Basics SDS 2016

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Safety Data Sheet

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

Material Name	:	**Diesel (ULSD/Gasoil)**
Recommended Use / Restrictions of Use	:	Fuel for on-road diesel-powered engines. Fuel for use in off-road diesel engines, boilers, gas turbines and other combustion equipment.
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 3 Aspiration hazard, Category 1 Acute toxicity, Category 4, Inhalation Skin corrosion/irritation, Category 2 Carcinogenicity, Category 2 Specific target organ toxicity - repeated exposure, Category 2, Blood., Thymus., Liver Hazardous to the aquatic environment - Long-term Hazard, Category 2 Acute hazards to the aquatic environment, Category 2
GHS Label Elements **Symbol(s)**	:	
Signal Words	:	Danger
Hazard Statement	:	PHYSICAL HAZARDS: H226: Flammable liquid and vapour. HEALTH HAZARDS:

H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H332: Harmful if inhaled.
H351: Suspected of causing cancer.
H373: May cause damage to organs or organ systems through prolonged or repeated exposure.

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

GHS Precautionary Statements

Prevention : P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response : P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331: Do NOT induce vomiting.

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 : Vapour in the headspace of tanks and containers may ignite and explode at temperatures exceeding auto-ignition temperature, where vapour concentrations are within the flammability range.
May ignite on surfaces at temperatures above auto-ignition temperature.
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.

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 C9 to C25 range. May also contain several additives at <0.1% v/v each. May contain cetane improver (Ethyl Hexyl Nitrate) at <0.2% v/v.

May contain catalytically cracked oils in which polycyclic aromatic compounds, mainly 3-ring but some 4- to 6-ring species are present.

Classification of components according to GHS

Chemical Identity	Synonyms	CAS	Hazard Class (category)	Hazard Statement	Conc.
Fuels, diesel	Fuels, diesel	68334-30-5	Flam. Liq., 3; Asp. Tox., 1; Acute Tox., 4; Skin Corr., 2; Carc., 2; STOT RE, 2; Aquatic Chronic, 2; Aquatic Acute, 2;	H226; H304; H332; H315; H351; H373; H411; H401;	60.00 - 100.00 %
Distillates (Fischer-Tropsch) C8-26 - Branched and Linear	Distillates (Fischer-Tropsch) C8-26 - Branched and Linear	848301-67-7	Asp. Tox., 1; Flam. Liq., 4;	H304; H227;	0.00 - 30.00 %
Kerosine (Fischer Tropsch), Full range, C8-C16 branched and linear alkanes	Kerosine (Fischer Tropsch), Full range, C8-C16 branched and linear alkanes	848301-66-6	Asp. Tox., 1; Flam. Liq., 3;	H304; H226;	0.00 - 10.00 %

Additional Information : Dyes and markers can be used to indicate tax status and prevent fraud. Contains Cumene, CAS# 98-82-8 Contains Naphthalene, CAS # 91-20-3.

Refer to Ch 16 for full text of H 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 eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
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. Give nothing by mouth.
Most Important Symptoms/Effects, Acute & Delayed	:	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. Skin irritation signs and symptoms may include a burning sensation, redness, or swelling.
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). Oxides of sulphur. Unidentified organic and inorganic compounds. Carbon monoxide may be evolved if incomplete combustion occurs. Will float and can be reignited on surface water. Flammable vapours may be present even at temperatures below the flash point. The vapour is heavier than air, spreads along the ground and distant ignition is possible.
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 spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal. Observe the relevant local and international regulations. Evacuate the area of all non-essential personnel. Ventilate contaminated area thoroughly. 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 and evacuate all personnel. Attempt to disperse the gas or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas meter.
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 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. 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. Shovel into a suitable clearly marked container for disposal or reclamation in accordance with local regulations.

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.

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. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Never siphon by mouth. Contaminated leather articles including shoes cannot be decontaminated and should be destroyed to prevent reuse.
Maintenance and Fuelling Activities - Avoid inhalation of vapours and contact with skin.

Precautions for Safe Handling : Avoid inhaling vapour and/or mists. Avoid prolonged or repeated contact with skin. When using do not eat or drink. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Earth all equipment. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. The vapour is heavier than air, spreads along the ground and distant ignition is possible.

Conditions for Safe Storage : Drum and small container storage: Drums should be stacked to a maximum of 3 high. Use properly labelled and closeable containers. 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. Must be stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat. Vapours from tanks should not be released to

		atmosphere. Breathing losses during storage should be controlled by a suitable vapour treatment system. The vapour is heavier than air. Beware of accumulation in pits and confined spaces. Keep container tightly closed and in a cool, well-ventilated place. 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. Keep in a bunded area with a sealed (low permeability) floor, to provide containment against spillage. Prevent ingress of water.
Product Transfer	:	Avoid splash filling. 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. Keep containers closed when not in use. Contamination resulting from product transfer may give rise to light hydrocarbon vapour in the headspace of tanks that have previously contained gasoline. This vapour may explode if there is a source of ignition. Partly filled containers present a greater hazard than those that are full, therefore handling, transfer and sampling activities need special care. 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) 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.

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

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
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	

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Fuels, diesel	ACGIH	SKIN_DES(Inhalable fraction and vapor.)			Can be absorbed through the skin.as total hydrocarbons
	ACGIH	TWA(Inhalable fraction and vapor.)		100 mg/m3	as total hydrocarbons
Cumene	ACGIH	TWA	50 ppm		
	SG OEL	TWA	50 ppm	246 mg/m3	

Additional Information : 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
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. Information on accidental release measures are to be found in section 6. 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	:	Colourless to yellowish. Liquid.
Odour	:	May contain a reodorant
Odour threshold	:	Data not available
pH	:	Not applicable
Initial Boiling Point and Boiling Range	:	170 - 390 °C / 338 - 734 °F
Pour point	:	<= 6 °C / 43 °F
Flash point	:	> 55 °C / 131 °F
Upper / lower Flammability or	:	1 - 6 %(V)

Explosion limits		
Auto-ignition temperature	:	> 220 °C / 428 °F
Vapour pressure	:	1 hPa at 20 °C / 68 °F
Relative Density	:	Data not available
Density	:	0.8 - 0.89 g/cm3 at 15 °C / 59 °F
Water solubility	:	Data not available
Solubility in other solvents	:	Data not available
n-octanol/water partition coefficient (log Pow)	:	3 - 6
Dynamic viscosity	:	Data not available
Kinematic viscosity	:	1.5 - 6 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	:	Not applicable.

10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under normal use conditions.
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.
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 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 , Rat
Acute Dermal Toxicity	:	Low toxicity: LD50 >2000 mg/kg , Rabbit
Acute Inhalation Toxicity	:	Harmful if inhaled. LC50 > 1.0 - <= 5.0 mg/l , 4 h, Rat High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
Skin corrosion/irritation	:	Irritating to skin.
Serious eye damage/irritation	:	Expected to be slightly irritating.
Respiratory Irritation	:	Inhalation of vapours or mists may cause irritation to the respiratory system.
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	:	Positive in in-vitro, but negative in in-vivo mutagenicity assays.
Carcinogenicity	:	Limited evidence of carcinogenic effect. Repeated skin contact has resulted in irritation and skin cancer in animals.

Material	:	**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

Fuels, diesel	:	ACGIH Group A3: Confirmed animal carcinogen with unknown relevance to humans.
Fuels, diesel	:	GHS / CLP: Carcinogenicity Category 2
Distillates (Fischer-Tropsch) C8-26 - Branched and Linear	:	GHS / CLP: No carcinogenicity classification
Kerosine (Fischer Tropsch), Full range, C8-C16 branched and linear alkanes	:	GHS / CLP: No carcinogenicity classification
Cumene	:	IARC 2B: Possibly carcinogenic to humans.
Cumene	:	GHS / CLP: No carcinogenicity classification

Reproductive and Developmental Toxicity : Not expected to impair fertility. Not expected to be a developmental toxicant.

Specific target organ toxicity - single exposure : Not classified.

Specific target organ toxicity - repeated exposure : May cause damage to organs or organ systems through prolonged or repeated exposure. Blood. Thymus. Liver.

Additional Information : Classifications by other authorities under varying regulatory frameworks may exist.

12. ECOLOGICAL INFORMATION

Basis for Assessment : Information given is based on a knowledge of the components and the ecotoxicology of similar products. 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. 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 practically non toxic: LL/EL/IL50 > 100 mg/l

Chronic Toxicity

Fish : NOEC/NOEL expected to be > 0.01 - <= 0.1 mg/l (based on

		modeled data)
Aquatic crustacea	:	NOEC/NOEL expected to be > 0.1 - <= 1.0 mg/l (based on modeled data)
Mobility	:	Partly evaporates from water or soil surfaces, but a significant proportion will remain after one day. If product enters soil, one or more constituents will be mobile and may contaminate groundwater. Large volumes may penetrate soil and could contaminate groundwater. Floats on water.
Persistence/degradability	:	Major constituents are inherently biodegradable. The volatile constituents will oxidize rapidly by photochemical reactions in air.
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. 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. 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.
Container Disposal	:	Send to drum recoverer or metal reclaimer. Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard if heated above the flash point. Do not puncture, cut or weld uncleaned drums. Do not pollute the soil, water or environment with the waste container. Comply with any local recovery or waste disposal regulations.
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	:	III
Hazard indentification no.	:	30
UN number	:	1202
Danger label (primary risk)	:	3
Proper shipping name	:	DIESEL FUEL
Environmentally Hazardous	:	Yes

IMDG

Identification number	UN 1202
Proper shipping name	DIESEL FUEL
Class / Division	3
Packing group	III
Environmental hazards:	Yes

IATA (Country variations may apply)

UN number	:	1202
Proper shipping name	:	Diesel fuel
Class / Division	:	3
Packing group	:	III

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 Safety and Health (General Provision) Regulations	:	This product is subject to the requirement in the Act/ Regulations.
Environmental Protection and Management Act and Environmental Protection and Management	:	This product is subject to the requirement in the Act/ Regulations.

(Hazardous Substances) 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 fuels, diesel.
Other Information	:	IARC has classified diesel exhaust emissions as a Class 1 carcinogen - carcinogenic to humans. Steps should be taken to prevent personal exposure to diesel exhaust emissions.

16. OTHER INFORMATION

Hazard Statement

H226	Flammable liquid and vapour.
H227	Combustible liquid.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H373	May cause damage to organs or organ systems through prolonged or repeated exposure.
H401	Toxic 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	:	1.1
SDS Effective Date	:	10.03.2014
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.

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
Acute Tox.	Acute toxicity
Skin Corr.	Skin corrosion/irritation
Carc.	Carcinogenicity
STOT RE	Specific target organ toxicity - repeated exposure

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

Material Name: Gasoline All Grades

SDS No. 9950
US GHS

Synonyms: Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

* * * Section 1 - Product and Company Identification * * *

Manufacturer Information

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

Phone: 732-750-6000 Corporate EHS
Emergency # 800-424-9300 CHEMTREC
www.hess.com (Environment, Health, Safety Internet Website)

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Liquid - Category 2
Skin Corrosion/Irritation - Category 2
Germ Cell Mutagenicity - Category 1B
Carcinogenicity - Category 1B
Toxic to Reproduction - Category 1A
Specific Target Organ Toxicity (Single Exposure) - Category 3 (respiratory irritation, narcosis)
Specific Target Organ Toxicity (Repeat Exposure) - Category 1 (liver, kidneys, bladder, blood, bone marrow, nervous system)
Aspiration Hazard - Category 1
Hazardous to the Aquatic Environment – Acute Hazard - Category 3

GHS LABEL ELEMENTS

Symbol(s)

Signal Word

DANGER

Hazard Statements

Highly flammable liquid and vapour.
Causes skin irritation.
May cause genetic defects.
May cause cancer.
May damage fertility or the unborn child.
May cause respiratory irritation.
May cause drowsiness or dizziness.
Causes damage to organs (liver, kidneys, bladder, blood, bone marrow, nervous system) through prolonged or repeated exposure.
May be fatal if swallowed and enters airways.
Harmful to aquatic life.

Precautionary Statements

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.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash hands and forearms thoroughly after handling.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe mist/vapours/spray.
Use only outdoors or in well-ventilated area.
Do not eat, drink or smoke when using this product.
Avoid release to the environment.

Response

In case of fire: Use water spray, fog, dry chemical fire extinguishers or hand held fire extinguisher.
IF ON SKIN (or hair): Wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing and wash before reuse. If skin irritation occurs, get medical advice/attention.
IF exposed or concerned: Get medical advice/attention.
IF INHALED: 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.
Get medical advice/attention if you feel unwell.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting.

Storage

Store in a well-ventilated place.
Keep cool. Keep container tightly closed.
Store locked up.

Disposal

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

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
86290-81-5	Gasoline, motor fuel	100
108-88-3	Toluene	1-25
106-97-8	Butane	<10
1330-20-7	Xylenes (o-, m-, p- isomers)	1-15
95-63-6	Benzene, 1,2,4-trimethyl-	<6
64-17-5	Ethyl alcohol	0-10
100-41-4	Ethylbenzene	<3
71-43-2	Benzene	0.1-4.9

110-54-3	Hexane	0.5-4

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol). Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

First Aid: Skin

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

First Aid: Inhalation

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or gaseous extinguishing agent.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment. Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Caution, flammable vapors may accumulate in closed containers.

Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

USE ONLY AS A MOTOR FUEL.
DO NOT SIPHON BY MOUTH

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage Procedures

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

Incompatibilities

Keep away from strong oxidizers.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Gasoline, motor fuel (86290-81-5)

ACGIH: 300 ppm TWA
500 ppm STEL

Toluene (108-88-3)

ACGIH: 20 ppm TWA
OSHA: 200 ppm TWA; 375 mg/m3 TWA
150 ppm STEL; 560 mg/m3 STEL
NIOSH: 100 ppm TWA; 375 mg/m3 TWA
150 ppm STEL; 560 mg/m3 STEL

Butane (106-97-8)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)
OSHA: 800 ppm TWA; 1900 mg/m3 TWA
NIOSH: 800 ppm TWA; 1900 mg/m3 TWA

Xylenes (o-, m-, p- isomers) (1330-20-7)

ACGIH: 100 ppm TWA
150 ppm STEL
OSHA: 100 ppm TWA; 435 mg/m3 TWA
150 ppm STEL; 655 mg/m3 STEL

Benzene, 1,2,4-trimethyl- (95-63-6)

NIOSH: 25 ppm TWA; 125 mg/m3 TWA

Ethyl alcohol (64-17-5)

ACGIH: 1000 ppm STEL
OSHA: 1000 ppm TWA; 1900 mg/m3 TWA
NIOSH: 1000 ppm TWA; 1900 mg/m3 TWA

Ethylbenzene (100-41-4)

ACGIH: 20 ppm TWA
OSHA: 100 ppm TWA; 435 mg/m3 TWA
125 ppm STEL; 545 mg/m3 STEL
NIOSH: 100 ppm TWA; 435 mg/m3 TWA
125 ppm STEL; 545 mg/m3 STEL

Benzene (71-43-2)

ACGIH: 0.5 ppm TWA
2.5 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 5 ppm STEL (Cancer hazard, Flammable, See 29 CFR 1910.1028, 15 min); 0.5 ppm Action Level; 1 ppm TWA
NIOSH: 0.1 ppm TWA
1 ppm STEL

Hexane (110-54-3)

ACGIH: 50 ppm TWA
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 500 ppm TWA; 1800 mg/m3 TWA
NIOSH: 50 ppm TWA; 180 mg/m3 TWA

Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Personal Protective Equipment: Respiratory

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Personal Protective Equipment: Hands

Gloves constructed of nitrile, neoprene, or PVC are recommended.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Translucent, straw-colored or light yellow	**Odor:**	Strong, characteristic aromatic hydrocarbon odor. Sweet-ether like
Physical State:	Liquid	**pH:**	ND
Vapor Pressure:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C)	**Vapor Density:**	AP 3-4
Boiling Point:	85-437 °F (39-200 °C)	**Melting Point:**	ND
Solubility (H2O):	Negligible to Slight	**Specific Gravity:**	0.70-0.78
Evaporation Rate:	10-11	**VOC:**	ND
Percent Volatile:	100%	**Octanol/H2O Coeff.:**	ND
Flash Point:	-45 °F (-43 °C)	**Flash Point Method:**	PMCC
Upper Flammability Limit (UFL):	7.6%	**Lower Flammability Limit (LFL):**	1.4%
Burning Rate:	ND	**Auto Ignition:**	>530°F (>280°C)

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products

Keep away from strong oxidizers.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

A: General Product Information

Harmful if swallowed.

B: Component Analysis - LD50/LC50

Gasoline, motor fuel (86290-81-5)

Inhalation LC50 Rat >5.2 mg/L 4 h; Oral LD50 Rat 14000 mg/kg; Dermal LD50 Rabbit >2000 mg/kg

Toluene (108-88-3)

Inhalation LC50 Rat 12.5 mg/L 4 h; Inhalation LC50 Rat >26700 ppm 1 h; Oral LD50 Rat 636 mg/kg; Dermal LD50 Rabbit 8390 mg/kg; Dermal LD50 Rat 12124 mg/kg

Butane (106-97-8)

Inhalation LC50 Rat 658 mg/L 4 h

Xylenes (o-, m-, p- isomers) (1330-20-7)
Inhalation LC50 Rat 5000 ppm 4 h; Inhalation LC50 Rat 47635 mg/L 4 h; Oral LD50 Rat 4300 mg/kg; Dermal LD50 Rabbit >1700 mg/kg

Benzene, 1,2,4-trimethyl- (95-63-6)
Inhalation LC50 Rat 18 g/m3 4 h; Oral LD50 Rat 3400 mg/kg; Dermal LD50 Rabbit >3160 mg/kg

Ethyl alcohol (64-17-5)
Oral LD50 Rat 7060 mg/kg; Inhalation LC50 Rat 124.7 mg/L 4 h

Ethylbenzene (100-41-4)
Inhalation LC50 Rat 17.2 mg/L 4 h; Oral LD50 Rat 3500 mg/kg; Dermal LD50 Rabbit 15354 mg/kg

Benzene (71-43-2)
Inhalation LC50 Rat 13050-14380 ppm 4 h; Oral LD50 Rat 1800 mg/kg

Hexane (110-54-3)
Inhalation LC50 Rat 48000 ppm 4 h; Oral LD50 Rat 25 g/kg; Dermal LD50 Rabbit 3000 mg/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Moderate irritant. Contact with liquid or vapor may cause irritation.

Potential Health Effects: Ingestion

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

Potential Health Effects: Inhalation

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This product may cause genetic defects.

Carcinogenicity

A: General Product Information

May cause cancer.

