known significant effects or critical hazards.
Respiratory Sensitization:	No known significant effects or critical hazards.
Specific Target Organ Toxicity (Single Exposure) - STOT-SE:	No known significant effects or critical hazards.
Specific Target Organ Toxicity (Repeated Exposure) – STOT-RE:	No known significant effects or critical hazards.
Carcinogenicity:	No known significant effects or critical hazards.
Germ Cell Mutagenicity:	No known significant effects or critical hazards.
Reproductive Toxicity	No known significant effects or critical hazards.

Information on Toxicity Effects of Compounds

Lubricant Base Mineral Oil (Petroleum)

Mineral oils are known to cause cancer because of carcinogenic components (e.g. Benzene). The lubricant base mineral oils in this product have been highly refined by a variety of processes including severe solvent extraction, severe hydro cracking or severe hydro treating to reduce aromatics and improve performance characteristics. The oils in the is product meets the IP-346 criteria of less than 3 percent PHA's and are not considered to be a carcinogen by the International Agency for Research on Cancer.

None of the oils in this product requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IRAC) as: carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

2-Cycle engine oils mix with gasoline:

2-cycle engine oils diluted with gasoline must be handled with the same precautions used for gasoline. Before mixing, the Safety Data Sheet for gasoline should be consulted for any precautionary measures necessary.

Section 12. Ecological Information

The information is based on data available for the material, the components of the material, and similar materials.

Ecotoxicity: No testing has been performed by the manufacturer. Ecotoxicity hazard is based on an evaluation of data for the components or a similar material. Not expected to be harmful to aquatic organisms.

Mobility:	Base oil component – Low solubility and floats and is expected to migrate from water to land. Expected to partition to sediment and wastewater solids.
Soil/water partition coefficient (K_{OC}):	Not available.
Persistence and degradation Biodegradation:	The material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.
Bioaccumulative potential Bioaccumulation:	This product is not expected to bioaccumulate through food chain in the environment.
Other adverse effects:	No known significant effects or critical hazards.
Other ecological information:	Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

Section 13. Disposal Considerations

Disposal recommendations based on material supplied.

Waste treatment methods: This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). Consult the appropriate state, regional, or local regulations for additional requirements. The generation of waste should be avoided or minimized wherever possible.

Product waste: Significant quantities of waste product residues should not be disposed of via the sanitary sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Incineration or landfill should only be considered when recycling is not feasible. Oil collection services are available for used oil recycling.

Contaminated packaging: Empty containers or liners may retain some product residues and could pose a potential fire and explosion hazard. Do not cut, puncture, or weld containers.

Other information: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport Information

General information: Petroleum Lubricating oil - Not regulated.

	DOT Classification	IMDG	IATA
Stihl HP ULTRA	Not Regulated	Not Regulated	Not Regulated

Special precautions for user: Transport within user's premises: Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory Information

United States Regulations

United States Inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304: No products were found.

SARA 311/312:

Immediate (Acute) Health Effects:	Yes
Delayed (Chronic) Health Effects:	No
Fire Hazard:	No
Sudden Release of Pressure Hazard:	No
Reactivity Hazard:	No

SARA 313:
The following components of this material are found on the EPCRA 313 list:
None

Supplier notification: This product does not contain any hazardous ingredients at or above regulated thresholds.

CWA (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 a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

State Regulations

Massachusetts: None of the components are at or above regulated thresholds.
New Jersey: None of the components are at or above regulated thresholds.
Pennsylvania: None of the components are at or above regulated thresholds.
California Proposition 65: WARNING: This product contains a chemical known to the State of California to cause cancer.

Naphthalene - <0.1

Canada

WHMIS Hazard Class: Not regulated.

International Chemical Inventories:

All components comply with the following chemical inventory requirements: DSL (Canada)

Section 16. Other Information

NFPA Rating:	Health Hazard – 1	Flammability – 1	Instability/Reactivity – 0
HMIS Rating:	Health Hazard – 1	Flammability – 1	Physical Hazards – 0

(NFPA & HMIS Hazard Rating Key: 0 - Minimum Hazard; 1 - Slight Hazard; 2 - Moderate Hazard; 3 - High Hazard; 4 - Extreme Hazard; * - Chronic Hazard Indicator, & PPE - Personal Protective Equipment Index A to L. These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS or Hazardous Material Identification System).

Key to abbreviations:

OSHA = Occupational Safety and Health Administration
ACGIH= American Conference of Industrial Hygienists
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
CAS = Chemical Abstracts Service Registry Number
cSt = Centistroke (mm2/s)
GHS = Global Harmonized System of Classification and Labeling Of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
OEL = Occupational Exposure Limit
SDS = Safety Data Sheet
STEL = Short term exposure Limit
UN = United Nations
UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transportation of Dangerous Goods

Prepared By: **OMNI Specialty Packaging EH&S Department**

Revision Date: **June 2, 2015**

Status: **Final**

Revision Note: **Revision 001 of OHSA GHS SDS Format.**

Consumer Product Improvement Act of 2008, General Conformity Certification

For Consumer Product Packages: This product has been evaluated and is certified to be labeled and packaged in compliance with the applicable provisions of the Federal Hazardous Substance Act as stated in 16 CFR 1500 and enforced by the Consumer Product Safety Commission. Where applicable the products that require Child Resistant Closures are packaged in accordance with the Poison Prevention Packaging Act as stated in 16 CFR 1700 and enforced by the Consumer Product Safety Commission. All closures have been tested in accordance with the latest protocols. No testing is required to certify compliance with the provisions. The date of the manufacturing is stamped on the product container.

Disclaimer

All reasonably practicable steps have been taken to ensure 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 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. This information is furnished upon condition that the person receiving it shall make their own determination of the suitability of the material for their particular purpose.

End of Safety Data Sheet

Specialty Vermiculite Corp.

SAFETY DATA SHEET

Product Name: Masonry Insulation
SDS ID Number: Z-01792 SDS Date: 4/17/2015

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name:	Masonry Insulation
SDS Number:	Z-01792
Cancelled MSDS Number:	Z-01713
Chemical Family Name:	Expanded Vermiculite (Enoree, South Carolina); Magnesium-Aluminosilicate Mineral
Product Use:	Aggregate Insulating Material for Masonry Applications
Chemical Formula:	$(Mg, Ca, K, Fe^{II})_3 (Si, Al, Fe^{III})_4 O_{10} (OH)_2 \cdot 4(H_2O)$
CAS # (Chemical Abstract Service Number):	Mixture-N/A

Manufactured by:

Specialty Vermiculite
26383 Hwy 221 N
Enoree, SC 29335

Specialty Vermiculite
14810- 123rd Avenue
Edmonton, Alberta T5L 2Y5

In Case of Emergency Call:

Enoree Plant: (800)342.2017

Edmonton Plant: (780)454.4511

SECTION 2 – HAZARDS IDENTIFICATION

Classifications:

Acute toxicity (oral, dermal, inhalation): Category 4

Pictogram:

Signal Word:

WARNING

Hazard Statements:

H305: May be harmful if swallowed and enters airways.
H320: Causes eye irritation

Precautionary Statements:

P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection

Response:

P301: IF SWALLOWED: Dilute with large quantities of water. Consult a physician if symptoms develop. Never give anything by mouth to an unconscious person.
P302: IF ON SKIN: Wash with soap and water. If discomfort or irritation persists, consult a physician. Remove contaminated clothing and wash before reuse.
P304: IF INHALED: Get fresh air. If symptoms persist, consult a physician. If breathing has stopped, give artificial respiration then oxygen if needed.
P305: IF IN EYES: Flush eyes with water for at least 15 minutes while holding eyelids open. If discomfort or irritation persists, consult a physician.

Storage:

P402: Store in a dry place.

Disposal:

P501: Consult all regulations (federal, state, provincial, local) or a qualified waste disposal firm when characterizing waste for disposal. According to EPA (40 CFR § 261), waste of this product is not defined as hazardous. Dispose of waste in accordance with all applicable regulations. According to US EPA (40 CFR § 261.3) waste of this product is not defined as hazardous.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS#	Percent (max)
Vermiculite	001318-00-9	50-100
Quartz	014808-60-7	1-10

SECTION 4 – FIRST AID MEASURES:

Skin Contact: Wash with soap and water. If discomfort or irritation persists, consult a physician. Remove contaminated clothing and wash before reuse.
Eye Contact: Flush eyes with water for at least 15 minutes while holding eyelids open. If discomfort or irritation persists, consult a physician.
Ingestion: Dilute with large quantities of water. Consult a physician if symptoms develop. Never give anything by mouth to an unconscious person.
Inhalation: If symptoms develop, get fresh air. If symptoms persist, consult a physician. If breathing has stopped, give artificial respiration then oxygen if needed.

SECTION 5 – FIRE FIGHTING MEASURES

Extinguishing Media: Not Applicable. Product will not burn.
Special Fire Fighting Procedures: None
No special procedures specific to this product.
Unusual Fire and Explosion Hazards: None.

SECTION 6 – ACCIDENTAL RELEASE MEASURES:

Spills/Leaks: Carefully shovel or sweep up spilled material and place in suitable container for recycle or disposal. Dampen with water spray or use other methods to clean spill which avoid creating dust. Discard empty packaging promptly. Avoid excessive handling of empty packaging, which may result in unnecessary release of airborne particulates.

SECTION 7 – HANDLING AND STORAGE

Handling Procedures:
Material is for professional use only. Keep out of the reach of children.
Precautionary Measures:
Avoid contact with eyes, skin and clothing.
Avoid creating and inhaling airborne dust or particulates.
Do not take internally.

Practice good personal hygiene to avoid ingestion.
Use only with adequate ventilation.
Wash clothing before reuse.
Respiratory Protection: Respiratory protection may be desirable if dust is created in handling and is required at or above the Permissible Exposure Limit (PELs). A dust respirator such as a 3M type P-95 is recommended.