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

B: Component Carcinogenicity

Gasoline, motor fuel (86290-81-5)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

Toluene (108-88-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 71 [1999]; Monograph 47 [1989] (Group 3 (not classifiable))

Xylenes (o-, m-, p- isomers) (1330-20-7)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 71 [1999]; Monograph 47 [1989] (Group 3 (not classifiable))

Ethyl alcohol (64-17-5)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
IARC: Monograph 100E [in preparation] (in alcoholic beverages); Monograph 96 [2010] (in alcoholic beverages) (Group 1 (carcinogenic to humans))

Ethylbenzene (100-41-4)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
IARC: Monograph 77 [2000] (Group 2B (possibly carcinogenic to humans))

Benzene (71-43-2)

ACGIH: A1 - Confirmed Human Carcinogen
OSHA: 5 ppm STEL (Cancer hazard, Flammable, See 29 CFR 1910.1028, 15 min); 0.5 ppm Action Level; 1 ppm TWA
NIOSH: potential occupational carcinogen
NTP: Known Human Carcinogen (Select Carcinogen)
IARC: Monograph 100F [in preparation]; Supplement 7 [1987]; Monograph 29 [1982] (Group 1 (carcinogenic to humans))

Reproductive Toxicity

This product is suspected of damaging fertility or the unborn child.

Specified Target Organ General Toxicity: Single Exposure

This product may cause drowsiness or dizziness.

Specified Target Organ General Toxicity: Repeated Exposure

This product causes damage to organs through prolonged or repeated exposure.

Aspiration Respiratory Organs Hazard

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Very toxic to aquatic life with long lasting effects. Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Gasoline, motor fuel (86290-81-5)

Test & Species		Conditions
96 Hr LC50 Alburnus alburnus	119 mg/L [static]	
96 Hr LC50 Cyprinodon variegatus	82 mg/L [static]	
72 Hr EC50 Pseudokirchneriella subcapitata	56 mg/L	
24 Hr EC50 Daphnia magna	170 mg/L	

Toluene (108-88-3)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	15.22-19.05 mg/L [flow-through]	1 day old
96 Hr LC50 Pimephales promelas	12.6 mg/L [static]	
96 Hr LC50 Oncorhynchus mykiss	5.89-7.81 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	14.1-17.16 mg/L [static]	
96 Hr LC50 Oncorhynchus mykiss	5.8 mg/L [semi-static]	
96 Hr LC50 Lepomis macrochirus	11.0-15.0 mg/L [static]	
96 Hr LC50 Oryzias latipes	54 mg/L [static]	
96 Hr LC50 Poecilia reticulata	28.2 mg/L [semi-static]	
96 Hr LC50 Poecilia reticulata	50.87-70.34 mg/L [static]	
96 Hr EC50 Pseudokirchneriella subcapitata	>433 mg/L	
72 Hr EC50 Pseudokirchneriella subcapitata	12.5 mg/L [static]	
48 Hr EC50 Daphnia magna	5.46 - 9.83 mg/L [Static]	
48 Hr EC50 Daphnia magna	11.5 mg/L	

Xylenes (o-, m-, p- isomers) (1330-20-7)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	13.4 mg/L [flow-through]	

96 Hr LC50 Oncorhynchus mykiss	2.661-4.093 mg/L [static]
96 Hr LC50 Oncorhynchus mykiss	13.5-17.3 mg/L
96 Hr LC50 Lepomis macrochirus	13.1-16.5 mg/L [flow-through]
96 Hr LC50 Lepomis macrochirus	19 mg/L
96 Hr LC50 Lepomis macrochirus	7.711-9.591 mg/L [static]
96 Hr LC50 Pimephales promelas	23.53-29.97 mg/L [static]
96 Hr LC50 Cyprinus carpio	780 mg/L [semi-static]
96 Hr LC50 Cyprinus carpio	>780 mg/L
96 Hr LC50 Poecilia reticulata	30.26-40.75 mg/L [static]
48 Hr EC50 water flea	3.82 mg/L
48 Hr LC50 Gammarus lacustris	0.6 mg/L

Benzene, 1,2,4-trimethyl- (95-63-6)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	7.19-8.28 mg/L [flow-through]
48 Hr EC50 Daphnia magna	6.14 mg/L

Ethyl alcohol (64-17-5)

Test & Species	Conditions
96 Hr LC50 Oncorhynchus mykiss	12.0 - 16.0 mL/L [static]
96 Hr LC50 Pimephales promelas	>100 mg/L [static]
96 Hr LC50 Pimephales promelas	13400 - 15100 mg/L [flow-through]
48 Hr LC50 Daphnia magna	9268 - 14221 mg/L
24 Hr EC50 Daphnia magna	10800 mg/L
48 Hr EC50 Daphnia magna	2 mg/L [Static]

Ethylbenzene (100-41-4)

Test & Species	Conditions
96 Hr LC50 Oncorhynchus mykiss	11.0-18.0 mg/L [static]
96 Hr LC50 Oncorhynchus mykiss	4.2 mg/L [semi-static]
96 Hr LC50 Pimephales promelas	7.55-11 mg/L [flow-through]
96 Hr LC50 Lepomis macrochirus	32 mg/L [static]
96 Hr LC50 Pimephales promelas	9.1-15.6 mg/L [static]
96 Hr LC50 Poecilia reticulata	9.6 mg/L [static]
72 Hr EC50 Pseudokirchneriella subcapitata	4.6 mg/L
96 Hr EC50 Pseudokirchneriella subcapitata	>438 mg/L
72 Hr EC50 Pseudokirchneriella subcapitata	2.6 - 11.3 mg/L [static]

96 Hr EC50 Pseudokirchneriella subcapitata	1.7 - 7.6 mg/L [static]
48 Hr EC50 Daphnia magna	1.8 - 2.4 mg/L

Benzene (71-43-2)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	10.7-14.7 mg/L [flow-through]
96 Hr LC50 Oncorhynchus mykiss	5.3 mg/L [flow-through]
96 Hr LC50 Lepomis macrochirus	22.49 mg/L [static]
96 Hr LC50 Poecilia reticulata	28.6 mg/L [static]
96 Hr LC50 Pimephales promelas	22330-41160 µg/L [static]
96 Hr LC50 Lepomis macrochirus	70000-142000 µg/L [static]
72 Hr EC50 Pseudokirchneriella subcapitata	29 mg/L
48 Hr EC50 Daphnia magna	8.76 - 15.6 mg/L [Static]
48 Hr EC50 Daphnia magna	10 mg/L

Hexane (110-54-3)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	2.1-2.98 mg/L [flow-through]
24 Hr EC50 Daphnia magna	>1000 mg/L

Persistence/Degradability

No information available.

Bioaccumulation

No information available.

Mobility in Soil

No information available.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

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

* * * Section 14 - Transportation Information * * *

Component Marine Pollutants

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants.

Component	CAS #	
Gasoline, motor fuel	86290-81-5	DOT regulated marine pollutant

DOT Information

Shipping Name: Gasoline
UN #: 1203 **Hazard Class:** 3 **Packing Group:** II
Placard:

* * * Section 15 - Regulatory Information * * *

Regulatory Information

A: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Toluene (108-88-3)
SARA 313: 1.0 % de minimis concentration
CERCLA: 1000 lb final RQ; 454 kg final RQ

Xylenes (o-, m-, p- isomers) (1330-20-7)
SARA 313: 1.0 % de minimis concentration
CERCLA: 100 lb final RQ; 45.4 kg final RQ

Benzene, 1,2,4-trimethyl- (95-63-6)
SARA 313: 1.0 % de minimis concentration

Ethylbenzene (100-41-4)
SARA 313: 0.1 % de minimis concentration
CERCLA: 1000 lb final RQ; 454 kg final RQ

Benzene (71-43-2)
SARA 313: 0.1 % de minimis concentration
CERCLA: 10 lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule); 4.54 kg final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule)

Hexane (110-54-3)

SARA 313: 1.0 % de minimis concentration
CERCLA: 5000 lb final RQ; 2270 kg final RQ

SARA Section 311/312 – Hazard Classes

Acute Health	Chronic Health	Fire	Sudden Release of Pressure	Reactive
X	X	X	--	--

Component Marine Pollutants

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants.

Component	CAS #	
Gasoline, motor fuel	86290-81-5	DOT regulated marine pollutant

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	**CAS**	**CA**	**MA**	**MN**	**NJ**	**PA**	**RI**
Gasoline, motor fuel	86290-81-5	No	No	No	No	Yes	No
Toluene	108-88-3	Yes	Yes	Yes	Yes	Yes	No
Butane	106-97-8	Yes	Yes	Yes	Yes	Yes	No
Xylenes (o-, m-, p- isomers)	1330-20-7	Yes	Yes	Yes	Yes	Yes	No
Benzene, 1,2,4-trimethyl-	95-63-6	No	Yes	Yes	Yes	Yes	No
Ethyl alcohol	64-17-5	Yes	Yes	Yes	Yes	Yes	No
Ethylbenzene	100-41-4	Yes	Yes	Yes	Yes	Yes	No
Benzene	71-43-2	Yes	Yes	Yes	Yes	Yes	No
Hexane	110-54-3	No	Yes	Yes	Yes	Yes	No

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.
WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Toluene	108-88-3	1 %
Butane	106-97-8	1 %
Benzene, 1,2,4-trimethyl-	95-63-6	0.1 %
Ethyl alcohol	64-17-5	0.1 %
Ethylbenzene	100-41-4	0.1 %
Benzene	71-43-2	0.1 %
Hexane	110-54-3	1 %

Additional Regulatory Information

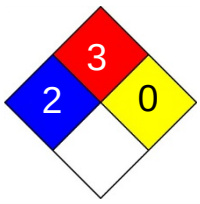
Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Gasoline, motor fuel	86290-81-5	No	DSL	EINECS
Toluene	108-88-3	Yes	DSL	EINECS
Butane	106-97-8	Yes	DSL	EINECS
Xylenes (o-, m-, p- isomers)	1330-20-7	Yes	DSL	EINECS
Benzene, 1,2,4-trimethyl-	95-63-6	Yes	DSL	EINECS
Ethyl alcohol	64-17-5	Yes	DSL	EINECS
Ethylbenzene	100-41-4	Yes	DSL	EINECS
Benzene	71-43-2	Yes	DSL	EINECS
Hexane	110-54-3	Yes	DSL	EINECS

* * * Section 16 - Other Information * * *

NFPA® Hazard Rating

Health	2
Fire	3
Reactivity	0



HMIS® Hazard Rating

Health	2	Moderate
Fire	3	Serious
Physical	0	Minimal
		*Chronic

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Literature References

None

Other Information

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

End of Sheet

Safety Data Sheet

Material Name: Kerosene K1 and K2

SDS No. 0290
US GHS

Synonyms: K-1 and K-2 Kerosene; Kero; Kerosene Motor Fuel; Tax Exempt Kerosene; #1 Diesel; #1 Distillate; Dyed Kerosene

* * * Section 1 - Product and Company Identification * * *

Manufacturer Information

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

Phone: 732-750-6000 Corporate EHS
Emergency # 800-424-9300 CHEMTREC
www.hess.com (Environment, Health, Safety Internet Website)

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Liquids - Category 3
Skin Corrosion/Irritation – Category 2
Eye Damage/Irritation – Category 2B
Carcinogenicity – Category 2
Specific Target Organ Toxicity (Single Exposure) – Category 3 (respiratory irritation, narcosis)
Aspiration Hazard - Category 1

GHS LABEL ELEMENTS

Symbol(s)

Signal Word

Danger

Hazard Statements

Flammable liquid and vapor.
Causes skin irritation.
Causes eye irritation.
Suspected of causing cancer.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May be fatal if swallowed and enters airways.

Precautionary Statements

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.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash hands and forearms thoroughly after handling.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing fume/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.

Response
In case of fire: Use water spray, fog or foam.
IF ON SKIN (or hair): Wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing and wash before reuse. If skin irritation occurs: Get medical advice/attention.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
If exposed or concerned: Get medical advice/attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center or doctor if you feel unwell.
IF SWALLOWED: Immediately call a poison center or doctor/physician. Do NOT induce vomiting.

Storage
Store in a well-ventilated place. Keep cool.
Keep container tightly closed.
Store locked up.

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
8008-20-6	Kerosene	100
91-20-3	Naphthalene	0.04

A complex combination of hydrocarbons including naphthenes, paraffins, and aromatics.

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

First Aid: Skin
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops. Thermal burns require immediate medical attention depending on the severity and the area of the body burned.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

First Aid: Inhalation

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, and other gaseous agents.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment. Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Caution, flammable vapors may accumulate in closed containers.

Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame! No smoking or open flame in storage, use or handling areas. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage Procedures

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks."

Incompatibilities

Keep away from strong oxidizers.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Kerosene (8008-20-6)

ACGIH: 200 mg/m3 TWA (application restricted to conditions in which there are negligible aerosol exposures, total hydrocarbon vapor)
Skin - potential significant contribution to overall exposure by the cutaneous route
NIOSH: 100 mg/m3 TWA

Naphthalene (91-20-3)

ACGIH: 10 ppm TWA
15 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 10 ppm TWA; 50 mg/m3 TWA
NIOSH: 10 ppm TWA; 50 mg/m3 TWA
15 ppm STEL; 75 mg/m3 STEL

Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Personal Protective Equipment: Respiratory

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Personal Protective Equipment: Hands

Gloves constructed of nitrile, neoprene, or PVC are recommended.

Personal Protective Equipment: Eyes

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Pale yellow to water-white. May be dyed red.	**Odor:**	Characteristic petroleum distillate odor
Physical State:	Liquid	**pH:**	ND
Vapor Pressure:	0.4 mm Hg @ 68 °F (20 °C)	**Vapor Density:**	AP 4.5
Boiling Point:	300 to 580 °F (149 to 304 °C)	**Melting Point:**	ND
Solubility (H2O):	Negligible	**Specific Gravity:**	0.784-0.834
Evaporation Rate:	Slow; varies with conditions	**VOC:**	ND
Percent Volatile:	100%	**Octanol/H2O Coeff.:**	ND
Flash Point:	>100 °F (38 °C)	**Flash Point Method:**	TCC
Upper Flammability Limit (UFL):	5.0	**Lower Flammability Limit (LFL):**	0.7
Burning Rate:	ND	**Auto Ignition:**	410°F (210°C)

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products

Keep away from strong oxidizers such as nitric and sulfuric acids.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

A: General Product Information

Harmful if swallowed.

B: Component Analysis - LD50/LC50

Kerosene (8008-20-6)

Inhalation LC50 Rat >5.28 mg/L 4 h; Oral LD50 Rat >5000 mg/kg; Dermal LD50 Rabbit >2000 mg/kg

Naphthalene (91-20-3)

Inhalation LC50 Rat >340 mg/m3 1 h; Oral LD50 Rat 490 mg/kg; Dermal LD50 Rat >2500 mg/kg; Dermal LD50 Rabbit >20 g/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Contact with eyes may cause mild to moderate irritation.

Potential Health Effects: Ingestion

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

Potential Health Effects: Inhalation

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This product is not reported to have any mutagenic effects.

Carcinogenicity

A: General Product Information

Dermal carcinogenicity: positive - mice
Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

B: Component Carcinogenicity

Kerosene (8008-20-6)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

Naphthalene (91-20-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
NTP: Reasonably Anticipated To Be A Human Carcinogen (Possible Select Carcinogen)
IARC: Monograph 82 [2002] (Group 2B (possibly carcinogenic to humans))

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

This product is not reported to have any specific target organ general toxicity single exposure effects.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ general toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Naphthalene (91-20-3)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	5.74-6.44 mg/L [flow-through]
96 Hr LC50 Oncorhynchus mykiss	1.6 mg/L [flow-through]
96 Hr LC50 Oncorhynchus mykiss	0.91-2.82 mg/L [static]
96 Hr LC50 Pimephales promelas	1.99 mg/L [static]
96 Hr LC50 Lepomis macrochirus	31.0265 mg/L [static]
72 Hr EC50 Skeletonema costatum	0.4 mg/L
48 Hr LC50 Daphnia magna	2.16 mg/L
48 Hr EC50 Daphnia magna	1.96 mg/L [Flow through]
48 Hr EC50 Daphnia magna	1.09 - 3.4 mg/L [Static]

Persistence/Degradability

No information available.

Bioaccumulation

No information available.

Mobility in Soil

No information available.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

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

* * * Section 14 - Transportation Information * * *

DOT Information

Shipping Name: Kerosene

UN #: 1223 **Hazard Class:** 3 **Packing Group:** III

Placard:

* * * Section 15 - Regulatory Information * * *

Regulatory Information

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Naphthalene (91-20-3)

CERCLA: 100 lb final RQ; 45.4 kg final RQ

SARA Section 311/312 – Hazard Classes

Acute Health	Chronic Health	Fire	Sudden Release of Pressure	Reactive
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product may contain listed chemicals below the de minimis levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right- To-Know Act (EPCRA) of 1986 and of 40 CFR 372. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Hess Corporate Safety if you require additional information regarding this product.

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Kerosene	8008-20-6	No	Yes	No	Yes	Yes	No
Naphthalene	91-20-3	Yes	Yes	Yes	Yes	Yes	No

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

Additional Regulatory Information

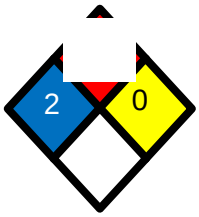
Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Kerosene	8008-20-6	Yes	DSL	EINECS
Naphthalene	91-20-3	Yes	DSL	EINECS

* * * Section 16 - Other Information * * *

NFPA® Hazard Rating

Health	2
Fire	2
Reactivity	0



HMIS® Hazard Rating

Health	2*	Moderate
Fire	2	Moderate
Physical	0	Minimal
		*Chronic

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Literature References

None

Other Information

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

End of Sheet

Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200)

Section 1: Identification

Product Identifier: **Propane**

Other means of identification:
Commercial Propane(All)
HD5 Propane
LP-Gas
Liquefied Petroleum Gas
Odorized Propane
Propane (Unstenched)
Propane Commercial
Propane Motor Fuel
Propane for Process
Stenched Propane
Unodorized Propane

SDS Number: **169570**
Intended Use: Fuel
Uses Advised Against: All others
Emergency Health and Safety Number: Chemtrec: 800-424-9300 (24 Hours)

Manufacturer:
Phillips 66 Company
P.O. Box 4428
Houston, Texas 77210

SDS Information:
Phone: 800-762-0942
Email: SDS@P66.com
URL: www.Phillips66.com

Section 2: Hazards Identification

Classified Hazards
H220 -- Flammable gases -- Category 1
H280 -- Gases under pressure -- Liquefied gas

Other Hazards
May displace oxygen and cause rapid suffocation

Label Elements

DANGER
Extremely flammable gas
Contains gas under pressure. May explode if heated.

May displace oxygen and cause rapid suffocation

Keep away from heat/sparks/open flames/hot surfaces. - No smoking; Take precautionary measures against static discharge; Leaking gas fire: Do not extinguish, unless leak can be stopped safely; Eliminate all ignition sources if safe to do so; Protect from sunlight. Store in a well ventilated place

Section 3: Composition / Information on Ingredients

Chemical Name	CASRN	Concentration[1]
Propane	74-98-6	80-100
Propene	115-07-1	<20
Ethane	74-84-0	<6
Butane	106-97-8	<5
Isobutane	75-28-5	<2.5

[1] All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Odorized products contain small quantities (<0.1%) ethyl mercaptan as an olfactory indicator.

Section 4: First Aid Measures

Eye Contact: For contact with the liquefied gas, remove contact lenses if present and easy to do, hold eyelids apart and gently flush the affected eye(s) with lukewarm water. Seek immediate medical attention.

Skin Contact: Liquefied gases may cause cryogenic burns or injury. Treat burned or frostbitten skin by flushing or immersing the affected area(s) in lukewarm water. Do not rub affected area. Do not remove clothing that adheres due to freezing. After sensation has returned to the frostbitten skin, keep skin warm, dry, and clean. If blistering occurs, apply a sterile dressing. Seek immediate medical attention.

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If breathing is difficult, oxygen or artificial respiration should be administered by qualified personnel. If symptoms persist, seek medical attention.

Ingestion (Swallowing): This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Most important symptoms and effects, both acute and delayed: Light hydrocarbon gases are simple asphyxiants and can cause anesthetic effects at high concentrations. Symptoms of overexposure, which are reversible if exposure is stopped, can include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances and vomiting. Continued exposure can lead to hypoxia (inadequate oxygen), rapid breathing, cyanosis (bluish discoloration of the skin), numbness of the extremities, unconsciousness and death.

Notes to Physician: Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias.

Section 5: Fire-Fighting Measures

NFPA 704 Hazard Class

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

0 (Minimal)
1 (Slight)
2 (Moderate)
3 (Serious)
4 (Severe)

Extinguishing Media: Dry chemical or carbon dioxide is recommended. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Specific hazards arising from the chemical

Unusual Fire & Explosion Hazards: Extremely flammable. Contents under pressure This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. If container is not properly cooled, it can rupture in the heat of a fire. Drains can be plugged and valves made inoperable by the formation of ice if rapid evaporation of large quantities of the liquefied gas occurs. Do not allow run-off from fire fighting to enter drains or water courses – may cause explosion hazard in drains and may reignite.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of nitrogen and sulfur may also be formed.

Special protective actions for firefighters: For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. If this cannot be done, allow fire to burn. Move undamaged containers from immediate hazard area if it can be done safely. Stay away from ends of container. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Extremely flammable. Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. Beware of accumulation of gas in low areas or contained areas, where explosive concentrations may occur. Prevent from entering drains or any place where accumulation may occur. Ventilate area and allow to evaporate. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental Precautions: Stop spill/release if it can be done safely. Water spray may be useful in minimizing or dispersing vapors. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.

Methods and material for containment and cleaning up: Notify relevant authorities in accordance with all applicable regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

Section 7: Handling and Storage

Precautions for safe handling: Keep away from ignition sources such as heat/sparks/open flame – No smoking. Take precautionary measures against static discharge. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). Extremely Flammable. Contents under pressure Gas can accumulate in confined spaces and limit oxygen available for breathing. Use only with adequate ventilation The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-70 and/or API RP 2003 for specific bonding/grounding requirements. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Cold burns may occur during filling operations. Containers and delivery lines may become cold enough to present cold burn hazard.

Propane and odorant are heavier than air and will collect and pool along the ground or floor. Odorant, therefore, may not be detectable above the location of propane storage or service (for example, odorant in propane released or leaked into the basement of a dwelling may not be detected above the basement).

WARNING - The intensity of the odorant may fade over prolonged storage or in the presence of rust, when placed initially in new or freshly-cleaned storage vessels, or when exposed to masonry.

Conditions for safe storage: Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. Avoid exposing any part of a compressed-gas cylinder to temperatures above 125F(51.6C). Gas cylinders should be stored outdoors or in well ventilated storerooms at no lower than ground level and should be quickly removable in an emergency.

Section 8: Exposure Controls / Personal Protection

Chemical Name	ACGIH	OSHA	Other
Propane	---	TWA: 1000 ppm TWA: 1800 mg/m^3	---
Propene	TWA: 500 ppm	---	---
Butane	STEL: 1000 ppm	---	---
Isobutane	STEL: 1000 ppm	---	---

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye protection (such as splash goggles) that meets or exceeds ANSI Z.87.1 is recommended when there is potential liquid contact to the eye. Depending on conditions of use, a face shield may be necessary.

Skin/Hand Protection: Wear thermal insulating gloves and face shield or eye protection when working with materials that present thermal hazards (hot or cold).

Respiratory Protection: A NIOSH approved, self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode should be used in situations of oxygen deficiency (oxygen content less than 19.5 percent), unknown exposure concentrations, or situations that are immediately dangerous to life or health (IDLH).

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use.

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

Section 9: Physical and Chemical Properties

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

Appearance: Colorless
Physical Form: Liquefied Gas
Odor: No distinct odor (or skunk, rotten egg or garlic if odorant added)
Odor Threshold: No data
pH: Not applicable
Vapor Density (air=1): >1
Upper Explosive Limits (vol % in air): 9.5
Lower Explosive Limits (vol % in air): 2.1
Evaporation Rate (nBuAc=1): >1
Particle Size: N/A
Percent Volatile: 100%
Flammability (solid, gas): Extremely Flammable

Flash Point: -156 °F / -104 °C
Test Method: Tag Closed Cup (TCC), ASTM D56
Initial Boiling Point/Range: -44 °F / -42 °C

Vapor Pressure: 208 psia (Reid VP) @ 100°F / 37.8°C
Partition Coefficient (n-octanol/water) (Kow): No data
Melting/Freezing Point: -309 °F / -189 °C
Auto-ignition Temperature: 842 °F / 450 °C
Decomposition Temperature: No data
Specific Gravity (water=1): 0.50-0.51 @ 60ºF (15.6ºC)
Bulk Density: N/D
Viscosity: N/D
Solubility in Water: Negligible

Section 10: Stability and Reactivity

Reactivity: Not chemically reactive.

Chemical stability: Stable under normal ambient and anticipated conditions of use.

Possibility of hazardous reactions: Hazardous reactions not anticipated.

Conditions to avoid: Avoid all possible sources of ignition. Heat will increase pressure in the storage tank.

Incompatible materials: Avoid contact with acids, aluminum chloride, chlorine, chlorine dioxide, halogens and oxidizing agents.

Hazardous decomposition products: Not anticipated under normal conditions of use.

Section 11: Toxicological Information

Information on Toxicological Effects of Substance/Mixture

Substance / Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Unlikely to be harmful	Asphyxiant. High concentrations in confined spaces may limit oxygen available for breathing. See Signs and Symptoms.	> 20,000 ppm
Dermal	Skin absorption is not anticipated		Not Applicable
Oral	Ingestion is not anticipated		Not Applicable

Aspiration Hazard: Not applicable

Skin Corrosion/Irritation: Not expected to be irritating. Contact with the liquefied or pressurized gas may cause frostbite ("cold" burn).

Serious Eye Damage/Irritation: Not expected to be irritating. Contact with the liquefied or pressurized gas may cause momentary freezing followed by swelling and eye damage.

Skin Sensitization: Skin contact is not anticipated.

Respiratory Sensitization: Not expected to be a respiratory sensitizer.

Specific Target Organ Toxicity (Single Exposure): Not expected to cause organ effects from single exposure.

Specific Target Organ Toxicity (Repeated Exposure): Not expected to cause organ effects from repeated exposure.

Carcinogenicity: Not expected to cause cancer.

Germ Cell Mutagenicity: Not expected to cause heritable genetic effects.

Reproductive Toxicity: Not expected to cause reproductive toxicity.

Other Comments: High concentrations may reduce the amount of oxygen available for breathing, especially in confined spaces. Hypoxia (inadequate oxygen) during pregnancy may have adverse effects on the developing fetus. The odorant, ethyl mercaptan, can be irritating to the eyes, skin and respiratory tract. At high concentrations, a person can temporarily lose the ability to smell ethyl mercaptan. In addition, some individuals may have an impaired sense of smell, which inhibits the detection of the odorant.

Information on Toxicological Effects of Components

Propane
Target Organs: No systemic or neurotoxic effects were noted in rats exposed to concentrations of propane as high as 12,000 ppm for 28 days.
Reproductive Toxicity: No adverse reproductive or developmental effects were observed in rats exposed to propane; no observed adverse effect level = 12,000 ppm.
Butane
Target Organs: No systemic or neurotoxic effects were noted in rats exposed to concentrations of butane as high as 9,000 ppm for 28 days.
Reproductive Toxicity: No adverse reproductive or developmental effects were observed in rats exposed to butane; no observed adverse effect level = 12,000 ppm.
Isobutane
Target Organs: No systemic or neurotoxic effects were noted in rats exposed to concentrations of isobutane as high as 9,000 ppm for 28 days.
Reproductive Toxicity: No adverse developmental effects were observed in rats exposed to concentrations of isobutane as high as 9000 ppm. Fertility and mating indices may have been affected at 9000 ppm but no effects were observed at 3000 ppm (NOAEL).

Section 12: Ecological Information

GHS Classification:
No classified hazards

Toxicity: Petroleum gases will readily evaporate from the surface and would not be expected to have significant adverse effects in the aquatic environment.

Persistence and Degradability: The hydrocarbons in this material are expected to be inherently biodegradable. In practice, hydrocarbon gases are not likely to remain in solution long enough for biodegradation to be a significant loss process. Hydrogen sulfide, if present in refinery gas streams, will be rapidly oxidized in water and insoluble sulfides precipitated from water when metallic radicals are present.

Bioaccumulative Potential: Since the log Kow values measured for refinery gas constituents are below 3, they are not regarded as having the potential to bioaccumulate.

Mobility in Soil: Due to the extreme volatility of petroleum gases, air is the only environmental compartment in which they will be found. In air, these hydrocarbons undergo photodegradation by reaction with hydroxyl radicals with half-lives ranging from 3.2 days for n-butane to 7 days for propane.

Other adverse effects: None anticipated.

Section 13: Disposal Considerations

This material is a gas and would not typically be managed as a waste.

Section 14: Transport Information

U.S. Department of Transportation (DOT)

Shipping Description:	UN1978, Propane, 2.1,
Non-Bulk Package Marking:	Propane, UN1978
Non-Bulk Package Labeling:	Flammable Gas
Bulk Package/Placard Marking:	Flammable gas / 1978
Packaging - References:	49 CFR: 173.306; 173.304; 173.314 & .315 *(Exceptions; Non-bulk; Bulk)*
Hazardous Substance:	See Section 15 for RQ`s
Emergency Response Guide:	115

Note: *For domestic transportation only, UN1075 may be substituted for the UN number shown as long as the substitution is consistent on package markings, shipping papers, and emergency response information. See 49 CFR 172.102 Special Provision 19.*
Containers of NON-ODORIZED liquefied petroleum gas must be marked either NON-ODORIZED or NOT ODORIZED as of September 30, 2006. [49 CFR 172.301(f), 326(d), 330(c) and 338(e)]

International Maritime Dangerous Goods (IMDG)

Shipping Description: UN1978, Propane, 2.1
Non-Bulk Package Marking: Propane, UN1978
Labels: Flammable Gas
Placards/Marking (Bulk): Flammable gas / 1978
Packaging - Non-Bulk: P200
EMS: F-D, S-U

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

International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)

UN/ID #: UN1978
Proper Shipping Name: Propane
Hazard Class/Division: 2.1
Non-Bulk Package Marking: Propane, UN1978
Labels: Flammable Gas
ERG Code: 10L
Note: *Special provision A1 applies to this product.*

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	*Forbidden*	*Forbidden*	200
Max. Net Qty. Per Package:	*Forbidden*	*Forbidden*	150 kg

Section 15: Regulatory Information

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):
This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health Hazard: Yes
Chronic Health Hazard: No
Fire Hazard: Yes
Pressure Hazard: yes
Reactive Hazard: No

CERCLA/SARA - Section 313 and 40 CFR 372:
This material contains the following chemicals subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR 372:

Chemical Name	Concentration[1]	de minimis
Propene	<20	1.0%

EPA (CERCLA) Reportable Quantity (in pounds):
EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).

California Proposition 65:
WARNING: Chemicals known to the State of California to cause cancer, birth defects or other reproductive harm are created by the combustion of propane.

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

WHMIS Hazard Class:
A - Compressed gases
B1 - Flammable gas

National Chemical Inventories
All components are either listed on the US TSCA Inventory, or are not regulated under TSCA.
All components are either on the DSL, or are exempt from DSL listing requirements.

U.S. Export Control Classification Number: EAR99

Section 16: Other Information

Date of Issue:	Previous Issue Date:	SDS Number:	Status:
08-Oct-2013	06-Feb-2013	169570	FINAL

Revised Sections or Basis for Revision:
Periodic review and update

Precautionary Statement(s):
P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P243: Take precautionary measures against static discharge.
P381: Eliminate all ignition sources if safe to do so.
P377: Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P410+P403: Protect from sunlight. Store in a well ventilated place.

Guide to Abbreviations:
ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

Disclaimer of Expressed and implied Warranties:
The information presented in this Safety Data Sheet is based on data believed to be accurate as of the date this Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

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

This SDS complies with Australian guidelines for SDS. The foregoing information has been compiled from sources believed to be accurate but is not warranted to be. Recipients are advised to confirm in advance of need that data is correct. Standards change without notice. It is the responsibility of the recipient to insure that their personnel have been notified of any changes which may affect them. The data provided on this SDS are not meant to be used as specifications, only as guideline information as to the safe use of this product. User should refer to applicable laws before use.

1018100 / No.0096102

SAFETY DATA SHEET

DATE: 1.1.2016 Rev 4

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION
PRODUCT NAME: Marking Chalk Blue
USE OF PRODUCT: Chalk Box Marking Chalk
MANUFACTURER: Keson Industries
ADDRESS: 810 Commerce St., Aurora, Il. 60504
EMERGENCY PHONE: 1-800-345-3766 (8am to 5pm Central Time, Monday – Friday)

SECTION 2: HAZARDS IDENTIFICATION
OSHA GHS Hazard Statements (Warning Label)
DANGER: May cause cancer (lung)
Hazard Ratings:
Hazardous Material Identification System (HMIS): Health 1*, Flammability 0, Reactivity 0*chronic effects
National Fire Protection Association (NFPA): Health 1, Flammability 0, Reactivity 0
EMERGENCY OVERVIEW:
Product Description: These products are colored, finely powdered, odorless chalks. Health Hazards: Inhalation of dusts from this product may irritate the respiratory system. Skin and eye contact may cause mechanical abrasion. These chalks contain Crystalline Silica, a known human carcinogen by inhalation.
Flammability Hazards: These chalks are not flammable. Finely divided dusts from these products can form explosive mixtures in air. If involved in a fire, these products may decompose to form iron oxides, aluminum oxides, silicon dioxide, sulfur dioxide, magnesium oxides, carbon oxides and calcium oxides.

POTENTIAL HEALTH EFFECTS
EYES: May cause irritation. Chalk dust is discomforting and abrasive to the eyes.

SKIN: Prolonged contact may cause irritation. When the product is used as intended, it is unlikely to cause problems.

INGESTION: Ingestion of large amount may cause internal irritation. Ingestion is considered an unlikely route of entry in commercial or industrial environments.

INHALATION: May irritate the respiratory system. When the product is used as intended, it is unlikely to cause problems.

Chronic: Repeated or prolonged inhalation exposure to crystalline silica dust beyond exposure limits may cause chronic lung injury (silicosis). Prolonged inhalation of iron oxide dust is known to produce a benign lung condition known as siderosis. When the product is used as intended, dust levels should not exceed exposure limits. See Sections 8 and 11.

WARNING

DANGER

Obtain special instructions before use. May cause cancer by inhalation. Avoid breathing dust or fume. Causes serious eye irritation. Causes mild skin irritation. Do not handle until all safety precautions have been read and understood. Wear protective gloves and eye protection.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substance name	Value (%)	CAS No.	EC No.
Calcium carbonate (1)	85-90	471-34-1	207-439-9
Ultra Marine Blue	10 - 15	57455-37-5	None
Silica (crystalline quartz) (1)	0.1 - 1	14808-60-7	238-878-4

1 Calcium carbonate may contain crystalline silica at levels between 0.1 and 1.0 % and varies naturally.

SECTION 4: FIRST AID MEASURES

EYES: If product enters the eye do not rub, rubbing may cause abrasions. Flush eyes with copious amounts of water for 15 minutes, occasionally lifting upper and lower eyelids. If adverse effects persist after flushing with water, get medical aid.

SKIN: Wet clothing first to minimize dust generation, then; remove contaminated clothing and shoes. Wash contaminated clothing before wearing again. Wash infected areas with water and soap. Get medical attention in the event of irritation.

INGESTION: If this material is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION**.** If professional advice is not available, seek immediate medical attention. If alert, victim should drink up to three glasses of water. Do not induce vomiting. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow. If victim is convulsing, maintain an open airway and obtain emergency medical attention.

INHALATION: If dust or particulates are inhaled, Remove from exposure and move to fresh air immediately. Encourage to blow nose to ensure clear breathing passages. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: Show this data safety sheet to medical professionals.

SECTION 5: FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Substance is noncombustible, however; the containers may burn, releasing carbon monoxide and carbon dioxide. Use appropriate extinguishing media for the combustible material involved in a fire.

SPECIAL FIRE FIGHTING PROCEDURES: As in any fire, wear self-contained breathing apparatus in pressure demand and full protective gear.

FIRE EXTINGUISHING MEDIA: Unless incompatibilities exist for surrounding materials, carbon dioxide, water spray, "ABC" type chemical extinguishers, foam, dry chemical and halon extinguishers can be used to fight fires involving this material.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Finely divided dusts from this material pose a hazard of an air/dust explosion in presence of an ignition source

HAZARDOUS DECOMPOSITION PRODUCTS: If oxidation of this product should occur, heat will be liberated which could cause surrounding combustibles to burn.

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES: Wear appropriate personal protective equipment. Do not allow this material to be released into the environment. Recover the product whenever possible. Avoid generating dust when sweeping or shoveling up. If required, wet the material with water to prevent creating dust. Pick up and place in a suitable container for reclamation or disposal.

Cleanup of Small Spills: Solids should be gently covered with wet absorbent pads. Clean spill with pad and dispose of properly. Decontaminate the spill area (three times) using a bleach and detergent solution and then rinse with clean water.

Large Spills: Restrict access to the spill areas. For spills of greater than 5 g, be sure not to generate dusts by gently covering with damp absorbent sheets, spill-control pads, pillows, cloths, or towels. The dispersion of particles into surrounding air and the possibility of inhalation is a serious matter and should be treated as such. Do not apply chemical in-activators as they may produce hazardous by-products. Sweep up or vacuum spilled solid (an explosion-proof vacuum should be used), avoiding the generation of airborne dusts. Decontaminate the area thoroughly.

All Spills: Use procedures described above and then place all spill residues in an appropriate, labeled container and seal. Move to a secure area. Dispose of in accordance with Federal, State, and local hazardous waste disposal regulations (see Section 13, Disposal Considerations). For spills on water, contain, minimize dispersion and collect. Dispose of recovered material and report spill per regulatory requirements.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING: All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing airborne dusts generated by this product. Use in a well-ventilated area. Ensure this product is used with adequate ventilation and personal protective equipment (see Section 8, Exposure Controls and Personal Protection). Avoid airborne dusts generated by this product. Clean work areas routinely to prevent accumulation of dust. Clean up spills promptly.