Skin Protection: Gloves are recommended.
Eye Protection: Safety glasses or goggles should be worn.
Work/Hygienic Practices: Use good personal hygiene practices.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT

EXPOSURE GUIDELINES (US)

Ingredient	ACGIH TLV			OSHA PEL			Other
	TWA	STEL	Ceiling	TWA	STEL	Ceiling	
Vermiculite	—	—	—	—	—		—
Quartz	0.025 mg/m^3 TWA (respirable fraction)			0.1 mg/m^3 TWA (respirable dust)			

In addition to the exposure limits referenced above, the following non-specific limits for dust apply to this product; OSHA, 15 mg/m^3- TWA or Total Dust and 5 mg/m^3- TWA as Respirable Dust, ACGIH, 10 mg/m^3- TWA as Total Dust and 3 mg/m^3- TWA as Respirable Dust.

EXPOSURE GUIDELINES (CANADA)

Employers should consult local Provincial regulatory limits for exposure guidelines which may vary locally.

Engineering Controls: General ventilation may be desirable and should be used where appropriate.

Personal Protective Equipment:

Respiratory Protection: Respiratory protect may be desirable if dust is created in handling and is required at or above the Permissible Exposure Limit (PEL) for nuisance particulates.

Skin Protection: Gloves are recommended.

Eye Protection: Safety glasses or goggles should be worn.

Work/Hygienic Practices: Use good personal hygiene practices.
Quartz (Crystalline silica) is a naturally occurring mineral that is commonly contained in materials that are mined from the earth's surface such as sand, limestone, clay and gypsum (calcium sulfate). Total quartz is a value usually representing the combined fraction of large, non-respirable sized particles and of respirable sized particles (less than ten micros in aerodynamic diameter). It is only the respirable sized fraction of total quartz that is recognized as hazardous by professionals in the field of Occupational Health and by most regulatory agencies

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Appearance/Odor:	Brown or Grey free flowing aggregate
Odor Threshold: (ppm)	Not Determined
pH:	Not Applicable
Melting point/Freezing point:	>1320°C
Vapor Pressure: (Mm Hg)	Unknown
Vapor Density: (Air = 1)	Unknown
Solubility In Water:	Negligible
Specific Gravity: (Water = 1)	Not Applicable
Evaporation Rate: (Butyl Acetate=1)	Not Applicable
Boiling Point:	Not Applicable
Flammability:	Not Available
Viscosity:	Not Applicable
Bulk Density: (pounds/Cubic Foot) (Pcf)	4-10 PCF
% Volatiles (gr/L): (70°F) (21°C)	Not Available
Partition coefficient: n-octanol/water	Not Available
Flash Point:	Not Applicable
Flash Point Method:	Not Applicable
Lower Explosion Limit:	Not Available
Upper Explosion Limit:	Not Available
Auto-Ignition Temperature:	Not Available
Decomposition Temperature:	Not Available

SECTION 10 – STABILITY AND REACTIVITY

Chemical Stability: Stable

Hazardous Reactivity Potential: Will not occur

Conditions to Avoid: Expanded Vermiculite is often used as a chemical absorbent. When contact with highly reactive chemicals or chemicals that can off-gas at temperatures above room temperature (such as Hydrogen peroxide solutions) care should be taken to neutralize or make these materials inert prior to absorption. If possible consult the SDS or supplier of the material being absorbed.

Hazardous Polymerization: Will not polymerize.

Hazardous Decomposition Products: None known for this product.

SECTION 11 – TOXICOLOGICAL INFORMATION

Ingredient (No data unless listed.) **CAS Number** **LD50 and LC50**

Carcinogenicity:

Ingredient	IARC Group 1	IARC Group 2A	IARC Group 2B	NTP Known	NTP Suspect	OSHA
Vermiculite	No	No	No	No	No	No
Quartz	Yes	No	No	Yes	No	Yes

Mutagenicity: Not applicable.

Teratogenicity: Not applicable.

Reproductive Toxicity: Not applicable.

Possible routes of exposure:

Inhalation: May cause irritation.

Ingestion: May cause irritation.

Skin: May cause irritation.

Eyes: May cause irritation.

SECTION 12 – ECOLOGICAL INFORMATION

Environmental Fate: No data available for product.

Ecotoxicity: No data available for product.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Disposal Procedures:

Consult all regulations (federal, state, provincial, local) or a qualified waste disposal firm when characterizing waste for disposal. According to EPA (40 CFR § 261), waste of this product is not defined as hazardous. Dispose of waste in accordance with all applicable regulations. According to US EPA (40 CFR § 261.3) waste of this product is not defined as hazardous.

SECTION 14 – TRANSPORATION INFORMATION

Proper Shipping Name: Not Applicable

UN/NA Number: Not Applicable

Domestic Hazard Class: Nonhazardous

Surface Freight Classification: Vermiculite, other than Crude

Label/Placard Required: Not Applicable

SECTION 15 – REGULATORY INFORMATION

REGULATORY CHEMICAL LISTS:

CERCLA (Comprehensive Response Compensation and Liability Act):

(None present unless listed below)

Chemical Name **CAS#** **Wt %** **CERCLA RQ**

SARA Title III (Superfund Amendments and Reauthorization Act)

SARA Section 312/Tier I & II Hazard Categories

Health Immediate (acute)	Yes
Health Delayed (chronic)	Yes
Flammable	No
Reactive	No
Pressure	No

302 Reportable Ingredients (Identification Threshold 1 %.):

Chemical Name	CAS#	Wt %	SARA 302 TPQ

313 Reportable Ingredients (Chemicals present below reporting threshold are exempt):

Chemical Name	CAS#	Wt %

National Volatile Organic Compound Emission Standards For Architectural Coatings:

Volatile Organic Content: (gr/L) Not Applicable

WHMIS Classification(s): D2 B

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR). This MSDS contains all the information required by the CPR.

State Regulatory Information:

California Proposition 65: WARNING! This product contains substances known to the state of California to cause cancer, birth defects or other reproductive harm.

Massachusetts Hazardous Substance List (Identification threshold 0.001% (1 ppm)):

Chemical Name	CAS#	Wt %
Quartz	014808-60-7	< 1%

New Jersey Hazardous Substance List (Identification threshold (0.1%)):

Chemical Name	CAS#	Wt

Pennsylvania Hazardous Substance List (Identification threshold 0.01%):

Chemical Name	CAS#	Wt %

CHEMICAL INVENTORY STATUS:

All chemicals in this product are listed or exempt from listing in the following countries:

US	CANADA		EUROPE	AUSTRALIA	JAPAN	KOREA	PHILIPPINES
TSCA	DSL	NDSL	EINECS/ELINCS	AICS	ENCS	ECL	PICCS
Yes	Yes	No	Yes	Yes	Yes	Yes	Yes

SECTION 16 – OTHER INFORMATION

Non-Hazardous Ingredient Disclosure:

Chemical Name	CAS Number

Vermiculite

WARNING

May be harmful if swallowed and enters airways. Causes eye irritation.

Do not eat, drink or smoke when using this product. Wear Protective gloves/protective clothing/eye protection/face protection.

If SWALLOWED: Dilute with large quantities of water. Consult a physician if symptons develop. Never give anything by mouth to an unconscious person.

If ON SKIN: Wash with soap and water. If discomfort or irritation persists, consult a physician. Remove contaminated clothing and wash before reuse.

If INHALED: Get fresh air. If symptons presist, consult a physician. If breathing has stopped, give artificial respiration then oxygen if needed.

If IN EYES: Flush eyes with water for at least 15 minutes while holding eyelids open. If discomfort or irritation persist, consult a physician.

Store in a dry place.

Specialty Vermiculite Corp. 26383 Hwy 221N, Enoree, SC 29335 800-342-2017

Vermiculite (GHS)

Prepared by: EH&S Department
Approved by:
Approved Date:

Disclaimer:

"The data included herein are presented in accordance with various environment, health and safety regulations. It is the responsibility of a recipient of the data to remain currently informed on chemical hazard information, to design and update its own program and to comply with all national, federal, state and local laws and regulations applicable to safety, occupational health, right-to-know and environmental protection."

For additional information please contact Sales Technician for your area:

Southeast		**West**		**Canada**
Donna Frassrand (770)262.0396		David Jeffery (830)714.5447		Brian Colbert (905)302.5824

Customer Service Contacts:

Laura Cody Enoree Plant (800)342.2017	Donna Ernst Pompano Plant (800)432.7394	Grace Cruz Phoenix Plant (602)272.6663	Darlene Lord Winnipeg Plant (204)786.5681	Linda Ardnt Edmonton Plant (780)454.4511

SPV Corp & SPV Canada Corp Plant & Office Locations:

ENOREE, SC	**PHOENIX, AZ**	**POMPANO BEACH, FL**	**ALBERTA**	**MANITOBA**
26383 Hwy 221 N Enoree, SC 29335 P(864)969.3353 F(864)969.9923	4220 West Glenrosa Phoenix, AZ 85019 P(602)272.6663 F(602)278.5504	1200 NW 15th Avenue Pompano Beach, FL 33069 P(800)432.7394 F(954)968.5586	14810- 123rd Avenue Edmonton, Alberta T5L 2Y5 P(780)454.4511 F(403)452.1883	1140 Pacific Avenue Winnipeg, MB R3E 1G6 P(204)786.5681 F(204)783.0308

SAFETY DATA SHEET

Revision Date: 08/16/2012
Print Date: 1/30/2014
MSDS Number: R0340954
Version: 6.0

Pyroil™ STARTING FLUID
PYSFR11

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

Ashland P.O. Box 2219 Columbus, OH 43216	Regulatory Information Number Telephone Emergency telephone number	1-800-325-3751 614-790-3333 1-800-ASHLAND (1-800-274-5263)
Product name	Pyroil™ STARTING FLUID	
Product code	PYSFR11	

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: aerosol

DANGER! EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE. CONTENTS UNDER PRESSURE. MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. CAUSES EYE IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY THE SKIN AND CAUSE IRRITATION AND BURNS.