CONDITIONS FOR SAFE STORAGE: Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials (see Section 10, Stability and Reactivity). Have appropriate extinguishing equipment in the storage area (e.g., sprinkler system, portable fire extinguishers). Keep container tightly closed when not in use. Refer to NFPA 654, *Prevention of Fire and Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids* for additional information on storage.

SPECIFIC END USE(S): These products are used in chalk line devices in construction. Follow all industry standards for use of this product.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Decontaminate equipment thoroughly, before maintenance begins. Collect all residue and dispose of according to applicable or applicable federal, state, provincial and local standards.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limit 8-Hour TWA1(mg/m3)

Component	CAS No.	% by weight	OSHA PEL	ACGIH TLV	NIOSH REL
Calcium Carbonate (Limestone) (4)	471-34-1; (1317-65-3)	85-90	15(2), 5 (3)	10(2)	10(2), 5(3)
Ultra Marine Blue	57455-37-5	10-15	None	None	None
Silica-Crystalline Quartz (4)	14808-60-7	0.1-1.0	10(2,5),3.3(3,5)	0.05(3)	0.05(3)

1TWA = Time-weighted average
2Total dust.
3Respirable dust.
4Calcium carbonate may contain crystalline silica at levels between 0.1 and 1.0 % and varies naturally.
5Using the OSHA quartz formula, this PEL was calculated assuming crystalline silica content of 1.0% in this ingredient.

SPECIAL NOTE: The following information is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132, including U.S. Federal OSHA Respiratory Protection (29 CFR 1910.134), OSHA Eye Protection 29 CFR 1910.133, OSHA Hand Protection 29 CFR 1910.138, OSHA Foot Protection 29 CFR 1910.136 and OSHA Body Protection 29 CFR1910.132), equivalent standards of Canada (including CSA Respiratory Standard Z94.4-02, Z94.3-M1982, Industrial Eye and Face Protectors and CSA Standard Z195-02, Protective Footwear), or standards of EU member states (including EN 529:2005 for respiratory PPE, CEN/TR 15419:2006 for hand protection, and CR 13464:1999 for face/eye protection). Please reference applicable regulations and standards for relevant details.

ENGINEERING CONTROLS: Facilities storing or utilizing this material should have potable water available for washing of eyes and skin. Use sufficient general area ventilation. To ensure exposure levels are maintained below the limits provided in this section if applicable.

VENTILATION: Local ventilation should be used.

RESPIRATORY PROTECTION: Maintain airborne contaminant concentrations below exposure limits listed above. For materials without listed exposure limits, minimize respiratory exposure. If necessary, use only respiratory protection authorized under appropriate regulations. Oxygen levels below 20% are considered IDLH by U.S. OSHA. In such atmospheres, use of a full-face piece pressure/demand SCBA or a full face piece, supplied air respirator with auxiliary self-contained air supply is required under U.S. OSHA‟s Respiratory Protection Standard (1910.134-1998).

EYE PROTECTION: Wear safety goggles/glasses as appropriate for the task if dust or other particulates are present. Face shields maybe recommended if solutions are made. If necessary, refer to appropriate regulations.

SKIN PROTECTION: Use appropriate protective clothing for the task. Full-body protective clothing and gloves are recommended for emergency response procedures. If necessary, refer to the U.S. OSHA Technical Manual (Section VII: Personal Protective Equipment) or other appropriate regulations.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: No information found.

WORK HYGIENIC PRACTICES: Wash contaminated clothing before reuse.

EXPOSURE GUIDELINES: No information found.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES
APPEARANCE: Powder – Blue Color
ODOR: Odorless
pH AS SUPPLIED: 8.5-9.5 (at 10% solids)
BOILING POINT: No Data Available
MELTING POINT: Decomposes
F: 1517 Deg
C: 825Deg
FREEZING POINT: No Data Available.
VAPOR PRESSURE (mmHg): No Data Available.
VAPOR DENSITY (AIR = 1): No Data Available.
SPECIFIC GRAVITY (H2O = 1): No Data Available.
EVAPORATION RATE: No Data Available.

SECTION 10: STABILITY AND REACTIVITY
STABILITY: Stable under normal temperatures and pressures.

CONDITIONS TO AVOID (STABILITY): Incompatible materials

INCOMPATIBILITY (MATERIAL TO AVOID): Strong oxidizing agents, acids, aluminum, fluorine, magnesium, peroxides, hydrazine, calcium hypochlorite, performic acid, and bromine pentafluoride.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Carbon monoxide, carbon dioxide, calcium oxide.

HAZARDOUS POLYMERIZATION: Does not occur.

SECTION 11: TOXICOLOGICAL INFORMATION
TOXICOLOGICAL INFORMATION: SYMPTOMS OF EXPOSURE BY ROUTE OF EXPOSURE: The most significant routes of industrial exposure to this product are by skin or eye contact and inhalation.

INHALATION: If dusts or particulates from these products are inhaled, irritation of the nose, throat, and lungs can occur. Symptoms may include sneezing, coughing, nasal congestion, and difficulty breathing. Symptoms are generally alleviated upon exposure to fresh air. If heated, chronic exposure to concentrations of silicon dioxide fume may cause chronic obstructive lung disease. Inhalation of iron oxide fume or dust is cause of pulmonary roentgen graphic appearance called siderosis, or an accumulation of iron that leads to reduced lung capacity. These products contain Crystalline Silica, which is a known human carcinogen. Chronic inhalation exposure to this material may cause silicosis, pulmonary fibrosis, bronchitis or present a hazard of cancer, due to the presence of Crystalline Silica.

CONTACT WITH SKIN or EYES: Skin contact may cause abrasion, redness, and discomfort. Prolonged and repeated skin exposure may cause dermatitis (dry, red skin). Direct eye contact with these products may cause stinging, abrasions, and redness. Dust can cause mechanical irritation to the eye. Repeated contact of dust with the eyes can cause conjunctivitis a disease that may cause eyes to become pink and sore), or can cause discoloration of the eyes.

SKIN ABSORPTION: This product does not pose a hazard of skin absorption.

INGESTION: Ingestion is an unlikely route of occupational exposure to this product. In the unlikely event that dusts from the product are ingested nausea, vomiting, and diarrhea may result.
Repeated ingestion of iron compounds can cause vomiting, diarrhea, pink urine, black stool, and liver or kidney damage. Repeated ingestion of iron compounds can also cause siderosis, which is an accumulation of iron in tissues.

Chronic: Repeated inhalation exposure of crystalline silica above safe levels may cause adverse effects to the respiratory system. Chronic inhalation may result in pulmonary fibrosis. This product contains crystalline silica, which is a known human carcinogen.

SECTION 11 NOTES: The International Agency for Research on Cancer (IARC) classified (quartz) crystalline silica (cs) as a probable carcinogen and in 1997 reclassified it as a Group 1 carcinogen, i.e., that there was sufficient evidence for carcinogenicity in experimental animals and sufficient evidence for carcinogenicity in humans. In its Ninth Annual Report on Carcinogens, the National Toxicology Program (NTP) listed crystalline silica as a known human carcinogen, based on sufficient evidence of carcinogenicity from studies in humans indicating a causal relationship between exposure to respirable crystalline silica and increased lung cancer rates in workers exposed to crystalline silica dust. The International Agency for Research on Cancer (IARC) has evaluated crystalline silica and determined that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1)."

SECTION 12: ECOLOGICAL INFORMATION
ECOLOGICAL INFORMATION: Safe practices must be in place to prevent environmental contamination.

SECTION 12 NOTES: These products have not been tested for aquatic or animal toxicity. All release to terrestrial, atmospheric and aquatic environments should be avoided.

SECTION 13: DISPOSAL CONSIDERATIONS
WASTE DISPOSAL METHOD: Waste from residue of this product is NOT hazardous waste according to the EPA regulations. Disposal by landfill may be acceptable. Waste disposal must follow all US Federal, State and Local (EPA) regulations, Canadian and European Governmental Guidelines.

SECTION 14: TRANSPORT INFORMATION
U.S. DEPARTMENT OF TRANSPORTATION: (DOT) These products are not classified as dangerous goods under the DOT regulations 49CFR: 172.101

WATER TRANSPORTATION: (IMO) Not classified as dangerous

AIR TRANSPORTATION: (ATA) Not classified as dangerous

SECTION 15: REGULATORY INFORMATION
U.S. FEDERAL REGULATIONS

OSHA: Components are listed as air contaminates. Regulation standards -29CFR. Standard number 1910.100 Table 2-1

TSCA (TOXIC SUBSTANCE CONTROL ACT): All components are listed on the TSCA inventory

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT): Not Listed

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT): The components of this product has been reviewed on the EAP Hazards Categories in section 311-312 and is considered a chronic health risk.

STATE REGULATIONS: California: (Proposition 65) WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm (Silica Caystalline Quartz, CAS Number: 14808-60-7)

CANADA WHIMS: (Workplace Hazardous Materials Information System) This SDS sheet contains all of the information needed by the CPR. (Controlled Products Regulation)

WHIMS CLASSIFICATION D2A: Very toxic (carcinogenicity)

EU CLASSIFICATION, LABELING: This product does meet the definition of hazard class described by the EUROPEAN UNION COUNCIL DIRECTIVE EC# 1272/2008.Classification information for components Crystalline Silica. EU Classification (xn) Harmful EU risk r68/20 harmful: Risk of irreversible damage through inhalation.

SECTION 16: OTHER INFORMATION

Hazard Ratings:
Hazardous Material Identification System (HMIS): Health 1*, Flammability 0, Reactivity 0*chronic effects
National Fire Protection Association (NFPA): Health 1, Flammability 0, Reactivity 0

The contents and format of this SDS are in accordance with the U.S. Hazard Communication Standard 29 CFR 1910.1200; the Canadian CPR, and Workplace Hazardous Materials Information System (WHMIS); and EEC Commission Directive 1999/45/EC, and EEC Commission Regulation 1907/2006/EC (REACH) Annex II.
DISCLAIMER OF LIABILITY The information in this SDS was obtained from sources which we believe are correct. However, the information is provided without any warranty, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product.
If the product is used as a component in another product, this SDS information may not be applicable.

End of document

SAFETY DATA SHEET

DATE: 1.1.2016 Rev 4

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION
PRODUCT NAME: Marking Chalk Red
USE OF PRODUCT: Chalk Box Marking Chalk
MANUFACTURER: Keson Industries
ADDRESS: 810 Commerce St., Aurora, Il. 60504
EMERGENCY PHONE: 1-800-345-3766 (8am to 5pm Central Time, Monday – Friday)

SECTION 2: HAZARDS IDENTIFICATION
OSHA GHS Hazard Statements (Warning Label)
DANGER: May cause cancer (lung)

EMERGENCY OVERVIEW:
Product Description: These products are colored, finely powdered, odorless chalks. Health Hazards: Inhalation of dusts from this product may irritate the respiratory system. Skin and eye contact may cause mechanical abrasion. These chalks contain Crystalline Silica, a known human carcinogen by inhalation.
Flammability Hazards: These chalks are not flammable. Finely divided dusts from these products can form explosive mixtures in air. If involved in a fire, these products may decompose to form iron oxides, aluminum oxides, silicon dioxide, sulfur dioxide, magnesium oxides, carbon oxides and calcium oxides.

POTENTIAL HEALTH EFFECTS
EYES: May cause irritation. Chalk dust is discomforting and abrasive to the eyes.

SKIN: Prolonged contact may cause irritation. When the product is used as intended, it is unlikely to cause problems.

INGESTION: Ingestion of large amount may cause internal irritation. Ingestion is considered an unlikely route of entry in commercial or industrial environments.

INHALATION: May irritate the respiratory system. When the product is used as intended, it is unlikely to cause problems.

Chronic: Repeated or prolonged inhalation exposure to crystalline silica dust beyond exposure limits may cause chronic lung injury (silicosis). Prolonged inhalation of iron oxide dust is known to produce a benign lung condition known as siderosis. When the product is used as intended, dust levels should not exceed exposure limits. See Sections 8 and 11.

WARNING

DANGER

Obtain special instructions before use. May cause cancer by inhalation. Avoid breathing dust or fume. Causes serious eye irritation. Causes mild skin irritation. Do not handle until all safety precautions have been read and understood. Wear protective gloves and eye protection.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substance name	Value (%)	CAS No.	EC No.
Calcium carbonate (1)	85-90	471-34-1	207-439-9
Red Iron Oxide	10 - 15	1317-61-9	215-168-2
Silica (crystalline quartz) (1)	0.1 - 1	14808-60-7	238-878-4

1 Calcium carbonate may contain crystalline silica at levels between 0.1 and 1.0 % and varies naturally.

SECTION 4: FIRST AID MEASURES

EYES: If product enters the eye do not rub, rubbing may cause abrasions. Flush eyes with copious amounts of water for 15 minutes, occasionally lifting upper and lower eyelids. If adverse effects persist after flushing with water, get medical aid.

SKIN: Wet clothing first to minimize dust generation, then; remove contaminated clothing and shoes. Wash contaminated clothing before wearing again. Wash infected areas with water and soap. Get medical attention in the event of irritation.

INGESTION: If this material is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION**.** If professional advice is not available, seek immediate medical attention. If alert, victim should drink up to three glasses of water. Do not induce vomiting. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow. If victim is convulsing, maintain an open airway and obtain emergency medical attention.

INHALATION: If dust or particulates are inhaled, Remove from exposure and move to fresh air immediately. Encourage to blow nose to ensure clear breathing passages. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: Show this data safety sheet to medical professionals.

SECTION 5: FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Substance is noncombustible, however; the containers may burn, releasing carbon monoxide and carbon dioxide. Use appropriate extinguishing media for the combustible material involved in a fire.

SPECIAL FIRE FIGHTING PROCEDURES: As in any fire, wear self-contained breathing apparatus in pressure demand and full protective gear.

FIRE EXTINGUISHING MEDIA: Unless incompatibilities exist for surrounding materials, carbon dioxide, water spray, "ABC" type chemical extinguishers, foam, dry chemical and halon extinguishers can be used to fight fires involving this material.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Finely divided dusts from this material pose a hazard of an air/dust explosion in presence of an ignition source

HAZARDOUS DECOMPOSITION PRODUCTS: If oxidation of this product should occur, heat will be liberated which could cause surrounding combustibles to burn.

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES: Wear appropriate personal protective equipment. Do not allow this material to be released into the environment. Recover the product whenever possible. Avoid generating dust when sweeping or shoveling up. If required, wet the material with water to prevent creating dust. Pick up and place in a suitable container for reclamation or disposal.

Cleanup of Small Spills: Solids should be gently covered with wet absorbent pads. Clean spill with pad and dispose of properly. Decontaminate the spill area (three times) using a bleach and detergent solution and then rinse with clean water.

Large Spills: Restrict access to the spill areas. For spills of greater than 5 g, be sure not to generate dusts by gently covering with damp absorbent sheets, spill-control pads, pillows, cloths, or towels. The dispersion of particles into surrounding air and the possibility of inhalation is a serious matter and should be treated as such. Do not apply chemical in-activators as they may produce hazardous by-products. Sweep up or vacuum spilled solid (an explosion-proof vacuum should be used), avoiding the generation of airborne dusts. Decontaminate the area thoroughly.

All Spills: Use procedures described above and then place all spill residues in an appropriate, labeled container and seal. Move to a secure area. Dispose of in accordance with Federal, State, and local hazardous waste disposal regulations (see Section 13, Disposal Considerations). For spills on water, contain, minimize dispersion and collect. Dispose of recovered material and report spill per regulatory requirements.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING: All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing airborne dusts generated by this product. Use in a well-ventilated area. Ensure this product is used with adequate ventilation and personal protective equipment (see Section 8, Exposure Controls and Personal Protection). Avoid airborne dusts generated by this product. Clean work areas routinely to prevent accumulation of dust. Clean up spills promptly.

CONDITIONS FOR SAFE STORAGE: Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials (see Section 10, Stability and Reactivity). Have appropriate extinguishing equipment in the storage area (e.g., sprinkler system, portable fire extinguishers). Keep container tightly closed when not in use. Refer to NFPA 654, *Prevention of Fire and Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids* for additional information on storage.

SPECIFIC END USE(S): These products are used in chalk line devices in construction. Follow all industry standards for use of this product.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Decontaminate equipment thoroughly, before maintenance begins. Collect all residue and dispose of according to applicable or applicable federal, state, provincial and local standards.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limit 8-Hour TWA1(mg/m3)

Component	CAS No.	% by weight	OSHA PEL	ACGIH TLV	NIOSH REL
Calcium Carbonate (Limestone) (4)	471-34-1; (1317-65-3)	85-90	15(2), 5 (3)	10(2)	10(2), 5(3)
Red Iron Oxide	1317-61-9	10-15	10	5(3)	5
Silica-Crystalline Quartz (4)	14808-60-7	0.1-1.0	10(2,5),3.3(3,5)	0.05(3)	0.05(3)

1TWA = Time-weighted average
2Total dust.
3Respirable dust.
4Calcium carbonate may contain crystalline silica at levels between 0.1 and 1.0 % and varies naturally.
5Using the OSHA quartz formula, this PEL was calculated assuming crystalline silica content of 1.0% in this ingredient.

SPECIAL NOTE: The following information is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132, including U.S. Federal OSHA Respiratory Protection (29 CFR 1910.134), OSHA Eye Protection 29 CFR 1910.133, OSHA Hand Protection 29 CFR 1910.138, OSHA Foot Protection 29 CFR 1910.136 and OSHA Body Protection 29 CFR1910.132), equivalent standards of Canada (including CSA Respiratory Standard Z94.4-02, Z94.3-M1982, Industrial Eye and Face Protectors and CSA Standard Z195-02, Protective Footwear), or standards of EU member states (including EN 529:2005 for respiratory PPE, CEN/TR 15419:2006 for hand protection, and CR 13464:1999 for face/eye protection). Please reference applicable regulations and standards for relevant details.

ENGINEERING CONTROLS: Facilities storing or utilizing this material should have potable water available for washing of eyes and skin. Use sufficient general area ventilation. To ensure exposure levels are maintained below the limits provided in this section if applicable.

VENTILATION: Local ventilation should be used.

RESPIRATORY PROTECTION: Maintain airborne contaminant concentrations below exposure limits listed above. For materials without listed exposure limits, minimize respiratory exposure. If necessary, use only respiratory protection authorized under appropriate regulations. Oxygen levels below 20% are considered IDLH by U.S. OSHA. In such atmospheres, use of a full-face piece pressure/demand SCBA or a full face piece, supplied air respirator with auxiliary self-contained air supply is required under U.S. OSHA‟s Respiratory Protection Standard (1910.134-1998).

EYE PROTECTION: Wear safety goggles/glasses as appropriate for the task if dust or other particulates are present. Face shields maybe recommended if solutions are made. If necessary, refer to appropriate regulations.

SKIN PROTECTION: Use appropriate protective clothing for the task. Full-body protective clothing and gloves are recommended for emergency response procedures. If necessary, refer to the U.S. OSHA Technical Manual (Section VII: Personal Protective Equipment) or other appropriate regulations.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: No information found.

WORK HYGIENIC PRACTICES: Wash contaminated clothing before reuse.

EXPOSURE GUIDELINES: No information found.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES
APPEARANCE: Powder – Red Color
ODOR: Odorless
pH AS SUPPLIED: 8.5-9.5 (at 10% solids)
BOILING POINT: No Data Available
MELTING POINT: Decomposes
F: 1517 Deg
C: 825Deg
FREEZING POINT: No Data Available.
VAPOR PRESSURE (mmHg): No Data Available.
VAPOR DENSITY (AIR = 1): No Data Available.
SPECIFIC GRAVITY (H2O = 1): No Data Available.
EVAPORATION RATE: No Data Available.

SECTION 10: STABILITY AND REACTIVITY
STABILITY: Stable under normal temperatures and pressures.

CONDITIONS TO AVOID (STABILITY): Incompatible materials

INCOMPATIBILITY (MATERIAL TO AVOID): Strong oxidizing agents, acids, aluminum, fluorine, magnesium, peroxides, hydrazine, calcium hypochlorite, performic acid, and bromine pentafluoride.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Carbon monoxide, carbon dioxide, calcium oxide.

HAZARDOUS POLYMERIZATION: Does not occur.

SECTION 11: TOXICOLOGICAL INFORMATION
TOXICOLOGICAL INFORMATION: SYMPTOMS OF EXPOSURE BY ROUTE OF EXPOSURE: The most significant routes of industrial exposure to this product are by skin or eye contact and inhalation.

INHALATION: If dusts or particulates from these products are inhaled, irritation of the nose, throat, and lungs can occur. Symptoms may include sneezing, coughing, nasal congestion, and difficulty breathing. Symptoms are generally alleviated upon exposure to fresh air. If heated, chronic exposure to concentrations of silicon dioxide fume may cause chronic obstructive lung disease. Inhalation of iron oxide fume or dust is cause of pulmonary roentgen graphic appearance called siderosis, or an accumulation of iron that leads to reduced lung capacity. These products contain Crystalline Silica, which is a known human carcinogen. Chronic inhalation exposure to this material may cause silicosis, pulmonary fibrosis, bronchitis or present a hazard of cancer, due to the presence of Crystalline Silica.

CONTACT WITH SKIN or EYES: Skin contact may cause abrasion, redness, and discomfort. Prolonged and repeated skin exposure may cause dermatitis (dry, red skin). Direct eye contact with these products may cause stinging, abrasions, and redness. Dust can cause mechanical irritation to the eye. Repeated contact of dust with the eyes can cause conjunctivitis a disease that may cause eyes to become pink and sore), or can cause discoloration of the eyes.

SKIN ABSORPTION: This product does not pose a hazard of skin absorption.

INGESTION: Ingestion is an unlikely route of occupational exposure to this product. In the unlikely event that dusts from the product are ingested nausea, vomiting, and diarrhea may result.
Repeated ingestion of iron compounds can cause vomiting, diarrhea, pink urine, black stool, and liver or kidney damage. Repeated ingestion of iron compounds can also cause siderosis, which is an accumulation of iron in tissues.

Chronic: Repeated inhalation exposure of crystalline silica above safe levels may cause adverse effects to the respiratory system. Chronic inhalation may result in pulmonary fibrosis. This product contains crystalline silica, which is a known human carcinogen.

SECTION 11 NOTES: The International Agency for Research on Cancer (IARC) classified (quartz) crystalline silica (cs) as a probable carcinogen and in 1997 reclassified it as a Group 1 carcinogen, i.e., that there was sufficient evidence for carcinogenicity in experimental animals and sufficient evidence for carcinogenicity in humans. In its Ninth Annual Report on Carcinogens, the National Toxicology Program (NTP) listed crystalline silica as a known human carcinogen, based on sufficient evidence of carcinogenicity from studies in humans indicating a causal relationship between exposure to respirable crystalline silica and increased lung cancer rates in workers exposed to crystalline silica dust. The International Agency for Research on Cancer (IARC) has evaluated crystalline silica and determined that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1)."

SECTION 12: ECOLOGICAL INFORMATION
ECOLOGICAL INFORMATION: Safe practices must be in place to prevent environmental contamination.

SECTION 12 NOTES: These products have not been tested for aquatic or animal toxicity. All release to terrestrial, atmospheric and aquatic environments should be avoided.

SECTION 13: DISPOSAL CONSIDERATIONS
WASTE DISPOSAL METHOD: Waste from residue of this product is NOT hazardous waste according to the EPA regulations. Disposal by landfill may be acceptable. Waste disposal must follow all US Federal, State and Local (EPA) regulations, Canadian and European Governmental Guidelines.

SECTION 14: TRANSPORT INFORMATION
U.S. DEPARTMENT OF TRANSPORTATION: (DOT) These products are not classified as dangerous goods under the DOT regulations 49CFR: 172.101

WATER TRANSPORTATION: (IMO) Not classified as dangerous

AIR TRANSPORTATION: (ATA) Not classified as dangerous

SECTION 15: REGULATORY INFORMATION
U.S. FEDERAL REGULATIONS

OSHA: Components are listed as air contaminates. Regulation standards -29CFR. Standard number 1910.100 Table 2-1

TSCA (TOXIC SUBSTANCE CONTROL ACT): All components are listed on the TSCA inventory

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT): Not Listed

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT): The components of this product has been reviewed on the EAP Hazards Categories in section 311-312 and is considered a chronic health risk.

STATE REGULATIONS: California: (Proposition 65) WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm (Silica Caystalline Quartz, CAS Number: 14808-60-7)

CANADA WHIMS: (Workplace Hazardous Materials Information System) This SDS sheet contains all of the information needed by the CPR. (Controlled Products Regulation)

WHIMS CLASSIFICATION D2A: Very toxic (carcinogenicity)

EU CLASSIFICATION, LABELING: This product does meet the definition of hazard class described by the EUROPEAN UNION COUNCIL DIRECTIVE EC# 1272/2008.Classification information for components Crystalline Silica. EU Classification (xn) Harmful EU risk r68/20 harmful: Risk of irreversible damage through inhalation.

SECTION 16: OTHER INFORMATION

Hazard Ratings:
Hazardous Material Identification System (HMIS): Health 1*, Flammability 0, Reactivity 0*chronic effects
National Fire Protection Association (NFPA): Health 1, Flammability 0, Reactivity 0

The contents and format of this SDS are in accordance with the U.S. Hazard Communication Standard 29 CFR 1910.1200; the Canadian CPR, and Workplace Hazardous Materials Information System (WHMIS); and EEC Commission Directive 1999/45/EC, and EEC Commission Regulation 1907/2006/EC (REACH) Annex II.
DISCLAIMER OF LIABILITY The information in this SDS was obtained from sources which we believe are correct. However, the information is provided without any warranty, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product.
If the product is used as a component in another product, this SDS information may not be applicable.

End of document

SAFETY DATA SHEET
Klean Strip Lacquer Thinner

Printed: 01/22/2015
Revision: 01/12/2015
Supersedes Revision: 08/09/2014

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Klean Strip Lacquer Thinner

Company Name: W. M. Barr
2105 Channel Avenue
Memphis, TN 38113

Phone Number: (901)775-0100

Web site address: www.wmbarr.com

Emergency Contact: 3E 24 Hour Emergency Contact (800)451-8346
Information: W.M. Barr Customer Service (800)398-3892

Intended Use: Paint, stain, and varnish thinning.

Synonyms: GML170, QML170, CML170, QML170M, DML170, GML170P, PA12782, QML170W, GML170W, QML170S, GML170M

2. HAZARDS IDENTIFICATION

Flammable Liquids, Category 2
Acute Toxicity: Inhalation, Category 4
Skin Corrosion/Irritation, Category 2
Serious Eye Damage/Eye Irritation, Category 2
Germ Cell Mutagenicity, Category 1A
Toxic To Reproduction, Category 2
Target Organ Systemic Toxicity (single exposure), Category 1
Target Organ Systemic Toxicity (repeated exposure), Category 2
Aspiration Toxicity, Category 1

GHS Signal Word: **Danger**

GHS Hazard Phrases:
H225: Highly flammable liquid and vapor.
H332: Harmful if inhaled.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H340: May cause genetic defects.
H361: Suspected of damaging fertility or the unborn child.
H370: Causes damage to organs.
H373: May cause damage to organs through prolonged or repeated exposure.
H304: May be fatal if swallowed and enters airways.

GHS Precaution Phrases:
P233: Keep container tightly closed.
P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P240: Ground/bond container and receiving equipment.
P241: Use explosion-proof electrical/ventilating/lighting equipment.
P243: Take precautionary measures against static discharge.
P242: Use only non-sparking tools.
P271: Use only outdoors or in a well-ventilated area.
P261: Avoid breathing gas/mist/vapours/spray.
P264: Wash hands thoroughly after handling.
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P281: Use personal protective equipment as required.
P260: Do not breathe gas/mist/vapours/spray.
P270: Do not eat, drink or smoke when using this product.

GHS Response Phrases:

P370+378: In case of fire, use dry chemical to extinguish.
P303+361+353: IF ON SKIN or hair: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312: Call a POISON CENTER/doctor if you feel unwell.
P302+352: IF ON SKIN: Wash with plenty of soap and water.
P321: Specific treatment see label.
P332+313: If skin irritation occurs, get medical advice/attention.
P362: Take off contaminated clothing.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+313: If eye irritation persists, get medical advice/attention.
P308+313: IF exposed or concerned: Get medical attention/advice.
P307+311: IF exposed: Call a POISON CENTER or doctor/physician.
P314: Get medical attention/advice if you feel unwell.
P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331: Do NOT induce vomiting.

GHS Storage and Disposal Phrases:

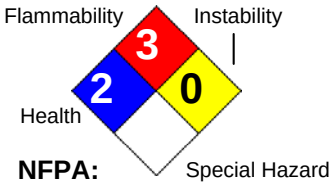
P403+235: Store in cool/well-ventilated place.
P501: Dispose of contents/container according to local, state and federal regulations.
P405: Store locked up.

Hazard Rating System:

HMIS:

HEALTH	*	2
FLAMMABILITY		3
PHYSICAL		0
PPE		X

NFPA:



OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

Potential Health Effects (Acute and Chronic):

Inhalation Acute Exposure Effects:
Vapor harmful. May cause dizziness; headache; watering of eyes; irritation of respiratory tract; weakness; drowsiness; nausea; numbness in fingers, arms and legs; depression of central nervous system; loss of appetite; fatigue; hallucinations; light headedness; visual disturbances; giddiness and intoxication; sleepiness; cough and dyspnea; cold, clammy extremities; diarrhea; vomiting; dilation of pupils; spotted vision. Severe overexposure may cause convulsions; unconsciousness; coma; and death. Intentional misuse of this product by deliberately concentrating and inhaling can be harmful or fatal.

Skin Contact Acute Exposure Effects:
May be absorbed through the skin. May cause irritation; numbness in the fingers and arms; drying of skin; and dermatitis. May cause increased severity of symptoms listed under inhalation.

Eye Contact Acute Exposure Effects:
This material is an eye irritant. May cause irritation; burns; conjunctivitis of eyes; and corneal ulcerations of the eye. Vapors may irritate eyes.

Ingestion Acute Exposure Effects:
Poison. Cannot be made non-poisonous. May be fatal or cause blindness. May cause dizziness; headache; nausea; vomiting; burning sensation in mouth, throat, and stomach; loss of coordination; depression of the central nervous system; narcosis; stupor; gastrointestinal irritation; liver, kidney, and heart damage; diarrhea; loss of appetite; coma and death. May produce symptoms listed under inhalation.

Chronic Exposure Effects:
Reports have associated repeated and prolonged overexposure to solvents with neurological and other physiological damage. Prolonged or repeated contact may cause dermatitis. Prolonged skin contact may result in absorption of a harmful amount of this material. May cause conjunctivitis; gastric disturbances; insomnia; dizziness; headache; weakness; fatigue; nausea; heart palpitations; skin irritation; numbness in hands and feet; permanent central nervous system changes; some loss of memory; pancreatic damage; giddiness; visual impairment or blindness; kidney or liver damage; and death. May cause symptoms listed under inhalation.

Target Organs: Central Nervous System, Liver, Kidney, Heart, Stomach, Respiratory System

Primary Routes of Entry: Inhalation, Ingestion, Skin Absorption

Medical Conditions Generally Aggravated By Exposure: Diseases of the skin, eyes, liver, kidneys, central nervous system and respiratory system.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #	Hazardous Components (Chemical Name)	Concentration
67-64-1	Acetone {2-Propanone}	<50.0 %
64742-89-8	Light aliphatic solvent naphtha (petroleum)	<=35.0 %
108-88-3	Toluene {Benzene, Methyl-; Toluol}	<=31.5 %
67-56-1	Methanol {Methyl alcohol; Carbinol; Wood alcohol}	<=35.0 %
141-78-6	Acetic acid, ethyl ester {Ethyl acetate}	<15.0 %
111-76-2	Ethanol, 2-Butoxy- {Ethylene glycol n-butyl ether, (a glycol ether)}	< 5.0 %
98-56-6	4-Chlorobenzotrifluoride {4-Chloro-.alpha.,.alpha.,.alpha.-trifluorotoluene}	< 5.0 %
763-69-9	Ethyl 3-ethoxypropionate {Popanoic acid, 3-ethoxy-,ethyl ester}	< 5.0 %
8052-41-3	Stoddard solvent {Mineral spirits; Aliphatic Petroleum Distillates; White spirits}	< 5.0 %

Additional Chemical Information Following products listed above may not be present in all formulas: 4-Chlorobenzotrifluoride (98-56-6), Light aliphatic solvent naphtha (petroleum), Ethyl 3-ethoxypropionate (763-69-9), Stoddard solvent (8052-41-3)

4. FIRST AID MEASURES

Emergency and First Aid Procedures:

Skin:
Immediately begin washing the skin thoroughly with large amounts of water and mild soap, if available, while removing contaminated clothing. Seek medical attention if irritation persists.

Eyes:
Immediately begin to flush eyes with water, remove any contact lens. Continue to flush the eyes for at least 15 minutes, then seek immediate medical attention.

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting. Seek immediate medical attention. Call a physician, hospital emergency room, or poison control center immediately. Never give anything by mouth to an unconscious person.

Signs and Symptoms Of Exposure: See Potential Health Effects.

Note to Physician: Poison. This product contains methanol. Methanol is metabolized to formaldehyde and formic acid. These metabolites may cause metabolic acidosis, visual disturbances and blindness. Since metabolism is required for these toxic symptoms, their onset may be delayed from 6 to 30 hours following ingestion. Ethanol competes for the same metabolic pathway and has been used as an antidote. Methanol is effectively removed by hemodialysis. Call your local poison control center for further information.

5. FIRE FIGHTING MEASURES

NFPA Class IB

Flash Pt: < 15.00 F Method Used: Setaflash Closed Cup (Rapid Setaflash)

Explosive Limits: LEL: 1 UEL: 7

Autoignition Pt: No data.

Suitable Extinguishing Media: Use carbon dioxide, dry powder, or foam.

Unsuitable Extinguishing Media: Do not use a solid water stream, as this may spread the fire.

Fire Fighting Instructions: Self-contained respiratory protection should be provided for fire fighters fighting fires in buildings or confined areas. Storage containers exposed to fire should be kept cool with water spray to prevent pressure build-up. Stay away from heads of containers that have been exposed to intense heat or flame.

Flammable Properties and Hazards: No data available.

6. ACCIDENTAL RELEASE MEASURES

Steps To Be Taken In Case Material Is Released Or Spilled:

Vapors may cause flash fire or ignite explosively.

Clean up: Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind, out of low areas, and ventilate closed spaces before entering. Shut off ignition sources; keep flares, smoking or flames out of hazard area. Use non-sparking tools. Use proper bonding and grounding methods for all equipment and processes. Keep out of waterways and bodies of water. Be cautious of vapors collecting in small enclosed spaces, sewers, low lying areas, confined spaces, etc.

Small spills: Take up with sand, earth or other noncombustible absorbent material and place in a plastic container where applicable.

Large spills: Dike far ahead of spill for later disposal.

Waste Disposal: Dispose in accordance with applicable local, state and federal regulations.

7. HANDLING AND STORAGE

Precautions To Be Taken in Handling:

Do not use in small enclosed spaces, such as basements and bathrooms. Vapors can accumulate and explode if ignited.
Read carefully all cautions and directions on product label before use. Since empty container retains residue, follow all label warnings even after container is empty. Dispose of empty container according to all regulations. Do not reuse this container.

Do not use this product near any source of heat or open flame, furnace areas, pilot lights, stoves, etc.

Do not use in small enclosed spaces, such as basements and bathrooms. Vapors can accumulate and explode if ignited.

Do not spread this product over large surface areas because fire and health safety risks will increase dramatically.

Precautions To Be Taken in Storing:

Keep container tightly closed when not in use. Store in a cool, dry place. Do not store near flames or at elevated temperatures.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
67-64-1	Acetone {2-Propanone}	PEL: 1000 ppm	TLV: 500 ppm STEL: 750 ppm	No data.
64742-89-8	Light aliphatic solvent naphtha (petroleum)	No data.	No data.	No data.
108-88-3	Toluene {Benzene, Methyl-; Toluol}	PEL: 200 ppm STEL: 500 ppm/(10min) CEIL: 300 ppm	TLV: 50 ppm	No data.

67-56-1	Methanol {Methyl alcohol; Carbinol; Wood alcohol}	PEL: 200 ppm	TLV: 200 ppm STEL: 250 ppm	No data.
141-78-6	Acetic acid, ethyl ester {Ethyl acetate}	PEL: 400 ppm	TLV: 400 ppm	No data.
111-76-2	Ethanol, 2-Butoxy- {Ethylene glycol n-butyl ether, (a glycol ether)}	PEL: 50 ppm	TLV: 20 ppm	No data.
98-56-6	4-Chlorobenzotrifluoride {4-Chloro-.alpha.,.alpha.,.alpha.-trifluorotoluene}	No data.	No data.	No data.
763-69-9	Ethyl 3-ethoxypropionate {Popanoic acid, 3-ethoxy-,ethyl ester}	No data.	No data.	No data.
8052-41-3	Stoddard solvent {Mineral spirits; Aliphatic Petroleum Distillates; White spirits}	PEL: 500 ppm	TLV: 100 ppm	No data.

Respiratory Equipment (Specify Type): For OSHA controlled work place and other regular users. Use only with adequate ventilation under engineered air control systems designed to prevent exceeding appropriate TLV.

For occasional use, where engineered air control is not feasible, use properly maintained and properly fitted NIOSH approved respirator for organic solvent vapors. A dust mask does not provide protection against vapors.

Eye Protection: Protect eyes with chemical splash goggles.

Protective Gloves: Wear gloves with as much resistance to the chemical ingredients as possible. Glove materials such as nitrile rubber may provide protection. Glove selection should be based on chemicals being used and conditions of use. Consult your glove supplier for additional information. Gloves contaminated with product should be discarded and not reused.