Potential Health Effects

Exposure routes

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact

Can cause severe eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes. Can injure eye tissue.

Skin contact

May cause slight skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, skin burns, and other skin damage.

Ingestion

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

Breathing aerosol and/or mist is possible when material is sprayed. Aerosol and mist may present a greater risk of injury because more material may be present in the air than from vapor alone. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material:, Skin, lung (for example, asthma-like conditions), Liver, Central nervous system, male reproductive system, Individuals with preexisting heart disorders maybe more susceptible to arrhythmias (irregular heartbeats) if exposed to high concentrations of this material.

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), Cough, central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness), loss of appetite, respiratory depression (slowing of the breathing rate), Lack of coordination, confusion, irregular heartbeat, respiratory failure, coma

Target Organs

This product contains ethanol. Alcoholic beverage consumption has been associated with brain damage, heart damage, and pancreatitis in humans. The relevance of these findings to ethanol exposure in industrial environments is uncertain., Exposure to this material (or a component) has been found to cause kidney damage in male rats. The mechanism by which this toxicity occurs is specific to the male rat and the kidney effects are not expected to occur in humans., Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals:, pancreatic damage, liver damage, brain damage, testis damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans:, liver damage, Repeated exposure to hydroquinone vapor or dust for more than 5 years has caused brownish staining and damage to the surface of the cornea with reduction in vision.

Carcinogenicity

Ethyl chloride has been shown to cause cancer in laboratory animals. The relevance of this finding to humans is uncertain. This product contains ethanol. The International Agency for Research on Cancer (IARC) has determined that exposure to ethanol through chronic human consumption of

alcoholic beverages can cause cancer. The relevance of this finding to ethanol exposure in industrial environments is uncertain.

Reproductive hazard

This product contains ethanol. Alcoholic beverage consumption has been associated with birth defects in humans. The relevance of this finding to ethanol exposure in industrial environments is uncertain.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No. / Trade Secret No.	Concentration
SOLVENT NAPHTHA (PETROLEUM), LIGHT ALIPHATIC	64742-89-8	>=70-<80%
ETHYL ETHER	60-29-7	>=15-<20%
CARBON DIOXIDE	124-38-9	>=1.5-<5%
ETHANOL	64-17-5	>=1-<1.5%
DISTILLATES (PETROLEUM), HYDROTREATED LIGHT NAPHTHENIC	64742-53-6	>=0.5-<1%
ETHYL CHLORIDE	75-00-3	>=0.1-<0.5%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician

Hazards: Inhalation of high concentrations of this material, as could occur in enclosed spaces or during deliberate abuse, may be associated with cardiac arrhythmias. Sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to this material. This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting. Acute aspiration of large amounts of oil-laden material may produce a serious aspiration pneumonia. Patients who aspirate these oils should be followed for the development of long-term sequelae. Repeated aspiration of small quantities of mineral oil can produce chronic inflammation of the lungs (i.e. lipoid pneumonia) that may progress to pulmonary fibrosis. Symptoms are often subtle and radiological changes appear worse than clinical abnormalities. Occasionally, persistent cough, irritation of the upper respiratory tract, shortness of breath with exertion, fever, and bloody sputum occur. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities.

Treatment: Sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to this material.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Water spray, Carbon dioxide (CO2), Foam, Dry chemical

Hazardous combustion products

Aldehydes, carbon dioxide and carbon monoxide, formaldehyde-like, Hydrocarbons, organic compounds

Precautions for fire-fighting

Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

NFPA Flammable and Combustible Liquids Classification

not applicable

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental precautions

Do not flush into surface water or sanitary sewer system.

Methods for cleaning up

Suppress (knock down) gases/vapours/mists with a water spray jet. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

Other information

Comply with all applicable federal, state, and local regulations.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Storage

Do not store near extreme heat, open flame, or sources of ignition.Store in a cool, dry, ventilated area. Maximum recommended storage temperature 50 degrees C (122 degrees F).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

SOLVENT NAPHTHA (PETROLEUM), LIGHT ALIPHATIC		**64742-89-8**
OSHA Z1	time weighted average	500 ppm
ACGIH	time weighted average	300 ppm
OSHA Z1	time weighted average	2,000 mg/m3

ACGIH	time weighted average	1,370 mg/m3
ETHYL ETHER		**60-29-7**
ACGIH	time weighted average	400 ppm
ACGIH	Short term exposure limit	500 ppm
OSHA Z1	Permissible exposure limit	400 ppm
OSHA Z1	Permissible exposure limit	1,200 mg/m3
CARBON DIOXIDE		**124-38-9**
ACGIH	time weighted average	5,000 ppm
ACGIH	Short term exposure limit	30,000 ppm
NIOSH	Recommended exposure limit (REL):	5,000 ppm
NIOSH	Recommended exposure limit (REL):	9,000 mg/m3
NIOSH	Short term exposure limit	30,000 ppm
NIOSH	Short term exposure limit	54,000 mg/m3
OSHA Z1	Permissible exposure limit	5,000 ppm
OSHA Z1	Permissible exposure limit	9,000 mg/m3
ETHANOL		**64-17-5**
NIOSH	Recommended exposure limit (REL):	1,000 ppm
NIOSH	Recommended exposure limit (REL):	1,900 mg/m3
OSHA Z1	Permissible exposure limit	1,000 ppm
OSHA Z1	Permissible exposure limit	1,900 mg/m3
ACGIH	Short term exposure limit	1,000 ppm

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist. Maintain eye wash station near work area.

Skin and body protection

Wear normal work clothing including long pants, long-sleeved shirts and foot covering to prevent direct contact of the product with the skin. Launder clothing before reuse. If skin irritation

develops, contact your facility health and safety professional or your local safety equipment supplier to determine the proper personal protective equipment for your use.
Wear resistant gloves (consult your safety equipment supplier).

Respiratory protection

Respiratory protection is not required under normal conditions of use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	aerosol
Boiling point/boiling range	94.3 °F / 34.6 °C @ 1,013.23 hPa Calculated Phase Transition Liquid/Gas
Flash point	-49 °F / -45 °C Calculated Flash Point
Lower explosion limit/Upper explosion limit	1.05 %(V) / 36.5 %(V)
Vapour pressure	717.261 hPa @ 77 °F / 25 °C Calculated Vapor Pressure
Density	0.7114 g/cm3 @ 60.01 °F / 15.56 °C

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

Heat, flames and sparks.

Incompatible products

Acids, Alkali metals, Ammonia, Bases, halogens, Oxidizing agents, sodium, Sulphur compounds

Hazardous decomposition products

Aldehydes, carbon dioxide and carbon monoxide, formaldehyde-like, Hydrocarbons, organic compounds

Hazardous reactions

Product will not undergo hazardous polymerization.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

Acute oral toxicity - Product	: no data available

Acute oral toxicity - Components

SOLVENT NAPHTHA (PETROLEUM), LIGHT ALIPHATIC	: LD 50: > 8,000 mg/kg Species: Rat
ETHYL ETHER	: LD 50: 3,230 - 3,920 mg/kg Species: Rat
ETHANOL	: LD 50: 7,060 mg/kg Species: Rat
DISTILLATES (PETROLEUM), HYDROTREATED LIGHT NAPHTHENIC	: LD 50: > 5 g/kg Species: Rat

Acute inhalation toxicity

Acute inhalation toxicity - Product	: no data available

Acute inhalation toxicity - Components

SOLVENT NAPHTHA (PETROLEUM), LIGHT ALIPHATIC	: LC 50: 3400 ppm Exposure time: 4 h Species: Rat
ETHYL ETHER	: LC 50: 32,000 mg/l Exposure time: 4 h Species: Rat
ETHANOL	: LC 50: 117 - 125 mg/l Exposure time: 4 h Species: Rat
ETHYL CHLORIDE	: LC 50: > 19000 ppm Exposure time: 4 h Species: Rat Method: OECD Test Guideline 403

Acute dermal toxicity

Acute dermal toxicity - Product	: no data available

Acute dermal toxicity - Components

SOLVENT NAPHTHA (PETROLEUM), LIGHT ALIPHATIC	:	LD 50: > 4,000 mg/kg Species: Rat
ETHANOL	:	LD Lo: 20 g/kg Species: Rabbit
DISTILLATES (PETROLEUM), HYDROTREATED LIGHT NAPHTHENIC	:	LD 50: > 2,000 mg/kg Species: Rabbit

Acute toxicity (other routes of administration)

Acute toxicity (other routes of administration)	:	no data available

12. ECOLOGICAL INFORMATION

Biodegradability

Biodegradability - Product	:	no data available

Biodegradability - Components

ETHYL CHLORIDE	:	0 % Method: Closed Bottle test Remarks: Not readily biodegradable.