Other Protective Clothing: Various application methods can dictate use of additional protective safety equipment, such as impermeable aprons, etc., to minimize exposure.

Engineering Controls (Ventilation etc.): Use only with adequate ventilation to prevent build-up of vapors. Open all windows and doors. Use only with a cross ventilation of moving fresh air across the work area. If strong odor is noticed or you experience slight dizziness, headache, nausea, or eye-watering - Stop - ventilation is inadequate. Leave area immediately.

Do not use in small enclosed spaces, such as basements and bathrooms.

Work/Hygienic/Maintenance Practices: A source of clean water should be available in the work area for flushing eyes and skin.
Do not eat, drink, or smoke in the work area.
Wash hands thoroughly after use.
Before reuse, thoroughly clean any clothing or protective equipment that has been contaminated by prior use.
Discard any clothing or other protective equipment that cannot be decontaminated, such as gloves or shoes.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical States:	[ ] Gas [X] Liquid [ ] Solid
Appearance and Odor:	Water White / Free and Clear
Melting Point:	No data.
Boiling Point:	133.00 F
Autoignition Pt:	No data.
Flash Pt:	< 15.00 F Method Used: Setaflash Closed Cup (Rapid Setaflash)
Explosive Limits:	LEL: 1 UEL: 7
Specific Gravity (Water = 1):	0.7742 - 0.7942
Density:	6.518 LB/GL
Vapor Pressure (vs. Air or mm Hg):	115 MM HG at 68.0 F
Vapor Density (vs. Air = 1):	> 1
Evaporation Rate:	> 1
Solubility in Water:	Slight
Viscosity:	Water thin
Percent Volatile:	100.0 % by weight.
VOC / Volume:	600.0000 G/L

10. STABILITY AND REACTIVITY

Stability:	Unstable [ ] Stable [X]
Conditions To Avoid - Instability:	No data available.
Incompatibility - Materials To Avoid:	Incompatible with strong oxidizing agents, strong caustics, hydrogen peroxide, and nitrates.
Hazardous Decomposition Or Byproducts:	Decomposition may produce carbon monoxide; carbon dioxide; formaldehyde; and unidentified organic compounds in black smoke.
Possibility of Hazardous Reactions:	Will occur [ ] Will not occur [X]
Conditions To Avoid - Hazardous Reactions:	No data available.

11. TOXICOLOGICAL INFORMATION

Toxicological Information: This product has not been tested as a whole. Information below will be for individual ingredients.

CAS# 67-64-1:
Standard Draize Test, Eyes, Species: Rabbit, 20.00 MG, Severe.
Result:
Behavioral: Change in motor activity (specific assay).
Behavioral: Alteration of classical conditioning.
- American Journal of Ophthalmology., Ophthalmic Pub. Co., 435 N. Michigan Ave., Suite 1415, Chicago, IL 60611, Vol/p/yr: 29,1363, 1946

CAS# 108-88-3:
Reproductive Effects:, TCLo, Inhalation, Rat, 800.0 MG/M3, 6 H, female 14-20 day(s) after conception.
Result:
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).
Effects on Newborn: Behavioral.
- Brazilian Journal of Medical and Biological Research., Vol/p/yr: 23,533, 1990

Mutagenicity:, Mutation test: DNA damage., Rat, 30.00 UMOL/L, Cell Type: liver..
Result:
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Standard Draize Test, Skin, Species: Rabbit, 20.00 MG, 24 H, Moderate.
Result:
Cardiac: Pulse rate decreased with fall in BP.
Lungs, Thorax, or Respiration:Other changes.
- Prehled Prumyslove Toxikologie, Marhold, J., Organicke Latky, Prague Czechoslovakia, Vol/p/yr: -,29, 1986

Standard Draize Test, Eyes, Species: Rabbit, 2.000 MG, 24 H, Severe.
Result:
Effects on Embryo or Fetus: Other effects to embryo.
Specific Developmental Abnormalities: Eye, ear.
- Prehled Prumyslove Toxikologie, Marhold, J., Organicke Latky, Prague Czechoslovakia, Vol/p/yr: -,29, 1986

CAS# 67-56-1:
Mutagenicity:, Mutation test: DNA damage., Oral, Rat, 10.00 UMOL/KG.
Result:
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria.
Tumorigenic:Tumors at site of application.
- Environmental Mutagenesis., For publisher information, see EMMUEG, New York, NY, Vol/p/yr: 4,317, 1982

CAS# 141-78-6:
Standard Draize Test, Eyes, Human, 400.0 PPM.
Result:

Chronic Toxicological Effects:

Liver: Hepatitis (hepatocellular necrosis), zonal.
- Journal of Industrial Hygiene and Toxicology, Vol/p/yr: 25,282, 1943

CAS# 111-76-2:
Acute toxicity, LC50, Inhalation, Rat, 450.0 PPM, 4 H.
Result:
Behavioral: Ataxia.
Nutritional and Gross Metabolic:Weight loss or decreased weight gain.
- Toxicology and Applied Pharmacology, Academic Press, Inc., 1 E. First St., Duluth, MN 55802, Vol/p/yr: 68,405, 1983

Standard Draize Test, Eyes, Species: Rabbit, 100.0 MG, Severe.
Result:
Effects on Newborn: Apgar score (human only).
Effects on Newborn: Other neonatal measures or effects.
Effects on Newborn: Drug dependency.
- American Journal of Ophthalmology., Ophthalmic Pub. Co., 435 N. Michigan Ave., Suite 1415, Chicago, IL 60611, Vol/p/yr: 29,1363, 1946

This product has not been tested as a whole. Information below will be for individual ingredients.

Carcinogenicity/Other Information:

IARC 3: Not Classifiable as to Carcinogenicity in Humans
ACGIH A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
ACGIH A4 - Not Classifiable as a Human Carcinogen

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
67-64-1	Acetone {2-Propanone}	n.a.	n.a.	A4	n.a.
64742-89-8	Light aliphatic solvent naphtha (petroleum)	n.a.	n.a.	n.a.	n.a.
108-88-3	Toluene {Benzene, Methyl-; Toluol}	n.a.	3	A4	n.a.
67-56-1	Methanol {Methyl alcohol; Carbinol; Wood alcohol}	n.a.	n.a.	n.a.	n.a.
141-78-6	Acetic acid, ethyl ester {Ethyl acetate}	n.a.	n.a.	n.a.	n.a.
111-76-2	Ethanol, 2-Butoxy- {Ethylene glycol n-butyl ether, (a glycol ether)}	n.a.	3	A3	n.a.
98-56-6	4-Chlorobenzotrifluoride {4-Chloro-.alpha.,.alpha.,.alpha.-trifluorotoluene}	n.a.	n.a.	n.a.	n.a.
763-69-9	Ethyl 3-ethoxypropionate {Popanoic acid, 3-ethoxy-,ethyl ester}	n.a.	n.a.	n.a.	n.a.
8052-41-3	Stoddard solvent {Mineral spirits; Aliphatic Petroleum Distillates; White spirits}	n.a.	n.a.	n.a.	n.a.

12. ECOLOGICAL INFORMATION

General Ecological Information: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of in accordance with all applicable local, state, and federal regulations.

14. TRANSPORT INFORMATION

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Paint Related Material
DOT Hazard Class: 3 FLAMMABLE LIQUID
UN/NA Number: UN1263 **Packing Group:** II

Additional Transport Information: For D.O.T. information, contact W.M. Barr Technical Services at 1-800-398-3892.

The shipper/supplier may apply one of the following exceptions: Combustible Liquid, Consumer Commodity, Limited Quantity, Viscous Liquid, Does Not Sustain Combustion, or others, as allowed under 49CFR Hazmat Regulations. Please consult 49CFR Subchapter C to ensure that subsequent shipments comply with these exceptions.

15. REGULATORY INFORMATION

This material meets the EPA 'Hazard Categories' defined for SARA Title III Sections 311/312 as indicated:	[X] Yes [ ] No	Acute (immediate) Health Hazard
	[X] Yes [ ] No	Chronic (delayed) Health Hazard
	[X] Yes [ ] No	Fire Hazard
	[ ] Yes [X] No	Sudden Release of Pressure Hazard
	[ ] Yes [X] No	Reactive Hazard

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
67-64-1	Acetone {2-Propanone}	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory, 4 Test; CA PROP.65: No
64742-89-8	Light aliphatic solvent naphtha (petroleum)	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
108-88-3	Toluene {Benzene, Methyl-; Toluol}	CAA HAP,ODC: HAP; CWA NPDES: Yes; TSCA: Yes - Inventory, 8A CAIR; CA PROP.65: Yes
67-56-1	Methanol {Methyl alcohol; Carbinol; Wood alcohol}	CAA HAP,ODC: HAP; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: Yes
141-78-6	Acetic acid, ethyl ester {Ethyl acetate}	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory, 4 Test; CA PROP.65: No
111-76-2	Ethanol, 2-Butoxy- {Ethylene glycol n-butyl ether, (a glycol ether)}	CAA HAP,ODC: HAP; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
98-56-6	4-Chlorobenzotrifluoride {4-Chloro-.alpha.,.alpha.,.alpha.-trifluorotoluene}	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory, 4 Test; CA PROP.65: No
763-69-9	Ethyl 3-ethoxypropionate {Popanoic acid, 3-ethoxy-,ethyl ester}	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No
8052-41-3	Stoddard solvent {Mineral spirits; Aliphatic Petroleum Distillates; White spirits}	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No

16. OTHER INFORMATION

Revision Date:	01/12/2015
Preparer Name:	W.M. Barr EHS Dept (901)775-0100
Additional Information About This Product:	No data available.
Company Policy or Disclaimer:	The information contained herein is presented in good faith and believed to be accurate as of the effective date shown above. This information is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determination of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. Any use of this data and information must be determined by the user to be in accordance with applicable federal, state and local laws and regulations.

SAFETY DATA SHEET
Klean Strip Odorless Mineral Spirits and Odorless Painter's Solvent

Printed: 10/22/2014
Revision: 10/22/2014
Supersedes Revision: 09/27/2010

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Klean Strip Odorless Mineral Spirits and Odorless Painter's Solvent

Company Name: W. M. Barr
2105 Channel Avenue
Memphis, TN 38113

Phone Number: (901)775-0100

Web site address: www.wmbarr.com

Emergency Contact: 3E 24 Hour Emergency Contact (800)451-8346
Information: W.M. Barr Customer Service (800)398-3892

Intended Use: For thinning oil-based paint, stain and varnish.

Synonyms: QKSP94205CA, GKSP94214CA, QKSP94005CA, QKSP94005LCA, GKSP94006CA, GKSP94006PCA, GKSP94006SC, GKSP94006PSC, GKSP94214SC, QKSP94205SC, QKSP94005SC

2. HAZARDS IDENTIFICATION

Aspiration Toxicity, Category 1

GHS Signal Word: **Danger**

GHS Hazard Phrases: H304: May be fatal if swallowed and enters airways.
H336: May cause drowsiness or dizziness.

GHS Precaution Phrases: No phrases apply.

GHS Response Phrases: P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331: Do NOT induce vomiting.

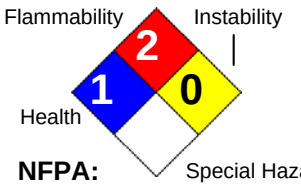
GHS Storage and Disposal Phrases: P405: Store locked up.
P501: Dispose of contents/container according to local, state and federal regulations.

Hazard Rating System:

HMIS:

HEALTH	1
FLAMMABILITY	2
PHYSICAL	0
PPE	X

NFPA:



OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

Potential Health Effects (Acute and Chronic):

INHALATION:
Vapor harmful. Danger of serious damage to health by prolonged exposure through inhalation.

SKIN CONTACT:
Prolonged skin contact may cause skin irritation and/or dermatitis.

EYE CONTACT:
Liquid contact may cause irritation.

INGESTION:
Harmful or fatal if swallowed. May cause gastrointestinal irritation, nausea, vomiting, and diarrhea.

CHRONIC EFFECTS:
Reports have associated repeated and prolonged overexposure to solvents with neurological and other physiological damage.

TARGET ORGANS: skin, central nervous system

PRIMARY ROUTES OF ENTRY: inhalation, skin contact

Medical Conditions Generally Aggravated By Exposure: None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #	Hazardous Components (Chemical Name)	Concentration
64742-47-8	Hydrotreated light distillate (petroleum)	100.0 %

4. FIRST AID MEASURES

Emergency and First Aid Procedures:

Skin:
Wash the skin thoroughly with water and soap, if available, while removing contaminated clothing. Seek medical attention if irritation develops or persists.

Eyes:
Immediately begin to flush eyes with water, remove any contact lens. Continue to flush the eyes for at least 15 minutes. Seek medical attention.

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

Ingestion:
If swallowed, do NOT induce vomiting. Seek immediate medical attention. Call a physician, hospital emergency room, or poison control center immediately. Never give anything by mouth to an unconscious person.

Signs and Symptoms Of Exposure: See Potential Health Effects.

5. FIRE FIGHTING MEASURES

NFPA Class IIIB

Flash Pt: 218.00 F Method Used: Pensky-Marten Closed Cup

Explosive Limits: LEL: 0.6 % UEL: 5.5 %

Autoignition Pt: 456.80 F

Suitable Extinguishing Media: Use carbon dioxide, dry powder, foam, or water spray / fog.

Unsuitable Extinguishing Media: None known.

Fire Fighting Instructions: Self-contained respiratory protection should be provided for fire fighters fighting fires in buildings or confined areas. Storage containers exposed to fire should be kept cool with water spray to prevent pressure build-up. Stay away from heads of containers that have been exposed to intense heat or flame.

Flammable Properties and Hazards: No data available.

6. ACCIDENTAL RELEASE MEASURES

Steps To Be Taken In Case Material Is Released Or Spilled: Isolate the immediate area. Prevent unauthorized entry. Eliminate all sources of ignition in area and downwind of the spill area. Stay upwind, out of low areas, and ventilate closed spaces before entering. All equipment used when handling this product must be grounded or non-sparking. Do not touch or walk through spilled material. Stop leak if you can do so without risk. Prevent entry into waterways, sewers, or confined areas. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand, or other non-combustible material and transfer to compatible containers. For large spills, dike ahead of the spill for possible collection and reuse or disposal.

7. HANDLING AND STORAGE

Precautions To Be Taken in Handling: Read carefully all cautions and directions on product label before use. Since empty container retains residue, follow all label warnings even after container is empty. Dispose of empty container according to all regulations. Do not reuse this container.

Do not use near any source of heat or open flame, furnace areas, pilot lights, stoves, etc.

Ensure all equipment is electrically grounded before beginning transfer operations.

Avoid prolonged skin contact.

Precautions To Be Taken in Storing: Keep container tightly closed when not in use. Store in a cool, dry place. Do not store near any source of heat or open flame, furnace areas, pilot lights, stoves, etc.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
64742-47-8	Hydrotreated light distillate (petroleum)	No data.	TLV: 200 mg/m3	No data.

Respiratory Equipment (Specify Type): For use in areas with inadequate ventilation or fresh air, wear a properly maintained and properly fitted NIOSH approved respirator for organic solvent vapors.

For OSHA controlled work places and other regular users - Use only with adequate ventilation under engineered air control systems designed to prevent exceeding the appropriate TLV.

A dust mask does not provide protection against vapors.

Eye Protection: Chemical splash goggles should be worn to prevent eye contact.

Protective Gloves: Wear gloves with as much resistance to the chemical ingredients as possible. Glove materials such as nitrile rubber may provide protection. Glove selection should be based on chemicals being used and conditions of use. Consult your glove supplier for additional information. Gloves contaminated with product should be discarded and not reused.

Other Protective Clothing: Various application methods can dictate use of additional protective safety equipment, such as impermeable aprons, etc., to minimize exposure. Before reuse, thoroughly clean any clothing or protective equipment that has been contaminated by prior use. Discard any clothing or other protective equipment that cannot be decontaminated, such as gloves or shoes.

Engineering Controls (Ventilation etc.): Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Use only with adequate ventilation to prevent buildup of vapors. Do not use in areas

where vapors can accumulate and concentrate, such as basements, bathrooms or small enclosed areas. Whenever possible, use outdoors in an open air area. If using indoors open all windows and doors and maintain a cross ventilation of moving fresh air across the work area. If strong odor is noticed or you experience slight dizziness, headache, nausea or eye-watering -- STOP -- ventilation is inadequate. Leave area immediately and move to fresh air.

Work/Hygienic/Maintenance Practices: Wash hands thoroughly after use and before eating, drinking, or smoking.

Do not eat, drink, or smoke in the work area.

Facilities storing or handling this material should be equipped with an emergency eyewash and safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical States:	[ ] Gas [X] Liquid [ ] Solid
Appearance and Odor:	Aromatic hydrocarbon-like odor. Clear liquid.
Melting Point:	-72.40 F
Boiling Point:	449.00 F - 505.00 F
Autoignition Pt:	456.80 F
Flash Pt:	218.00 F Method Used: Pensky-Marten Closed Cup
Explosive Limits:	LEL: 0.6 % UEL: 5.5 %
Specific Gravity (Water = 1):	0.8102 at 25.0 C
Density:	6.84 LB/GL
Vapor Pressure (vs. Air or mm Hg):	0.05 MM HG at 78.0 F
Vapor Density (vs. Air = 1):	5.9 Air = 1
Evaporation Rate:	0.02
Solubility in Water:	Not Soluble
Percent Volatile:	100.0 % by weight.
VOC / Volume:	0.0000 G/L
Additional Physical Information	This product is not a VOC as defined by the California Air Resources Board (CARB).

10. STABILITY AND REACTIVITY

Stability:	Unstable [ ] Stable [X]
Conditions To Avoid - Instability:	No data available.
Incompatibility - Materials To Avoid:	Incompatible with oxidizing agents.
Hazardous Decomposition Or Byproducts:	Thermal decomposition may produce carbon monoxide and carbon dioxide.
Possibility of Hazardous Reactions:	Will occur [ ] Will not occur [X]
Conditions To Avoid - Hazardous Reactions:	No data available.

11. TOXICOLOGICAL INFORMATION

Toxicological Information: No data available.

Chronic Toxicological Effects:

Carcinogenicity/Other Information: ACGIH A4 - Not Classifiable as a Human Carcinogen.

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
64742-47-8	Hydrotreated light distillate (petroleum)	n.a.	n.a.	A4	n.a.

12. ECOLOGICAL INFORMATION

General Ecological Information: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose in accordance with applicable local, state, and federal regulations.

14. TRANSPORT INFORMATION

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Paint Related Material, Not Regulated
DOT Hazard Class:
UN/NA Number:

Additional Transport Information: For D.O.T. information, contact W.M. Barr Technical Services at 1-800-398-3892.

The shipper / supplier may apply one of the following exceptions: Combustible Liquid, Consumer Commodity, Limited Quantity, Viscous Liquid, Does Not Sustain Combustion, or others, as allowed under 49CFR Hazmat Regulations. Please consult 49CFR Subchapter C to ensure that subsequent shipments comply with these exceptions.

15. REGULATORY INFORMATION

This material meets the EPA 'Hazard Categories' defined for SARA Title III Sections 311/312 as indicated:

[X] Yes [ ] No Acute (immediate) Health Hazard
[X] Yes [ ] No Chronic (delayed) Health Hazard
[ ] Yes [X] No Fire Hazard
[ ] Yes [X] No Sudden Release of Pressure Hazard
[ ] Yes [X] No Reactive Hazard

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
64742-47-8	Hydrotreated light distillate (petroleum)	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No

Regulatory Information Statement: All components of this material are listed on the TSCA Inventory or are exempt.

16. OTHER INFORMATION

Revision Date: 10/22/2014
Preparer Name: W.M. Barr EHS Department (901)775-0100
Additional Information About This Product: No data available.
Company Policy or The information contained herein is presented in good faith and believed to be accurate

Disclaimer:

as of the effective date shown above. This information is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determination of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. Any use of this data and information must be determined by the user to be in accordance with applicable federal, state and local laws and regulations.

SAFETY DATA SHEET

Spectrum Group
Division of United Industries Corp
P.O. Box 142642
St. Louis, MO 63114-0642

Product Name: Spectracide Wasp & Hornet Killer$_3$
Phone: 1-800-917-5438
Items: HG-75715; HG-95715-3; HG-95865
Formula Code: 21-1058, 21-0666, 01-1006

SDS Date: **2/17/2015**
Product Name: **Spectracide Wasp & Hornet Killer$_3$**
EPA Reg. No. 9688-190-8845

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

CAS #: Aerosol
Product Use: Wasp & Hornet Killer Aerosol

Manufacturer:
Chemsico
Div. of United Industries Corp.
P.O. Box 142642
St. Louis, MO 63114

SECTION 2 - HAZARDS IDENTIFICATION

This product is classified according to the Global Harmonization System (GHS).

ROUTES OF EXPOSURE

Potential short term health effects: Skin, Ingestion

Eyes: No expected reaction.

Skin: May cause irritation.

Inhalation: No expected reaction.

Ingestion: May cause stomach distress, nausea or vomiting.

Target organs: Skin, Digestive system

Chronic effects: Prolonged or repeated exposure can cause drying, defatting and dermatitis.

Signs and symptoms: Symptoms may include redness, edema, drying, defatting and cracking of the skin.

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Composition comments: This product is considered not hazardous under 29 CFR 1910.1200 (Hazard Communication).

NOTE: No reportable quantities of hazardous ingredients are present per OSHA 29 CFR 1910.1200. No toxic chemical(s) subject to reporting requirements of Section 313 of Title III and 40 CFR 372 are present.

ACTIVE COMPONENT	CAS#	PERCENTAGE
Lambda-cyhalothrin	91465-08-6	0.010%
Prallethrin	23031-36-9	0.025%
Petroleum Distillates, light	64742-47-8	3.500%
Butyl Propasol	5131-66-8	3.000%
Propane	74-98-6	3.500%

OTHER COMPONENT	CAS#	PERCENTAGE
Other	N/A	89.965

Note: Ingredients not identified are not hazardous.

SECTION 4 - FIRST AID MEASURES

FIRST AID PROCEDURES

Eye contact: None required.

Skin contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a Poison Control Center or doctor for treatment advice.

Inhalation: None required.

Ingestion: Immediately call a Poison Control Center or doctor. Do not induce vomiting unless told to do so by a Poison Control Center. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

Note to Physician: Contains petroleum distillates – vomiting may cause aspiration pneumonia.

General advice: If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Keep out of reach of children.

SECTION 5 - FIRE FIGHTING MEASURES

Flammable properties: Pressurized Aerosol Container

SUITABLE EXTINGUISHING MEDIA

Extinguishing media: Water Fog, Foam, CO_2, Dry Chemical

Unsuitable extinguishing media: Not Available

SPECIFIC HAZARDS ARISING FROM THE CHEMICAL

Protection of firefighters: Not Available

Protective equipment for firefighters: Firefighters should wear full protective clothing including self-contained breathing apparatus.

Hazardous combustion products: None known

SENSITIVITY TO MECHANICAL IMPACT

Explosion data: Not Available

Sensitivity to static discharge: Not Available

Personal precautions: Keep unnecessary personnel away. Do not touch or walk through spilled material.

HMIS Ratings Health Hazard 1 Fire Hazard 2 Reactivity 0

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Methods for containment: Prevent entry into waterways, sewers, basements or confined areas.

Methods for cleaning up: Before attempting clean up, refer to hazard data given above. Small spills may be absorbed with earth, sand or absorbent material swept up and placed in suitable, covered, and labeled containers. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice. Never return spills in original containers for re-use.

SECTION 7 - HANDLING AND STORAGE

Handling: Use good industrial hygiene practices in handling this material.

Storage: Keep out of reach of children. Store in a closed container away from incompatible materials.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls: General ventilation normally adequate.

EYE / FACE PROTECTION

Personal protective equipment: None required

Hand protection: None required

Skin and body protection: None required

Respiratory protection: None required

General hygiene considerations: Handle in accordance with good industrial hygiene and safety practice. When using, do not eat or drink. Wash hands before breaks and immediately after handling the product.

SECTION 9 - PHYSICAL & CHEMICAL PROPERTIES

Appearance: Clear

Color: Light yellow to water-white

Form: Aerosol

Odor: Aromatic solvent (slight)

Odor threshold: Not Available.

Physical state: Pressurized liquid

pH: 7.0-7.5

Freezing point: 32°F

Boiling point: 212°F

Flash point: 119^0F (liquid portion)

Flame Extension 0” (level 1 aerosol)

Flammability limits in air, lower, % by volume: Not Available

Flammability limits in air, upper, % by volume:	Not Available
Vapor pressure:	Not Available
Vapor density:	Not Available
Specific gravity:	0.973
Octanol/water coefficient:	Not Available
Auto-ignition temperature:	Not Available

SECTION 10 - CHEMICAL STABILITY & REACTIVITY INFORMATION

Chemical stability:	Stable under recommended storage conditions.
Conditions to avoid:	Do not mix with other chemicals.
Incompatible materials:	Avoid strong oxidizers.
Hazardous decomposition products:	None known.
Possibility of hazardous reactions:	Hazardous polymerization does not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

EFFECTS OF ACUTE EXPOSURE

Eye:	None expected.
Skin:	May cause irritation.
Inhalation:	LC_{50} > 2mg/L (EPA Tox category IV)
Ingestion:	LD_{50} > 5000 mg/kg
Sensitization:	Not a skin sensitizer.
Chronic effects/ Carcinogenicity:	Not Available
Mutagenicity:	Not Available
Reproductive effects:	Not Available
Teratogenicity:	Not Available
Ecotoxicity:	Not Available

SECTION 12 - ECOLOGICAL INFORMATION

Environmental effects:	Not Available
Aquatic toxicity:	Toxic to aquatic organisms
Persistence / degradability:	Not Available
Bioaccumulation / accumulation:	Not Available
Partition coefficient:	Not Available
Mobility in environmental media:	Not Available
Chemical fate information:	Not Available

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste codes: Not Available

Disposal instructions: Dispose in accordance with all applicable regulations.

Waste from residues / unused products: Not Available

Contaminated packaging: Not Available

SECTION 14 - TRANSPORTATION INFORMATION

U.S. Department of Transportation (DOT): Aerosols, Flammable 2.1, UN-1950, Limited Quantity

U.S. Federal regulations: This product is not known to be 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.

IATA: 1950, Aerosols, Flammable, 2.1

IMDG: 1950, Aerosols, (lambda-cyhalothrin), Marine Pollutant, 2.1, Limited Quantity

SECTION 15 - REGULATORY INFORMATION

29 CFR 1910.1200 hazardous chemical Occupational Safety and Health Administration (OSHA): No

CERCLA (Superfund) reportable quantity: Not Available

HAZARD CATEGORIES

Superfund Amendments and Reauthorization Act of 1986 (SARA):

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

Section 302 extremely hazardous Substance: No

Section 311 hazardous chemical: No

Clean Air Act (CAA): Not Available

Clean Water Act (CWA): Not Available

State regulations:

INVENTORY STATUS

Inventory Country(s) or region name on inventory (yes/no)*: N/A, Regulated by EPA

Disclaimer:

Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

SECTION 16 - OTHER INFORMATION

Issue date: 2/17/2015

Prepared by: United Industries Corp.
(800) 242-1166

SAFETY DATA SHEET

Section 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name:	ABC Dry Chemical Fire Extinguishant
Other Identifiers:	Multi-purpose Dry Chemical
Product Code(s):	CH550, F15, F18
Model Code(s) for Extinguishers:	411, 417, 419, 423, 424, 425, 441, 443, 450, 456, 461, 464, 467, 470, 473, 476, 481, 487, 488, 491, 495, 500, 564, 567, 573, 581, 589, 592, 594, 668, 692, 720, 760, 763, 781.
Recommended Use:	Fire suppression, not for human or animal drug use.
Manufacturer:	AMEREX CORPORATION
Internet Address:	www.amerex-fire.com
Address:	7595 Gadsden Highway, P.O. Box 81 Trussville, AL 35173-0081
Company Telephone:	(205) 655-3271
E-mail Address:	info@amerex-fire.com
Emergency Contacts:	Chemtrec 1(800) 424-9300 or (703) 527–3887
Revised:	January 2015

Section 2. HAZARDS IDENTIFICATION

GHS – Classification

Health	Environmental	Physical
Acute Toxicity: Category 5	None	None
Skin Corrosion/Irritation: Category 2	None	None
Skin Sensitization: NO	None	None
Eye: Category 2B	None	Warning
Carcinogen: Category None	None	None

GHS – Label Symbol(s): None

GHS – Signal Word(s): **Warning**

Other Hazards Not Resulting in Classification: None

GHS – Hazard Phrases

GHS Hazard	GHS Codes(s)	Code Phrase(s)
Physical	None	
Health	H303	May be harmful if swallowed
	313	May be harmful in contact with skin
	320	Causes eye irritation
	333	May be harmful if inhaled
Environmental	None	
Precautionary:		
General	P101	If medical advice is needed, have product container or label at hand
	102	Keep out of reach of children
Prevention	234	Keep in original container
	251	Pressurized container; do not pierce or burn, even after use
	261	Avoid breathing dust
	264	Wash hands and face thoroughly after handling
	270	Do not eat, drink, or smoke when using this product
	281	Use personal protective equipment as required
	285	In case of inadequate ventilation, wear respiratory protection
Response	P301+322+331	If swallowed, drink 2-3 glasses of water and do not induce vomiting
	302+352	If on skin, wash with soap and water
	304+313+341	If inhaled, and if distress occurs, remove victim to fresh air and keep at rest in a position comfortable for breathing. Seek medical advice/attention
	305+351+338	If in eyes, rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do, and continue to rinse
	308+313	If exposed or concerned, get medical advice/attention
	337+313	If eye irritation persists; get medical advice/attention
Storage	P401+402+403	Store in original container or extinguisher in a dry, well ventilated place

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	EC No.	REACH Reg. No.	CAS-No.	Weight %
Mono-ammonium phosphate	NA	NA	7722-76-1	55-75
Ammonium sulfate	231-984-1	NA	7783-20-2	20-40
Fullers earth magnesium aluminum silicate	NA	Not Available	8031-18-3	<3
Mica- potassium aluminum silicate	NA	Not Available	12001-26-2	1-2
Silicone oil methyl hydrogen polysiloxane	NA	Not Available	63148-57-2	<1
Calcium carbonate	215-279-6	Not Available	1317-65-3	<1
Amorphous silica precipitated synthetic zeolite	262-373-8	Not Available	112926-00-8	<1
Yellow 14 pigment – diazo dye	228-767-9	Not Available	5468-75-7	<1

Emergency overview: Light yellow, fine solid powder, odorless.

Adverse health effects and symptoms: Irritant to the respiratory system; Irritating to eyes and skin. Symptoms may include coughing, shortness of breath, and irritation of the lungs, eyes, and skin.

Ingestion, although unlikely, may cause cramps, nausea and diarrhea.

Cut-off Levels

Chemical Name	Reproductive Toxicity	Carcinogenicity	Mutagenicity	Other Hazard Classes
Mono-ammonium Phosphate	NA	NA	NA	NA
Ammonium Sulfate	NA	NA	NA	NA
Fullers earth magnesium aluminum silicate	NA	NA	NA	NA
Mica- potassium aluminum silicate	NA	NA	NA	NA
Silicone oil methyl hydrogen polysiloxane	NA	NA	NA	NA
Calcium carbonate	NA	NA	NA	NA
Amorphous silica precipitated synthetic zeolite	NA	NA	NA	NA
Yellow 14 pigment – di-azo dye	NA	NA	NA	NA

Section 4. FIRST AID MEASURES

Eye Exposure: May cause irritation. Irrigate eyes with water and repeat until pain free. Seek medical attention if irritation develops, or if vision changes occur.

Skin Exposure: May cause skin irritation. In case of contact, wash with plenty of soap and water. Seek medical attention if irritation persists.

Inhalation: May cause irritation, along with coughing. If respiratory irritation or distress occurs, remove victim to fresh air. Seek medical attention if irritation persists.

Ingestion: Overdose symptoms may include numbness or tingling in hands or feet, uneven heart rate, paralysis, feeling faint, chest pain or heavy feeling, pain spreading to the arm or shoulder, nausea, diarrhea, sweating, general ill feeling, or seizure (convulsions). If victim is conscious and alert, give 2-3 glasses of water to drink. If conscious, do not induce vomiting. Seek immediate medical attention. Do not leave victim unattended. To prevent aspiration of swallowed product, lay victim on side with head lower than waist.

Medical conditions possibly aggravated by exposure: Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema, or bronchitis. Skin contact may aggravate existing skin

disease. Chronic overexposure may cause pneumoconiosis ("dusty lung" disease).

Section 5. FIRE-FIGHTING MEASURES

Flammable Properties:	Not flammable
Flash Point:	Not determined
Suitable Extinguishing Media:	Non-combustible. Use extinguishing media suitable for surrounding conditions.
Hazardous Combustion Products:	Carbon and sulfur oxides
Explosion Data:	
Sensitivity to Mechanical Impact:	Not sensitive
Sensitivity to Static Discharge:	Not sensitive
Unusual fire/explosion hazards:	In a fire this material may decompose, releasing oxides of carbon, sulfur, potassium and nitrogen (see Section 10).
Protective Equipment and Precautions for Firefighters:	As in any fire, wear self-contained breathing apparatus in pressure-demand, NIOSH approved or equivalent and full protective gear.

Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Avoid contact with skin, eyes, and clothing.
Personal Protective Equipment:	Minimum - safety glasses, gloves, and a dust respirator.
Emergency Procedures:	NA
Methods for Containment:	Prevent further leakage or spillage if safe to do so.
Methods for Clean Up:	Avoid dust formation; clean up released material using vacuum or wet sweep and shovel to minimize generation of dust. Bag and transfer to properly labeled containers. Ventilate area and wash spill site after material pickup is complete.
Environmental Precautions:	Prevent material from entering waterways.
Other:	If product is contaminated, use PPE and containment appropriate to the nature of the most toxic chemical/material in the mixture.

Section 7. HANDLING AND STORAGE

Personal Precautions: Use appropriate PPE when handling or maintaining equipment, and wash thoroughly after handling (see Section 8).

Conditions for Safe Storage/Handling: Keep product in original container or extinguisher. Contents may be under pressure – inspect for extinguisher rust periodically to ensure container integrity.

Incompatible Products: Do not mix with other extinguishing agents, particularly potassium bicarbonate and sodium bicarbonate. Incompatible with strong oxidizing agents and strong acids. Do not store in high humidity. Do not combine with chlorine compounds.

Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	OSHA PEL	ACGIH TLV	DFG MAK *	EU BLV
Mono-ammonium phosphate	PNOC** Total dust, 15 mg/m^3 Respirable fraction, 5 mg/m^3	PNOC Total dust, 10 mg/m^3 Respirable fraction, 3 mg/m^3	PNOC Total dust, 4 mg/m^3 Respirable fraction, 1.5 mg/m^3	NA
Ammonium Sulfate	PNOC** Total dust, 15 mg/m^3 Respirable fraction, 5 mg/m^3	PNOC Total dust, 10 mg/m^3 Respirable fraction, 3 mg/m^3	PNOC Total dust, 4 mg/m^3 Respirable fraction, 1.5 mg/m^3	NA
Mica	6 mg/m^3	3 mg/m3	NR	NA
Fullers Earth	PNOC** Total dust, 15 mg/m^3 Respirable fraction, 5 mg/m^3	PNOC Total dust, 10 mg/m^3 Respirable fraction, 3 mg/m^3	PNOC Total dust, 4 mg/m^3 Respirable fraction, 1.5 mg/m^3	
Silicone oil	NR**	NR	NR	NA
Calcium carbonate	PNOC Total dust, 15 mg/m^3 Respirable fraction, 5 mg/m^3	PNOC Total dust, 10 mg/m^3 Respirable fraction, 3 mg/m^3	-------	NA
Amorphous silica	80 mg/m^3 % silica	10 mg/m^3	4 mg/m^3	NA
Yellow 14 pigment	NR	NR	NR	NA

*German regulatory limits **PNOC = Particulates not otherwise classified (ACGIH) also known as Particulates not otherwise regulated (OSHA) *** NR = Not Regulated. All values are 8 hour time weighted average concentrations.

Engineering Controls: Showers
Eyewash stations
Ventilation systems

Personal Protective Equipment – PPE Code E:

Eye/Face Protection:	Tightly fitting safety goggles
Skin and Body Protection:	Wear protective gloves/coveralls
Respiratory Protection:	If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn. Use N95 dust mask for limited exposure; use air-purifying respirator (APR) with high efficiency particulate air (HEPA) filters for prolonged exposure. Positive-pressure-demand supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations. The need for respiratory protection is not likely for short-term use in well ventilated areas.
Hygiene Measures:	Good personal hygiene practices essential, such as avoiding food, tobacco products, or other hand-to-mouth contact when handling. Wash thoroughly after handling.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light yellow powder, finely divided odorless solid
Molecular Weight:	$NH_4H_2PO_4$: 115.03; $(NH_4)_2SO_4$: 132.14
Odor:	Odorless
Odor Threshold:	No information available
Decomposition Temperature ^oC:	100 - 120
Freezing Point ^oC:	No information available
Initial Boiling Point ^oC:	No information available
Physical State:	Crystalline Powder

pH:	Mixture approximately 4 to 5; NH4H2PO4: 4.2 in 0.2 molar solution; (NH4)2SO4: 5.5 in 0.1 molar solution
Flash Point ^{o}C:	None
Auto-ignition Temperature ^{o}C:	None
Boiling Point/Range ^{o}C:	Not Applicable
Melting Point/Range ^{o}C:	NH4H2PO4: 190; (NH4)2SO4: 280
Flammability:	Not Flammable
Flammability Limits in Air ^{o}C:	Upper – Not Flammable; Lower-Not Flammable
Explosive Properties:	None
Oxidizing Properties:	None
Volatile Component (%vol)	Not Applicable
Evaporation Rate:	Not Applicable
Vapor Density:	Not Applicable
Vapor Pressure:	Not Applicable
Specific gravity at 25 C:	NH4H2PO4: 1.80; (NH4)2SO4:: 1.77
Solubility:	Coated-Not Immediately Soluble in Water
Partition Coefficient:	NH4H2PO4 Est: -4.11; (NH4)2SO4: Est: -0.48
Viscosity:	Not Applicable

NOTE: NH4H2PO4 – Monoammonium Phosphate; (NH4)2SO4: – Ammonium Sulfate

Section 10. STABILITY AND REACTIVITY

Stability:	Stable under recommended storage and handling conditions.
Reactivity:	
Incompatibles:	Strong alkalis (bases), magnesium, strong oxidizers, isocyanuric acids and chlorine compounds.
Conditions to Avoid:	Storage or handling near incompatibles.
Hazardous Decomposition Products:	Heat of fire may release carbon monoxide, carbon dioxide, and sulfur dioxide. Also ammonia, oxides of phosphorous and nitrogen oxides may be released during decomposition.
Possibility of Hazardous Reactions:	Slight
Hazardous Polymerization	Does not occur

Section 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure:	Inhalation, skin, and eye contact.