Bioaccumulation

Bioaccumulation - Product	:	no data available

Ecotoxicity effects

Toxicity to fish

Toxicity to fish - Product	:	no data available

Toxicity to fish - Components

ETHANOL	:	LC 50: 12,000 - 16,000 mg/l Exposure time: 96 h Species: Rainbow trout,donaldson trout (Oncorhynchus mykiss) Test Type: static test

Toxicity to daphnia and other aquatic invertebrates

Toxicity to daphnia and other aquatic invertebrates - Product	:	no data available

Toxicity to daphnia and other aquatic invertebrates - Components

ETHANOL	:	EC 50: > 10,000 mg/l Exposure time: 48 h Species: Water flea (Daphnia magna) Test Type: static test

ETHYL CHLORIDE	:	LC 50: 58 mg/l Exposure time: 48 h Species: Water flea (Daphnia hyalina) Test Type: static test

Toxicity to algae

Toxicity to algae - Product	:	no data available

Toxicity to algae - Components

ETHYL CHLORIDE	:	118 mg/l Exposure time: 72 h Species: Desmodesmus subspicatus (green algae) Test Type: static test

Toxicity to bacteria

Toxicity to bacteria - Product	:	no data available

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Dispose of in accordance with all applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
U.S. DOT - ROAD					
	ORM-D, CONSUMER COMMODITY	ORM			
U.S. DOT - RAIL					
	ORM-D, CONSUMER COMMODITY	ORM			
U.S. DOT - INLAND WATERWAYS					
	ORM-D, CONSUMER COMMODITY	ORM			
TRANSPORT CANADA - ROAD					
UN 1950	AEROSOLS	2.1			
TRANSPORT CANADA - RAIL					
UN 1950	AEROSOLS	2.1			
TRANSPORT CANADA - INLAND WATERWAYS					
UN 1950	AEROSOLS	2.1			
INTERNATIONAL MARITIME DANGEROUS GOODS					
UN 1950	AEROSOLS	2.1			MARINE POLLUTANT: (ALIPHATIC PETROLEUM NAPHTHA)LIMITED QUANTITY
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO					
UN 1950	Aerosols, flammable (engine starting fluid)	2.1			

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

UN	1950	Aerosols, flammable (engine starting fluid)	2.1

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

UN	1950	AEROSOLES	2

***ORM = ORM-D, CBL = COMBUSTIBLE LIQUID**

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65

Proposition 65 warnings are not required for this product based on the results of a risk assessment.	

SARA Hazard Classification
SARA 311/312 Classification

Acute Health Hazard
Fire Hazard
Sudden Release of Pressure Hazard
Chronic Health Hazard

SARA 313 Component(s)
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

New Jersey RTK Label Information

SOLVENT NAPHTHA (PETROLEUM), LIGHT ALIPHATIC	64742-89-8
ETHYL ETHER	60-29-7
CARBON DIOXIDE	124-38-9
ETHANOL	64-17-5
DISTILLATES (PETROLEUM), HYDROTREATED LIGHT NAPHTHENIC	64742-53-6
TOLUENE	108-88-3

Pennsylvania RTK Label Information

SOLVENT NAPHTHA (PETROLEUM), LIGHT ALIPHATIC	64742-89-8
ETHYL ETHER	60-29-7
CARBON DIOXIDE	124-38-9
ETHANOL	64-17-5

Notification status

US. Toxic Substances Control Act	y (positive listing)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	y (positive listing)
Australia. Industrial Chemical (Notification and Assessment) Act	y (positive listing)
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	y (positive listing)
Japan. Kashin-Hou Law List	n (Negative listing)
Korea. Toxic Chemical Control Law (TCCL) List	y (positive listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	y (positive listing)
China. Inventory of Existing Chemical Substances	y (positive listing)

Reportable quantity - Product

US. EPA CERCLA Hazardous Substances (40 CFR 302)	511 lbs

Reportable quantity-Components

ETHYL ETHER	60-29-7	100 lbs

	HMIS	NFPA
Health	2	1
Flammability	4	4
Physical hazards	0	
Instability		0
Specific Hazard	--	--

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the

information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

Safety Data Sheet

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

Material Name	:	**Gasoline**
Other Names / Synonyms	:	MOGAS, ULG 95, 88 RON, 90 RON, 91 RON, 92 RON, 93 RON, 95 RON, 97 UNLD, 91 UNLD
Recommended Use / Restrictions of Use	:	Fuel for spark ignition engines designed to run on unleaded fuel.
Supplier	:	**Shell Eastern Trading (PTE) Ltd** 9 North Buona Vista Drive, #07-01, Tower 1, The Metropolis Singapore 138588 Singapore
Telephone	:	+65-6384 8000
Emergency Telephone Number	:	+44 (0) 151 350 4595

2. HAZARDS IDENTIFICATION

GHS Classification	:	Flammable liquids, Category 1 Skin corrosion/irritation, Category 2 Aspiration hazard, Category 1 Toxic to reproduction, Category 2 Germ cell mutagenicity, Category 1B Carcinogenicity, Category 1B Specific target organ toxicity - single exposure, Category 3, Inhalation, Narcotic effects. Acute hazards to the aquatic environment, Category 2 Hazardous to the aquatic environment - Long-term Hazard, Category 2
GHS Label Elements Symbol(s)	:	
Signal Words	:	Danger
Hazard Statement	:	PHYSICAL HAZARDS:

H224: Extremely flammable liquid and vapour.

HEALTH HAZARDS:
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H336: May cause drowsiness or dizziness.
H340: May cause genetic defects.
H350: May cause cancer.
H361: Suspected of damaging fertility or the unborn child.

ENVIRONMENTAL HAZARDS:
H401: Toxic to aquatic life.
H411: Toxic to aquatic life with long lasting effects.

GHS Precautionary Statements

Prevention	:	P201: Obtain special instructions before use. P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P280: Wear protective gloves/protective clothing/eye protection/face protection.
Response	:	P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Storage	:	P403+P233: Store in a well-ventilated place. Keep container tightly closed.
Disposal:	:	P501: Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.
Other Hazards which do not result in classification	:	Liquid evaporates quickly and can ignite leading to a flash fire, or an explosion in a confined space. This material is a static accumulator. Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur. Slightly irritating to respiratory system. This product contains benzene which may cause leukaemia (AML - acute myelogenous leukaemia). May cause MDS (Myelodysplastic Syndrome).
Additional Information	:	This product is intended for use in closed systems only.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture Description : Complex mixture of hydrocarbons consisting of paraffins, cycloparaffins, aromatic and olefinic hydrocarbons with carbon numbers predominantly in the C4 to C12 range. Includes benzene at 0.1 - 5% v/v. Contains oxygenated hydrocarbons which may include methyl tertiary butyl ether (MTBE) and other ethers. May also contain several additives at <0.1% v/v each.

Synonyms : MOGAS, ULG 95, 88 RON, 90 RON, 91 RON, 92 RON, 93 RON, 95 RON, 97 UNLD, 91 UNLD

Classification of components according to GHS

Chemical Identity	Synonyms	CAS	Hazard Class (category)	Hazard Statement	Conc.
Gasoline, low boiling point naphtha	Gasoline, low boiling point naphtha	86290-81-5	Flam. Liq., 1; Skin Corr., 2; Asp. Tox., 1; Muta., 1B; Carc., 1B; STOT SE, 3; Aquatic Chronic, 2; Aquatic Acute, 2; Repr., 2;	H224; H315; H304; H340; H350; H336; H411; H401; H361;	85.00 - 100.00 %
Ethyl tertiary butyl ether	Ethyl tertiary butyl ether	637-92-3	Flam. Liq., 2; STOT SE, 3; Asp. Tox., 2; Aquatic Acute, 3;	H225; H336; H305; H402;	0.00 - 15.00 %
Methyl tertiary butyl ether	Methyl tertiary butyl ether	1634-04-4	Flam. Liq., 2; Skin Corr., 3; Acute Tox., 5; Asp. Tox., 2;	H225; H316; H303; H305;	0.00 - 15.00 %
Tertiary amyl methyl ether	Tertiary amyl methyl ether	994-05-8	Flam. Liq., 2; Acute Tox., 4; STOT SE, 3;	H225; H302; H336;	0.00 - 15.00 %

Additional Information : Contains Benzene, CAS # 71-43-2. Contains Toluene, CAS # 108-88-3. Contains Ethylbenzene, CAS # 100-41-4. Contains n-Hexane, CAS # 110-54-3. Contains Xylene (Mixed Isomers), CAS # 1330-20-7. Contains Cyclohexane, CAS# 110-82-7. Contains Cumene, CAS# 98-82-8 Contains Tri-methyl-benzene (all isomers), CAS# 25551-13-7.

Contains Naphthalene, CAS # 91-20-3.

The amount of oxygenated components is limited at 2.7 % m/m calculated as oxygen. Alcohols may be present at <0.1%v. Dyes and markers can be used to indicate tax status and prevent fraud. Refer to Ch 16 for full text of H phrases.

Refer to chapter 16 for full text of EC R-phrases.

4. FIRST-AID MEASURES

Inhalation	:	Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.
Skin Contact	:	Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop.
Eye Contact	:	Flush eyes with water while holding eyelids open. Rest eyes for 30 minutes. If redness, burning, blurred vision, or swelling persist transport to the nearest medical facility for additional treatment.
Ingestion	:	If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing.
Most Important Symptoms/Effects, Acute & Delayed	:	Skin irritation signs and symptoms may include a burning sensation, redness, or swelling. Eye irritation signs and symptoms may include a burning sensation and a temporary redness of the eye. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. The onset of respiratory symptoms may be delayed for several hours after exposure. Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death. Auditory system effects may include temporary hearing loss and/or ringing in the ears.

Immediate medical attention, special treatment	:	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Specific hazards arising from Chemicals	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide may be evolved if incomplete combustion occurs. Unidentified organic and inorganic compounds. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Will float and can be reignited on surface water.
Suitable Extinguishing Media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	:	Do not use direct water jets on the burning product as they could cause a steam explosion and spread of the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.
Protective Equipment & Precautions for Fire Fighters	:	Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).
Additional Advice	:	Keep adjacent containers cool by spraying with water. If possible remove containers from the danger zone. If the fire cannot be extinguished the only course of action is to evacuate immediately. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways.

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with skin, eyes and clothing. Evacuate the area of all non-essential personnel. Ventilate contaminated area thoroughly. If contamination of sites occurs remediation may require specialist advice. Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Material Safety Data Sheet. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Observe the relevant local and international regulations. Take precautionary measures against static discharges.

Personal Precautions, Protective Equipment and Emergency Procedures	:	Do not breathe fumes, vapour. Do not operate electrical equipment. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Vapour can travel for considerable distances both above and below the ground surface. Underground services (drains, pipelines, cable ducts) can provide preferential flow paths. Evacuate all personnel. Attempt to disperse vapour or to direct its flow to a safe location for example using fog sprays.
Environmental Precautions	:	Take measures to minimise the effects on groundwater. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Methods and Material for Containment and Cleaning Up	:	Take precautionary measures against static discharges. For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
Additional Advice	:	Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Local authorities should be advised if significant spillages cannot be contained. Maritime spillages should be dealt with using a Shipboard Oil Pollution Emergency Plan (SOPEP), as required by MARPOL Annex 1 Regulation 26. To the extent that this product, including its chemical components (e.g. methyl tertiary butyl ether) may impact surface or groundwater, appropriate assessment and remediation (if necessary) should be implemented.

7. HANDLING AND STORAGE

General Precautions	:	Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for

		safe handling, storage and disposal of this material. Air-dry contaminated clothing in a well-ventilated area before laundering. Prevent spillages. Turn off all battery operated portable electronic devices (examples include: cellular phones, pagers and CD players) before operating gasoline pump. Contaminated leather articles including shoes cannot be decontaminated and should be destroyed to prevent reuse. Do not use as a cleaning solvent or other non-motor fuel uses. Vehicle fueling and vehicle workshop areas - Avoid inhalation of vapours and contact with skin, when filling or emptying a vehicle.
Precautions for Safe Handling	:	When using do not eat or drink. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Never siphon by mouth. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Avoid exposure. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.
Conditions for Safe Storage	:	Drum and small container storage: Keep containers closed when not in use. Drums should be stacked to a maximum of 3 high. Use properly labelled and closeable containers. Packaged product must be kept tightly closed and stored in a diked (bunded) well-ventilated area, away from, ignition sources and other sources of heat. Take suitable precautions when opening sealed containers, as pressure can build up during storage. Tank storage: Tanks must be specifically designed for use with this product. Bulk storage tanks should be diked (bunded). Locate tanks away from heat and other sources of ignition. Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of strict procedures and precautions. Keep in a cool place. Electrostatic charges will be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk. The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable. Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.
Product Transfer	:	Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes. Wait 30 minutes after tank filling (for large storage tanks) before opening hatches or manholes. Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to

		accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur. Be aware of handling operations that may give rise to additional hazards that result from the accumulation of static charges. These include but are not limited to pumping (especially turbulent flow), mixing, filtering, splash filling, cleaning and filling of tanks and containers, sampling, switch loading, gauging, vacuum truck operations, and mechanical movements. These activities may lead to static discharge e.g. spark formation. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (<= 1 m/s until fill pipe submerged to twice its diameter, then <= 7 m/s). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations.
Recommended Materials	:	For containers, or container linings use mild steel, stainless steel. Aluminium may also be used for applications where it does not present an unnecessary fire hazard. Examples of suitable materials are: high density polyethylene (HDPE), polypropylene (PP), and Viton (FKM), which have been specifically tested for compatibility with this product. For container linings, use amine-adduct cured epoxy paint. For seals and gaskets use: graphite, PTFE, Viton A, Viton B.
Unsuitable Materials	:	Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Examples of materials to avoid are: natural rubber (NR), nitrile rubber (NBR), ethylene propylene rubber (EPDM), polymethyl methacrylate (PMMA), polystyrene, polyvinyl chloride (PVC), polyisobutylene. However, some may be suitable for glove materials.
Container Advice	:	Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers. Gasoline containers must not be used for storage of other products.
Other Advice	:	Ensure that all local regulations regarding handling and storage facilities are followed. See additional references that provide safe handling practices for liquids that are determined to be static accumulators: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity). CENELEC CLC/TR 50404 (Electrostatics – Code of practice for the avoidance of hazards due to static electricity).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Safety Data Sheet

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Gasoline, low boiling point naphtha	ACGIH	TWA	300 ppm		
	ACGIH	STEL	500 ppm		
	SG OEL	TWA	300 ppm	890 mg/m3	
	SG OEL	STEL	500 ppm	1,480 mg/m3	
Trimethylbenzene, all isomers	ACGIH	TWA	25 ppm		
	SG OEL	TWA	25 ppm	123 mg/m3	
Ethylbenzene	ACGIH	TWA	20 ppm		
	SG OEL	TWA	100 ppm	434 mg/m3	
	SG OEL	STEL	125 ppm	543 mg/m3	
n-hexane	ACGIH	TWA	50 ppm		
	ACGIH	SKIN_DES			Can be absorbed through the skin.
	SG OEL	TWA	50 ppm	176 mg/m3	
Benzene	ACGIH	TWA	0.5 ppm		
	ACGIH	STEL	2.5 ppm		
	ACGIH	SKIN_DES			Can be absorbed through the skin.
	SG OEL	TWA	1 ppm	3.18 mg/m3	

	SHELL IS	TWA	0.5 ppm	1.6 mg/m3	
	SHELL IS	STEL	2.5 ppm	8 mg/m3	
Toluene	ACGIH	TWA	20 ppm		
	SG OEL	TWA	50 ppm	188 mg/m3	
Xylene	ACGIH	TWA	100 ppm		
	ACGIH	STEL	150 ppm		
	SG OEL	TWA	100 ppm	434 mg/m3	
	SG OEL	STEL	150 ppm	651 mg/m3	
Cyclohexane	ACGIH	TWA	100 ppm		
	SG OEL	TWA	300 ppm	1,030 mg/m3	
Naphthalene	ACGIH	TWA	10 ppm		
	ACGIH	STEL	15 ppm		
	ACGIH	SKIN_DES			Can be absorbed through the skin.
	SG OEL	TWA	10 ppm	52 mg/m3	
	SG OEL	STEL	15 ppm	79 mg/m3	
Ethyl tertiary butyl ether	ACGIH	TWA	25 ppm		
Methyl tertiary butyl ether	ACGIH	TWA	50 ppm		
	SG OEL	TWA	40 ppm	144 mg/m3	
Tertiary amyl methyl ether	ACGIH	TWA	20 ppm		
Cumene	ACGIH	TWA	50 ppm		
	SG OEL	TWA	50 ppm	246 mg/m3	

Safety Data Sheet

Additional Information : SHELL IS is the Shell Internal Standard. Skin notation means that significant exposure can also occur by absorption of liquid through the skin and of vapour through the eyes or mucous membranes.

Biological Exposure Index (BEI)

Material	Determinant	Sampling Time	BEI	Reference
Benzene	t,t-Muconic acid in Creatinine in urine	Sampling time: End of shift.	500 µg/g	ACGIH BEL (2011)
	S-Phenylmercapturic acid in Creatinine in urine	Sampling time: End of shift.	25 µg/g	ACGIH BEL (2011)
n-hexane	2,5-Hexanedion, without hydrolysis in Urine	Sampling time: End of shift at end of work week.	0.4 mg/l	ACGIH BEL (2011)
Toluene	o-Cresol, with hydrolysis in Creatinine in urine	Sampling time: End of shift.	0.3 mg/g	ACGIH BEL (2011)
	toluene in Blood	Sampling time: Prior to last shift of work week.	0.02 mg/l	ACGIH BEL (2011)
	toluene in Urine	Sampling time: End of shift.	0.03 mg/l	ACGIH BEL (2011)

Ethylbenzene	Sum of mandelic acid and phenylglyoxylic acid in Creatinine in urine	Sampling time: End of shift at end of work week.	0.7 g/g	ACGIH BEL (2011)
	Ethyl benzene in End-exhaled air	Sampling time: Not critical.		ACGIH BEL (2011)
Xylene	Methylhippuric acids in Creatinine in urine	Sampling time: End of shift.	1.5 g/g	ACGIH BEL (2011)
Naphthalene	1-Naphthol, with hydrolysis + 2-Naphthol, with hydrolysis	Sampling time: End of shift.		ACGIH BEL (02 2013)

Appropriate Engineering Controls : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Local exhaust ventilation is recommended. Eye washes and showers for emergency use. Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping. Define procedures for safe handling and maintenance of controls. Educate and train workers in the hazards and control measures relevant to normal activities associated with this product. Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation. Firewater monitors and deluge systems are recommended. Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.

Individual Protection Measures	:	Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
Respiratory Protection	:	If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. All respiratory protection equipment and use must be in accordance with local regulations. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].
Hand Protection	:	Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognise that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time may be acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Select gloves tested to a relevant standard (e.g. Europe EN374, US F739). When prolonged or frequent repeated contact occurs, Nitrile gloves may be suitable. (Breakthrough time of > 240 minutes.) For incidental contact/splash protection Neoprene, PVC gloves may be suitable.
Eye Protection	:	Chemical splash goggles (chemical monogoggles). If a local risk assessment deems it so, then chemical splash goggles may not be required and safety glasses may provide adequate eye protection.
Protective Clothing	:	Chemical resistant gloves/gauntlets, boots, and apron (where risk of splashing).
Thermal Hazards	:	Not applicable.

Monitoring Methods	:	Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory. Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available. National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods http://www.cdc.gov/niosh/ Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/
Environmental Exposure Controls	:	Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour. Take appropriate measures to fulfil the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Yellow. Clear, bright liquid.
Odour	:	Hydrocarbon
Odour threshold	:	Data not available
pH	:	Data not available
Initial Boiling Point and Boiling Range	:	25 - 220 °C / 77 - 428 °F
Freezing Point	:	Data not available
Flash point	:	-40 °C / -40 °F (Tagliabue Closed Cup)
Upper / lower Flammability or Explosion limits	:	1 - 8 %(V)
Auto-ignition temperature	:	> 250 °C / 482 °F
Vapour pressure	:	Typical 570 hPa at 37.8 °C / 100.0 °F
Relative Density	:	Data not available
Density	:	Typical 0.740 g/cm3 at 15 °C / 59 °F
Water solubility	:	Negligible.
Solubility in other solvents	:	Data not available
n-octanol/water partition	:	2 - 7

coefficient (log Pow)		
Dynamic viscosity	:	Data not available
Kinematic viscosity	:	0.5 - 0.75 mm2/s at 40 °C / 104 °F
Vapour density (air=1)	:	Data not available
Electrical conductivity	:	Low conductivity: < 100 pS/m, The conductivity of this material makes it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10 000 pS/m., Whether a liquid is nonconductive or semi-conductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid.
Evaporation rate (nBuAc=1)	:	Data not available
Decomposition Temperature	:	Data not available
Flammability	:	Extremely flammable.

10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under normal conditions of use.
Possibility of Hazardous Reactions	:	No hazardous reaction is expected when handled and stored according to provisions.
Conditions to Avoid	:	Avoid heat, sparks, open flames and other ignition sources.
Incompatible Materials	:	Strong oxidising agents.
Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage. Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.
Hazardous Polymerisation	:	No
Sensitivity to Mechanical Impact	:	No
Sensitivity to Static Discharge	:	Yes, in certain circumstances product can ignite due to static electricity.

11. TOXICOLOGICAL INFORMATION

Information on Toxicological effects

Basis for Assessment	:	Information given is based on product data, a knowledge of the components and the toxicology of similar products. Unless indicated otherwise, the data presented is representative of the

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product as a whole, rather than for individual component(s).

Likely Routes of Exposure	:	Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.
Acute Oral Toxicity	:	Low toxicity: LD50 > 5000 mg/kg
Acute Dermal Toxicity	:	Low toxicity: LD50 >2000 mg/kg , Rabbit
Acute Inhalation Toxicity	:	Low toxicity: LC50 >5 mg/l , 4 h, Rat
Skin corrosion/irritation	:	Irritating to skin.
Serious eye damage/irritation	:	Expected to be slightly irritating.
Respiratory Irritation	:	Based on human experience, breathing of vapours or mists may cause a temporary burning sensation to nose, throat and lungs.
Respiratory or skin sensitisation	:	Not expected to be a sensitiser.
Aspiration Hazard	:	Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.
Germ cell mutagenicity	:	May cause heritable genetic damage. (Benzene) Mutagenicity studies on gasoline and gasoline blending streams have shown predominantly negative results.
Carcinogenicity	:	Known human carcinogen. (Benzene) May cause leukaemia (AML - acute myelogenous leukemia). (Benzene) Inhalation exposure to mice causes liver tumours, which are not considered relevant to humans.

Material	:	**Carcinogenicity Classification**
Gasoline, low boiling point naphtha	:	ACGIH Group A3: Confirmed animal carcinogen with unknown relevance to humans.
Gasoline, low boiling point naphtha	:	IARC 2B: Possibly carcinogenic to humans.
Gasoline, low boiling point naphtha	:	GHS / CLP: Carcinogenicity Category 1B
Trimethylbenzene, all isomers	:	GHS / CLP: No carcinogenicity classification
Ethylbenzene	:	IARC 2B: Possibly carcinogenic to humans.
Ethylbenzene	:	GHS / CLP: No carcinogenicity classification
n-hexane	:	GHS / CLP: No carcinogenicity classification

Benzene	:	ACGIH Group A1: Confirmed human carcinogen.
Benzene	:	NTP: Known To Be Human Carcinogen.
Benzene	:	IARC 1: Carcinogenic to humans.
Benzene	:	GHS / CLP: Carcinogenicity Category 1A
Toluene	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Toluene	:	IARC 3: Not classifiable as to carcinogenicity to humans.
Toluene	:	GHS / CLP: No carcinogenicity classification
Xylene	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Xylene	:	IARC 3: Not classifiable as to carcinogenicity to humans.
Xylene	:	GHS / CLP: No carcinogenicity classification
Cyclohexane	:	GHS / CLP: No carcinogenicity classification
Naphthalene	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Naphthalene	:	NTP: Reasonably Anticipated to be a Human Carcinogen.
Naphthalene	:	IARC 2B: Possibly carcinogenic to humans.
Naphthalene	:	GHS / CLP: Carcinogenicity Category 2
Ethyl tertiary butyl ether	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Ethyl tertiary butyl ether	:	GHS / CLP: No carcinogenicity classification
Methyl tertiary butyl ether	:	IARC 3: Not classifiable as to carcinogenicity to humans.
Methyl tertiary butyl ether	:	GHS / CLP: No carcinogenicity classification
Tertiary amyl methyl ether	:	GHS / CLP: No carcinogenicity classification
Cumene	:	IARC 2B: Possibly carcinogenic to humans.
Cumene	:	GHS / CLP: No carcinogenicity classification

Reproductive and Developmental Toxicity : Causes foetotoxicity at doses which are maternally toxic. (Toluene)
May impair fertility at doses which produce other toxic effects. (n-hexane)
Many case studies involving abuse during pregnancy indicate that toluene can cause birth defects, growth retardation and learning difficulties. (Toluene)
Inhalation of high concentrations of gasoline vapour containing Methyl tertiary butyl ether produced a very low incidence of rare birth defects (ventral midline closure failure) in mice.

Specific target organ toxicity - single exposure : High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.

Specific target organ toxicity - repeated exposure : Kidney: caused kidney effects in male rats which are not considered relevant to humans

Blood-forming organs: repeated exposure affects the bone

marrow.

Additional Information : Prolonged and repeated exposures to high concentrations have resulted in hearing loss in rats. Solvent abuse and noise interaction in the work environment may cause hearing loss. (Toluene)

Abuse of vapours has been associated with organ damage and death. (Toluene)

Exposure to very high concentrations of similar materials has been associated with irregular heart rhythms and cardiac arrest.

May cause MDS (Myelodysplastic Syndrome). (Benzene)

Classifications by other authorities under varying regulatory frameworks may exist.

12. ECOLOGICAL INFORMATION

Basis for Assessment : Fuels are typically made from blending several refinery streams. Ecotoxicological studies have been carried out on a variety of hydrocarbon blends and streams but not those containing additives. Information given is based on a knowledge of the components and the ecotoxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Acute Toxicity : Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l (to aquatic organisms) LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract.

Fish : Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l

Aquatic crustacea : Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l

Algae/aquatic plants : Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l

Microorganisms : Expected to be harmful: LL/EL/IL50 >10 <= 100 mg/l

Chronic Toxicity

Fish : NOEC/NOEL expected to be > 1.0 - <= 10 mg/l

Aquatic crustacea : NOEC/NOEL expected to be > 1.0 - <= 10 mg/l

Mobility : Evaporates within a day from water or soil surfaces. Large volumes may penetrate soil and could contaminate groundwater. Toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment. Ether oxygenates are significantly more water soluble and less biodegradable

		than benzene, toluene, ethyl benzene and xylenes (BTEX). Consequently ether oxygenates have the potential to migrate relatively longer distances than BTEX in groundwater. Contains volatile components. Floats on water. Methyl tertiary butyl ether degradation may result in the formation of tert-butyl alcohol (TBA).
Persistence/degradability	:	Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment. The volatile constituents will oxidize rapidly by photochemical reactions in air. While biodegradation of Methyl tertiary butyl ether has been documented, it is generally less biodegradable than many petroleum hydrocarbons and has a potential to migrate relatively longer distances in groundwater.
Bioaccumulative Potential	:	Contains constituents with the potential to bioaccumulate. Log Kow > =4
Other Adverse Effects	:	Films formed on water may affect oxygen transfer and damage organisms.

13. DISPOSAL CONSIDERATIONS

Material Disposal	:	Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand. Do not dispose into the environment, in drains or in water courses. Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination.
Container Disposal	:	Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not puncture, cut, or weld uncleaned drums. Send to drum recoverer or metal reclaimer. Do not pollute the soil, water or environment with the waste container.
Local Legislation	:	Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be in compliance.

14. TRANSPORT INFORMATION

Land (as per ADR classification): Regulated

Class	:	3
Packing group	:	II
Hazard indentification no.	:	33
UN number	:	1203
Danger label (primary risk)	:	3
Proper shipping name	:	GASOLINE (UNLEADED)
Environmentally Hazardous	:	Yes

IMDG

Identification number	UN 1203
Proper shipping name	GASOLINE
Technical name	(UNLEADED)
Class / Division	3
Packing group	II
Environmental hazards:	Yes

IATA (Country variations may apply)

UN number	:	1203
Proper shipping name	:	Gasoline
Technical name	:	(UNLEADED)
Class / Division	:	3
Packing group	:	II

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollution Category	:	Not applicable.
Ship Type	:	Not applicable.
Product Name	:	Not applicable.
Special Precaution	:	Not applicable.
Additional Information	:	MARPOL Annex 1 rules apply for bulk shipments by sea.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Local Regulations

Workplace Safety and Health Act & Workplace	:	This product is subject to the requirement in the Act/ Regulations.

Safety and Health (General Provision) Regulations		
Environmental Protection and Management Act and Environmental Protection and Management (Hazardous Substances) Regulations	:	This product is subject to the requirement in the Act/ Regulations.
Maritime and Port Authority of Singapore (Dangerous Goods, Petroleum and Explosives) Regulations	:	This product is subject to the requirement in the Act/ Regulations.
Fire Safety Act and Fire Safety (Petroleum & Flammable Materials) Regulations	:	This product is subject to the requirement in the Act/ Regulations.
Classification triggering components	:	Contains gasoline, low boiling point naphtha, unspecified.

16. OTHER INFORMATION

Hazard Statement

H224	Extremely flammable liquid and vapour.
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H303	May be harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H305	May be harmful if swallowed and enters airways.
H315	Causes skin irritation.
H316	Causes mild skin irritation.
H336	May cause drowsiness or dizziness.
H340	May cause genetic defects.
H350	May cause cancer.
H361	Suspected of damaging fertility or the unborn child.
H401	Toxic to aquatic life.
H402	Harmful to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Additional Information	:	This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.
SDS Version Number	:	1.0
SDS Effective Date	:	10.03.2014

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SDS Revisions	:	A vertical bar (|) in the left margin indicates an amendment from the previous version.
Uses and Restrictions	:	This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier. This product is not to be used as a solvent or cleaning agent; for lighting or brightening fires; as a skin cleanser. This product is designed only to suit automotive applications and no provision is made for the requirements of aviation applications.
SDS Distribution	:	The information in this document should be made available to all who may handle the product.
Key/Legend to Abbrevations used in this SDS	:	The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.

Flam. Liq.	Flammable liquids
Asp. Tox.	Aspiration hazard
Muta.	Germ cell mutagenicity
Carc.	Carcinogenicity
Skin Corr.	Skin corrosion/irritation
STOT SE	Specific target organ toxicity - single exposure
	Toxic for Reproduction

Key Literature References	:	The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).
Disclaimer	:	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

1 – Product Identifier & Identity for the Chemical

Manufacturer: WD-40 Company Australia Pty Ltd **Address:** **41 Rawson Street (Level 2, Suite 23) Epping NSW, 2121, Australia** **Telephone:** **Information: +61 2 9868 2200** **Emergency only: 1800 024 973** **Poisons Information Centre:** **Australia:** 13 11 26 **New Zealand:** 0800 764 766 **New Zealand Contact Details:** **Name:** **Eproducts New Zealand Limited** **Address:** **7D Orbit Drive Albany New Zealand** **Telephone:** **Information:** 09 916 6750	**Product Name: WD-40 Aerosol** **Chemical Name:** Mixture **Product Use:** Lubricant, Penetrant, Drives Out Moisture, Removes and Protects Surfaces From Corrosion **Restriction on Use:** None Identified **SDS Date Of Preparation:** 23 July 2015

2 – Hazards Identification

Classification of the Hazardous Chemical (in accordance with WHS Regulation)

Health	Environmental	Physical
Aspiration Toxicity Category 1 Eye Irritant Category 2A Skin Irritant Category 2	Aquatic Acute Toxicity Category 3 Aquatic Chronic Toxicity Category 3	Flammable Aerosol Category 1 Gas Under Pressure: Compressed Gas

Label Elements

Contains: Naphtha (petroleum), hydrodesulfurized heavy; 1,2,4-Trimethyl benzene; 1,3,5-Trimethyl benzene; Xylene, Mixed Isomers; and Surfactant

Danger!
H222 Extremely flammable aerosol.
H280 Contains gas under pressure: may explode if heated.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H412 Harmful to aquatic life with long lasting effects.

Prevention
P210 Keep away from heat, sparks, open flames and 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.
P264 Wash thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves and eye protection.
Response
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P332+P313 If skin irritation occurs: Get medical attention.
P362 Take off contaminated clothing and wash it before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical attention.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor or physician.
P331 Do NOT induce vomiting.
Storage
P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
Disposal
P501 Dispose of contents and container in accordance with local and national regulations.

Other Hazards that do not Result in Classification: None

3 - Composition/Information on Ingredients

Ingredient	CAS #	Weight Percent	Substance Classification
Naphtha (petroleum), hydrodesulfurized heavy	64742-82-1	>60%	Flam. Liq. Cat 3 (H226) Asp. Tox. Cat 1 (H304)
Distillates, Hydrotreated Heavy Paraffinic (contains <3% DMSO)	64742-54-7	10-20%	Not Hazardous
Non-Hazardous Ingredients	Mixture	>10%	Not Hazardous
1,2,4-Trimethyl benzene	95-63-6	<10%	Flam. Liq. Cat 3 (H226) Acute Tox. Cat 4 (H332) Eye Irrit. Cat 2 (H319) Skin Irrit. Cat 2 (H315) STOT SE Cat 3 (H335) Aq. Chronic Cat 2 (H411)
1,3,5-Trimethyl benzene	108-67-8	<10%	Flam. Liq. Cat 3 (H226) STOT SE Cat 3 (H335) Aq. Chronic Cat 2 (H411)
Xylene, Mixed Isomers	1330-20-7	<10%	Flam. Liq. Cat 3 (H226) Acute Tox. Cat 4 (H312) Acute Tox. Cat 4 (H332) Skin Irrit. Cat 2 (H315)
Carbon Dioxide	124-38-9	2-4%	Not Hazardous
Surfactant	Proprietary	<1%	Eye Dam. Cat 1 (H318) Skin Irrit. Cat 2 (H315)

See Section 16 for full text of GHS Classification and H phrases

4 – First Aid Measures

Ingestion (Swallowed): Aspiration Hazard. DO NOT induce vomiting. Call a Poisons Information Center (phone 13 11 26 from anywhere in Australia or 0800 764 766 in New Zealand) immediately.
Eye Contact: Flush thoroughly with water. Remove contact lenses if present after the first 5 minutes and continue flushing for several more minutes. Get medical attention if irritation persists.
Skin Contact: Wash with soap and water. If irritation develops and persists, get medical attention.
Inhalation (Breathing): If irritation is experienced, move to fresh air. Get medical attention if irritation or other symptoms develop and persist.
Most Important Symptoms: May cause eye, skin, and respiratory irritation. Prolonged skin contact may cause drying of the skin. Inhalation may cause headache, dizziness, nausea and other symptoms of central nervous system depression. Accidental ingestion may cause gastrointestinal effects with irritation, nausea, vomiting, dizziness, coma and death. Aspiration into the lungs during ingestion or vomiting may cause lung damage.
Indication of Immediate Medical Attention and Special Treatment, if Needed: Immediate medical attention is required for ingestion.

5 – Fire Fighting Measures

Suitable Extinguishing Media: Use water fog, dry chemical, carbon dioxide or foam. Do not use water jet or flooding amounts of water. Burning product will float on the surface and spread fire.
Specific Hazards Arising from the Chemical: Extremely flammable aerosol. Contents under pressure. Keep away from ignition source and open fire. Exposure of containers to extreme heat and flames can cause them to rupture often with violent force. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back. A vapor and air mixture can create an explosion hazard in confined spaces.
Special Protective Equipment and Precautions for Fire-Fighters: Firefighters should always wear positive pressure self-contained breathing apparatus and full protective clothing. Use shielding to protect against bursting containers. Cool fire-exposed containers with water.

6 – Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Wear appropriate protective clothing (see Section 8). Eliminate all sources of ignition and ventilate area.
Environmental Precautions: Avoid releases to the environment. Report spills to authorities as required.
Methods and Materials for Containment/Cleanup: Leaking cans should be placed in a plastic bag or open pail until the pressure has dissipated. Contain and collect liquid with an inert absorbent and place in a container for disposal. Clean spill area thoroughly.

7 – Handling and Storage

Precautions for Safe Handling: Avoid contact with eyes and skin. Avoid breathing vapors or aerosols. Intentional misuse by deliberately concentrating vapors and inhaling can be harmful or fatal. Use only with adequate ventilation. Keep away from heat, sparks, pilot lights, hot surfaces and open flames. Unplug electrical tools, motors and appliances before spraying or bringing the can near any source of electricity. Electricity can burn a hole in the can and cause contents to burst into flames. To avoid serious burn injury, do not let the can touch battery terminals, electrical connections on motors or appliances or any other source of electricity. Wash thoroughly with soap and water after handling. Keep containers closed when not in use. Keep out of the reach of children. Do not puncture, crush or incinerate containers, even when empty.
Conditions for Safe Storage, including any incompatibilities: Store in a cool, dry ventilated area away from incompatible materials. Protect from physical damage. Do not store in direct sunlight, near open flames or above temperatures greater than 50°C.

8 – Exposure Controls /Personal Protection

Chemical	Occupational Exposure Limits	Biological Limit Value
Naphtha (petroleum), hydrodesulfurized heavy	350 mg/m3 TWA (manufacturer recommended) 5 mg/m3 TWA AU OEL (as oil mist, refined mineral) 5 mg/m3 TWA, 10 mg/m3 STEL NZ OEL (as oil mist, mineral) 5 mg/m3 TWA ACGIH TLV (inhalable) (as mineral oil)	None Established
Distillates, Hydrotreated Heavy Paraffinic	5 mg/m3 TWA AU OEL (as oil mist, refined mineral) 5 mg/m3 TWA, 10 mg/m3 STEL NZ OEL (as oil mist, mineral) 5 mg/m3 TWA ACGIH TLV (inhalable) (as mineral oil)	None Established
Non-Hazardous Ingredients	None Established	None Established
1,2,4-Trimethyl benzene	25 ppm TWA ACGIH TLV/AU/NZ OEL (as Trimethyl benzene, all isomers)	None Established
1,3,5-Trimethyl benzene	25 ppm TWA ACGIH TLV/AU/NZ OEL (as Trimethyl benzene, all isomers)	None Established
Xylene, Mixed Isomers	80 ppm TWA, 150 ppm STEL AU OEL 50 ppm TWA NZ OEL 100 ppm TWA, 150 ppm STEL ACGIH TLV	Methylhippuric acids in urine, End of shift, 1.5 g/g creatinine.
Carbon Dioxide	5000 ppm TWA, 30000 ppm STEL ACGIH TLV/AU/NZ OEL	None Established
Surfactant	None Established	None Established

The Following Controls are Recommended for Normal Consumer Use of this Product
Appropriate Engineering Controls: Use in a well-ventilated area.
Personal Protection:
Eye Protection: Avoid eye contact. Always spray product away from your face.
Skin Protection: Avoid prolonged or repeated skin contact. Chemical resistant gloves recommended for operations where skin contact is likely.
Respiratory Protection: None needed for normal use with adequate ventilation.

For Bulk Processing or Workplace Use the Following Controls are Recommended
Appropriate Engineering Controls: Use adequate general and local exhaust ventilation to maintain exposure levels below that occupational exposure limits.
Personal Protection:
Eye Protection: Safety goggles recommended where eye contact is possible.
Skin Protection: Wear chemical resistant gloves.
Respiratory Protection: None required if ventilation is adequate. If the occupational exposure limits are exceeded, wear an approved respirator. Respirator selection and use should be based on contaminant type, form and concentration. Follow applicable regulations and good Industrial Hygiene practice.
Work/Hygiene Practices: Eye wash facilities should be available. Wash hands after handling.
Other Protective Equipment: None required.

9 – Physical and Chemical Properties

Appearance and Odor:	Aerosol spray. Pleasant odor.	Partition Coefficient of n-octanol/water:	Not determined
Odor Threshold:	Not determined	Auto-ignition temperature:	Not determined
pH:	Not determined	Decomposition Temperature:	Not determined
Melting/Freezing Point:	Not applicable	Viscosity:	Not determined
Boiling Point / Range:	162-192°C (324-378°F) (Concentrate)	Specific Heat Value:	Not determined
Flash Point:	41-42°C (106-108°F) (Concentrate)	Particle Size:	Not applicable
Evaporation Rate (Butyl Acetate = 1):	Not determined	VOC:	49.5%
Flammability (solid, gas):	Not applicable	Percent Volatile:	78%
Flammable Limits:	LEL 0.7% UEL 7.0% (Concentrate)	Saturated Vapor Concentration:	Not determined
Vapor Pressure:	724 kPa @ 21°C (69.8°F)	Release of invisible flammable vapors and gases:	Yes
Vapor Density (air = 1):	>1	Aerosol Protection Level (NFPA 30B):	3
Relative Density (Water = 1):	Not determined	Solubility:	Insoluble in water

10 – Stability and Reactivity

Reactivity: Non-reactive
Chemical Stability: Stable under normal storage conditions.
Possibility of Hazardous Reactions: Will not occur.
Conditions to Avoid: Avoid extreme heat, flames and other sources of ignition. Avoid physical damage to aerosol can.
Incompatible Materials: Strong oxidizers.
Hazardous Decomposition Products: Carbon monoxide and carbon dioxide.

11 – Toxicological Information

Health Hazards:
Ingestion: Swallowing is an unlikely route of exposure for an aerosol product. Swallowing large amounts may produce gastrointestinal irritation, nausea, vomiting and diarrhea. This product is an aspiration hazard. If swallowed, can enter the lungs and may cause chemical pneumonitis, severe lung damage and death.
Eye Contact: Liquid sprayed into eyes may cause irritation. May cause redness, stinging, swelling, and tearing.
Skin Contact: May produce mild irritation. Prolonged and/or repeated contact may cause defatting with possible dermatitis.
Inhalation: Mist or vapor can irritate the throat and lungs. High concentrations may cause nasal and respiratory irritation and central nervous system effects such as headache, dizziness and nausea. Intentional abuse may be harmful or fatal.
Chronic Exposure: None known.
Medical Conditions Aggravated by Exposure: Preexisting eye, skin and respiratory conditions may be aggravated by exposure.

Acute Toxicity Values:
Naphtha (petroleum), hydrodesulfurized heavy: Oral rat LD50- >5000 mg/kg; Skin rabbit LD50- >3160 mg/kg.
Distillates, Hydrotreated Heavy Paraffinic: Oral rat LD50->15 gm/kg
Non-Hazardous Ingredients: No toxicity data available
1, 2, 4-Trimethyl benzene: Oral rat LD50 3400-6000 mg/kg; Skin rabbit LD50 - >3160 mg/kg

1, 3, 5-Trimethyl benzene: Inhalation rat LC50- 24000 mg/m3/4hr
Xylene, Mixed Isomers: Oral rat LD50 – 4300 mg/kg; Inhalation rat LC50 – 6350 ppm/4hr; Skin rabbit LD50- 1700 mg/kg
Surfactant: Oral rat LD50->3000 mg/kg

Skin Corrosion/Irritation: No data available for mixture. Based on the ingredients, 1, 2, 4-Trimethyl benzene and Xylene, this product is classified as a skin irritant.
Serious Eye Damage/Irritation: No data available for mixture. Based on the ingredients, 1, 2, 4-Trimethyl benzene and Surfactant, this product is classified as an eye irritant.
Respiratory or Skin Sensitization: This product is not expected to cause sensitization.
Germ Cell Mutagenicity: None of the components have been found to be mutagenic.
Carcinogenicity: None of the components are listed as a carcinogen or suspected carcinogen by IARC, NTP, ACGIH, US OSHA or the EU CLP.
Reproductive Toxicity: None of the components are known to cause adverse reproductive effects.
Specific Target Organ Toxicity:
Single Exposure: No data available.
Repeated Exposure: No data available.
Aspiration Hazard: No data available. Based on the ingredients, this product is expected to present an aspiration hazard and may be harmful if the contents are swallowed.

12 – Ecological Information

Ecotoxicity:
Naphtha (petroleum), hydrodesulfurized heavy: 96 hr LC50 Fathead minnow – 8.2 mg/L; 96 hr LC50 Crangon Crangon – 4.3 mg/L
1, 2, 4-Trimethyl benzene: 96 hr LC50 Fathead minnows – 7.72 mg/L; 48 hr EC50 Daphnia magna – 6.14 mg/L
1, 3, 5-Trimethyl benzene: 96 hr LC50 Goldfish - 12.52 mg/L; 48 hr LC50 Daphnia magna- 6.0 mg/L
Xylene, Mixed Isomers: 96 hr LC50 Goldfish- 36.81 mg/L; 96 hr LC50 Rainbow trout – 13.5 mg/L

This product has been classified as harmful to the aquatic environment with long lasting effects based on the components. Releases to the environment should be avoided.

Persistence and Degradability: No data available.
Bioaccumulative Potential: No data available.
Mobility in Soil: No data available.
Other Adverse Effects: None Known

13 - Disposal Considerations

Safe Handling and Disposal Method: Aerosol containers should not be punctured, compacted in home trash compactors or incinerated.
Disposal of Contaminated Packaging: Empty containers may be disposed of through normal waste management options.
Environmental Regulations: Dispose of all waste product, absorbents, and other materials in accordance with applicable Federal, state and local regulations.

14 – Transportation Information

IMDG Shipping Name: Aerosols
IMDG Hazard Class: 2.1
UN Number: UN1950
Marine Pollutant: No

IATA Shipping Name: Aerosols, Flammable
IATA Hazard Class: 2.1

UN Number: UN1950

ADG Shipping Name: Aerosols
ADG Hazard Class: 2.1
UN Number: UN1950
Hazchem (Emergency Action) Code: 2YE

Special Precautions for User: WD-40 Company does not test aerosol cans to assure that they meet the pressure and other requirements for transport by air. We do not recommend that our aerosol products be transported by air.

15 – Regulatory Information

Montreal Protocol (Ozone Depleting Substances): None present
The Stockholm Convention (Persistent Organic Pollutants): None present
The Rotterdam Convention (Prior Informed Consent): Not applicable
Basel Convention: Not applicable
International Convention for the Prevention of Pollution from Ships (MARPOL): 1, 2, 4-Trimethyl benzene and 1, 3, 5-Trimethyl benzene are listed.
Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP): Not applicable

Australian Inventory of Chemical Substances: All of the components of this product are listed on the AICS inventory.

New Zealand:
HSNO Approval Number: HSR002515
Considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation. Classified as Dangerous Good for transport purposes.

HSNO Hazard Classes: 2.1.2A, 6.1E, 6.3A, 6.4A, 9.1C, 9.1D

New Zealand Inventory: All the ingredients comply with the HSNO regulations.

16 – Other Information

REVISION DATE: 23 July 2015 SUPERSEDES: 11 July 2014

Prepared By: Industrial Health & Safety Consultants, Inc.

Full Text of GHS Classification and H Phrases from Section 3:
Acute Tox. Cat 4 Acute Toxicity Category 4
Aq. Chronic Cat 2 Aquatic Chronic Toxicity Category 2
Asp. Tox. Cat 1 Aspiration Toxicity Category 1
Eye Dam. Cat 1 Eye Damage Category 1
Eye Irrit. Cat 2 Eye Irritant Category 2
Flam. Liq. Cat 3 Flammable Liquid Category 3
Skin Irrit. Cat 2 Skin Irritant Category 2
STOT SE Cat 3 Specific Target Organ Toxicity Single Exposure Category 3
H226 Flammable liquid and vapor.
H304 May be fatal if swallowed and enters airways.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.

H335 May cause respiratory irritation.
H411 Toxic to aquatic life with long lasting effects.

List of Abbreviations or Acronyms:
ACGIH American Conference of Industrial Hygienists
ADG Australian Dangerous Goods
AICS Australian Inventory of Chemical Substances
AU Australia
EC Effective Concentration
EU European Union
GHS Globally Harmonized System of Classification and Labelling of Chemicals
HSNO Hazardous Substances and New Organisms
IARC International Agency of Research on Cancer
IATA International Air Transport Association
IMDG International Maritime Dangerous Goods
LC Lethal Concentration
LD Lethal Dosage
LEL Lower Explosive Limit
NTP National Toxicology Program
OEL Occupational Exposure Limits
US OSHA United States Occupational Safety and Health Administration
PEL Permissible Exposure Limit
SDS Safety Data Sheet
STEL Short Term Exposure Limit
TWA Time-Weighted Average
UEL Upper Explosive Limit
VOC Volatile Organic Compounds
WHS Work Health and Safety

REVIEWED BY: *I. Kowalski* TITLE: Manager Regulatory Affairs

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