Symptoms:

Immediate:	
Inhalation:	Irritation, coughing.
Eyes:	Irritation.
Skin:	Irritation.
Delayed:	Symptoms appear to be relatively immediate
Acute Toxicity:	Relatively non-toxic.
Chronic Toxicity:	
Short-term Exposure:	None known.
Long-term Exposure:	As with all dusts, pneumoconiosis, or "dusty lung" disease, may result from chronic exposure.

Acute Toxicity Values - Health

Chemical Name	LD50		LC50 (Inhalation)
	Oral	Dermal	
Mono-ammonium phosphate	5750 mg/kg (rat)	>7940 mg/kg (rabbit)	Not available
Ammonium Sulfate	2840 mg/kg (rat)	Not available	Not available
Mica	None	None	None
Fullers Earth	None	None	None
Silicone oil	None	None	None
Calcium carbonate	6450 mg/kg (rat)	500 mg/24 hr (rabbit)	Not available
Amorphous silica	>5000 mg/kg (rat)	>2000 mg/kg (rabbit)	>2.2 mg/L (rat)
Yellow 14 pigment	>17000 mg/kg (rat)	>3000 mg/kg (rat)	>4448 mg/m3 (rat)

Reproductive Toxicity:	This product's ingredients are not known to have reproductive or teratogenic effects.
Target Organs and Effects (TOST):	Respiratory system irritant). This product is a mild irritant to epithelial tissue, (eyes, mucous membranes, skin) and may aggravate dermatitis. No information was found indicating the product causes sensitization.

Other Toxicity Categories

Chemical Name	Germ Cell Mutagenicity	Carcino-genicity	Repro-ductive	TOST Single Exp	TOST Repeated Exp	Aspiration
Mono-ammonium phosphate	None	None	None	Cat 3	None	None
Ammonium Sulfate	None	None	None	Cat 3	None	None
Fullers earth	None	None	None	None	None	None
Mica	None	None	None	None	None	None
Silicone oil	None	None	None	None	None	None
Calcium carbonate	None	None	None	None	None	None
Amorphous silica	None	None	None	None	None	None
Yellow 14 pigment	None	None	None	None	None	None

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity:	Negative effects unknown. Provides nutrient nitrogen and phosphorus to plant life.
Persistence/Degradability:	Degrades rapidly in humid/wet environment.
Probability of rapid biodegradation:	NH4H2PO4 Est: 0.693 (Rapid); (NH4)2SO4: Est: 0.684 (Rapid)
Anaerobic biodegradation probability:	NH4H2PO4 Est: 0.398 (Slow); (NH4)2SO4: Est: 0.398 (Slow)
Bioaccummulation potential:	Low.
Bioconcentration factor:	NH4H2PO4: 3.16 L/kg; (NH4)2SO4: 3.16 L/kg (wet weight)
Bioaccummulation:	Extent unknown.
Mobility in soil:	Slow evaporation rate; water soluble, may leach to groundwater
Log Koc:	NH4H2PO4 Est: -1.25: (NH4)2SO4: Est: 1.35
Log Koa:	NH4H2PO4 Est: 16.72; (NH4)2SO4: Est: 20.10
Log Kaw:	NH4H2PO4 Est: -20.86; (NH4)2SO4: Est: -19.62

NOTE: NH4H2PO4 – Monoammonium Phosphate; (NH4)2SO4: – Ammonium Sulfate

Other Adverse Ecological Effects: No other known effects at this time

Aquatic Toxicity Values – Environment – Research

Chemical Name	Acute (LC50)	Chronic (LC50)
Monoammonium phosphate	N/A	N/A
Ammonium Sulfate	N/A	N/A
Mica	N/A	N/A
Fullers Earth	N/A	N/A
Silicone oil	N/A	N/A
Calcium carbonate	N/A	N/A
Amorphous silica	N/A	N/A
Yellow 14 pigment	N/A	N/A

Aquatic Toxicity Values – Environment – Estimates

Chemical Name	Acute (LC50)	EC50
Monoammonium phosphate	2,91e+07 mg/L Fish 96 hr; 9.4e+06 mg/l Daphnid 48 hr;	6.70e+05 mg/L Gr. Algae 96 hr
Ammonium Sulfate	2521 mg/L Fish 96 hr; 1244 mg/l Daphnid 48 hr;	518 mg/L Gr. Algae 96 hr
Mica	N/A	N/A
Fullers Earth	N/A	N/A
Silicone oil	N/A	N/A
Calcium carbonate	N/A	N/A
Amorphous silica	N/A	N/A
Yellow 14 pigment	N/A	N/A

Section 13. DISPOSAL CONSIDERATIONS

Safe Handling	Use appropriate PPE when handling, and wash thoroughly after handling (see Section 8).
Waste Disposal Considerations	Dispose in accordance with federal, state, and local regulations.
Contaminated Packaging	Dispose in accordance with federal, state, and local regulations.

NOTES:
This product is not a RCRA characteristically hazardous or listed hazardous waste. Dispose of according to state or local laws, which may be more restrictive than federal laws or regulations. Used product may be altered or contaminated, creating different disposal considerations.

Section 14. TRANSPORT INFORMATION

UN Number:	NA
UN Proper Shipping Name:	NA
Transport Hazard Class:	NA
Packing Group:	NA
Marine Pollutant?:	NO
IATA	Not regulated
DOT	Not regulated

NOTES:
This product is not defined as a hazardous material under U.S. Department of Transportation (DOT) 49 CFR 172, or by Transport Canada “Transportation of Dangerous Goods” regulations.

Special Precautions for Shipping:
If shipped in a stored pressure-type fire extinguisher, and pressurized with a non-flammable, non-toxic inert expellant gas, the fire extinguisher is considered a hazardous material by the US Department of Transportation and Transport Canada. The proper shipping name shall be FIRE EXTINGUISHER and the UN designation is UN 1044. The DOT hazard class is Limited Quantity when pressurized to less than 241 psig and when shipped via highway or rail. Use a Non-Flammable Gas label (class 2.2) when shipping via air.

Section 15. REGULATORY INFORMATION

International Inventory Status: All ingredients are on the following inventories

Country(ies)	Agency	Status
United States of America	TSCA	Yes
Canada	DSL	Yes
Europe	EINECS/ELINCS	Yes
Australia	AICS	Yes
Japan	MITI	Yes
South Korea	KECL	Yes

REACH Title VII Restrictions: No information available

Chemical Name	Dangerous Substances	Organic Solvents	Harmful Substances Whose Names Are to be Indicated on Label	Pollution Release and Transfer Registry (Class II)	Pollution Release and Transfer Registry (Class I)	Poison and Deleterious Substances Control Law
Monoammonium Phosphate	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonium Sulfate	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Component	ISHA – Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying	ISHA – Harmful Substances Requiring Permission	Toxic Chemical Classification Listing (TCCL) – Toxic Chemicals	Toxic Release Inventory (TRI) – Group I	Toxic Release Inventory (TRI) – Group II
Monoammonium Phosphate 7722-76-1	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonium Sulphate	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Fullers earth magnesium aluminum silicate 8031-18-3 (>4)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Mica-potassium aluminum silicate 120001-26-2 (>2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Calcium carbonate 471-34-1	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Amorphous silica 69012-64-2	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Yellow 14 pigment 5468-75-7	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

European Risk and Safety phrases:

EU Classification: Irritant

R Phrases:	20	Harmful by inhalation.
	36/37	Irritating to eyes, respiratory system.
S Phrases:	22	Do not breath dust.
	24/25	Avoid contact with skin and eyes
	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	36	Wear suitable protective clothing.

U.S. Federal Regulatory Information:

SARA 313:
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) - This product does not contain and chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.
None of the chemicals in this product are under SARA reporting requirements or have SARA threshold planning quantities (TPQs) or CERCLA reportable quantities (RQs), or are regulated under TSCA 8(d).

SARA 311/312 Hazard Categories:

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard-*	Yes
Reactive Hazard	No

* - Only applicable if material is in a pressurized extinguisher.

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)
Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product does not contain any substances regulated as hazardous air pollutants (HAPs) under Section 112 of the Clean Air Act Amendments of 1990.

U.S. State Regulatory Information:

Chemicals in this product are covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: None
California – Permissible Exposure Limits for Chemical Contaminants: None

Florida – Substance List: Mica Dust **Illinois**
– Toxic Substance List: None **Kansas** –
Section 302/303 List: None **Massachusetts** –
Substance List: Mica Dust
Minnesota – List of Hazardous Substances: None
Missouri – Employer Information/Toxic Substance List: None
New Jersey – Right to Know Hazardous Substance List: None
North Dakota – List of Hazardous Chemicals, Reportable Quantities: None
Pennsylvania – Hazardous Substance List: None
Rhode Island – Hazardous Substance List: Mica Dust
Texas – Hazardous Substance List: No
West Virginia – Hazardous Substance List: None
Wisconsin – Toxic and Hazardous Substances: None

California Proposition 65: No component is listed on the California Proposition 65 list.

Other:

Mexico – Grade	No component listed
Canada – WHMIS Hazard Class	No component listed

Section 16. OTHER INFORMATION

This SDS conforms to requirements under U.S., U.K., Canadian, Australian, and EU regulations or standards, and conforms to the proposed 2003 ANSI Z400.1 format.

Issuing Date	17-June-2012
Revision Date	17-October-2013
Revision Date	06-January-2015
Revision Notes	None

The information herein is given in good faith but no warranty, expressed or implied, is made.
Updated by William F. Garvin, CIH.

SAFETY DATA SHEET

DATE: 1.1.2016 Rev 4

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION
PRODUCT NAME: Marking Chalk Glo Orange
USE OF PRODUCT: Chalk Box Marking Chalk
MANUFACTURER: Keson Industries
ADDRESS: 810 Commerce St., Aurora, Il. 60504
EMERGENCY PHONE: 1-800-345-3766 (8am to 5pm Central Time, Monday – Friday)

SECTION 2: HAZARDS IDENTIFICATION
OSHA GHS Hazard Statements (Warning Label)
DANGER: May cause cancer (lung)

EMERGENCY OVERVIEW:
Product Description: These products are colored, finely powdered, odorless chalks. Health Hazards: Inhalation of dusts from this product may irritate the respiratory system. Skin and eye contact may cause mechanical abrasion. These chalks contain Crystalline Silica, a known human carcinogen by inhalation.
Flammability Hazards: These chalks are not flammable. Finely divided dusts from these products can form explosive mixtures in air. If involved in a fire, these products may decompose to form iron oxides, aluminum oxides, silicon dioxide, sulfur dioxide, magnesium oxides, carbon oxides and calcium oxides.

POTENTIAL HEALTH EFFECTS
EYES: May cause irritation. Chalk dust is discomforting and abrasive to the eyes.

SKIN: Prolonged contact may cause irritation. When the product is used as intended, it is unlikely to cause problems.

INGESTION: Ingestion of large amount may cause internal irritation. Ingestion is considered an unlikely route of entry in commercial or industrial environments.

INHALATION: May irritate the respiratory system. When the product is used as intended, it is unlikely to cause problems.

Chronic: Repeated or prolonged inhalation exposure to crystalline silica dust beyond exposure limits may cause chronic lung injury (silicosis). Prolonged inhalation of iron oxide dust is known to produce a benign lung condition known as siderosis. When the product is used as intended, dust levels should not exceed exposure limits. See Sections 8 and 11.

WARNING

DANGER

Obtain special instructions before use. May cause cancer by inhalation. Avoid breathing dust or fume. Causes serious eye irritation. Causes mild skin irritation. Do not handle until all safety precautions have been read and understood. Wear protective gloves and eye protection.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substance name	Value (%)	CAS No.	EC No.
Calcium carbonate (1)	85-95	471-34-1	207-439-9
Glo Orange Pigment (2)	5-15	NONE	NONE
Silica (crystalline quartz) (1)	0.1 - 1	14808-60-7	238-878-4

1 Calcium carbonate may contain crystalline silica at levels between 0.1 and 1.0 % and varies naturally.
2 Formaldehyde is used in the manufacturing process of Glo Pigments. Cas Number 50-00-0

SECTION 4: FIRST AID MEASURES

EYES: If product enters the eye do not rub, rubbing may cause abrasions. Flush eyes with copious amounts of water for 15 minutes, occasionally lifting upper and lower eyelids. If adverse effects persist after flushing with water, get medical aid.

SKIN: Wet clothing first to minimize dust generation, then; remove contaminated clothing and shoes. Wash contaminated clothing before wearing again. Wash infected areas with water and soap. Get medical attention in the event of irritation.

INGESTION: If this material is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION**.** If professional advice is not available, seek immediate medical attention. If alert, victim should drink up to three glasses of water. Do not induce vomiting. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow. If victim is convulsing, maintain an open airway and obtain emergency medical attention.

INHALATION: If dust or particulates are inhaled, Remove from exposure and move to fresh air immediately. Encourage to blow nose to ensure clear breathing passages. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: Show this data safety sheet to medical professionals.

SECTION 5: FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Substance is noncombustible, however; the containers may burn, releasing carbon monoxide and carbon dioxide. Use appropriate extinguishing media for the combustible material involved in a fire.

SPECIAL FIRE FIGHTING PROCEDURES: As in any fire, wear self-contained breathing apparatus in pressure demand and full protective gear.

FIRE EXTINGUISHING MEDIA: Unless incompatibilities exist for surrounding materials, carbon dioxide, water spray, “ABC‟ type chemical extinguishers, foam, dry chemical and halon extinguishers can be used to fight fires involving this material.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Finely divided dusts from this material pose a hazard of an air/dust explosion in presence of an ignition source

HAZARDOUS DECOMPOSITION PRODUCTS: If oxidation of this product should occur, heat will be liberated which could cause surrounding combustibles to burn.

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES: Wear appropriate personal protective equipment. Do not allow this material to be released into the environment. Recover the product whenever possible. Avoid generating dust when sweeping or shoveling up. If required, wet the material with water to prevent creating dust. Pick up and place in a suitable container for reclamation or disposal.

Cleanup of Small Spills: Solids should be gently covered with wet absorbent pads. Clean spill with pad and dispose of properly. Decontaminate the spill area (three times) using a bleach and detergent solution and then rinse with clean water.

Large Spills: Restrict access to the spill areas. For spills of greater than 5 g, be sure not to generate dusts by gently covering with damp absorbent sheets, spill-control pads, pillows, cloths, or towels. The dispersion of particles into surrounding air and the possibility of inhalation is a serious matter and should be treated as such. Do not apply chemical in-activators as they may produce hazardous by-products. Sweep up or vacuum spilled solid (an explosion-proof vacuum should be used), avoiding the generation of airborne dusts. Decontaminate the area thoroughly.

All Spills: Use procedures described above and then place all spill residues in an appropriate, labeled container and seal. Move to a secure area. Dispose of in accordance with Federal, State, and local hazardous waste disposal regulations (see Section 13, Disposal Considerations). For spills on water, contain, minimize dispersion and collect. Dispose of recovered material and report spill per regulatory requirements.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING: All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing airborne dusts generated by this product. Use in a well-ventilated area. Ensure this product is used with adequate ventilation and personal protective equipment (see Section 8, Exposure Controls and Personal Protection). Avoid airborne dusts generated by this product. Clean work areas routinely to prevent accumulation of dust. Clean up spills promptly.

CONDITIONS FOR SAFE STORAGE: Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials (see Section 10, Stability and Reactivity). Have appropriate extinguishing equipment in the storage area (e.g., sprinkler system, portable fire extinguishers). Keep container tightly closed when not in use. Refer to NFPA 654, *Prevention of Fire and Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids* for additional information on storage.

SPECIFIC END USE(S): These products are used in chalk line devices in construction. Follow all industry standards for use of this product.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Decontaminate equipment thoroughly, before maintenance begins. Collect all residue and dispose of according to applicable or applicable federal, state, provincial and local standards.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limit 8-Hour TWA1(mg/m3)

Component	CAS No.	% by weight	OSHA PEL	ACGIH TLV	NIOSH REL
Calcium Carbonate (Limestone) (4)	471-34-1; (1317-65-3)	85-90	15(2), 5 (3)	10(2)	10(2), 5(3)
Glo Orange Pigment (6)	NONE	10-15	10	5(3)	5
Silica-Crystalline Quartz (4)	14808-60-7	0.1-1.0	10(2,5),3.3(3,5)	0.05(3)	0.05(3)

1TWA = Time-weighted average
2Total dust.
3Respirable dust.
4Calcium carbonate may contain crystalline silica at levels between 0.1 and 1.0 % and varies naturally.
5Using the OSHA quartz formula, this PEL was calculated assuming crystalline silica content of 1.0% in this ingredient.
6 formaldehyde is used in the manufacturing process of Glo pigments. Cas number 50-00-0

SPECIAL NOTE: The following information is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132, including U.S. Federal OSHA Respiratory Protection (29 CFR 1910.134), OSHA Eye Protection 29 CFR 1910.133, OSHA Hand Protection 29 CFR 1910.138, OSHA Foot Protection 29 CFR 1910.136 and OSHA Body Protection 29 CFR1910.132), equivalent standards of Canada (including CSA Respiratory Standard Z94.4-02, Z94.3-M1982, Industrial Eye and Face Protectors and CSA Standard Z195-02, Protective Footwear), or standards of EU member states (including EN 529:2005 for respiratory PPE, CEN/TR 15419:2006 for hand protection, and CR 13464:1999 for face/eye protection). Please reference applicable regulations and standards for relevant details.

ENGINEERING CONTROLS: Facilities storing or utilizing this material should have potable water available for washing of eyes and skin. Use sufficient general area ventilation. To ensure exposure levels are maintained below the limits provided in this section if applicable.

VENTILATION: Local ventilation should be used.

RESPIRATORY PROTECTION: Maintain airborne contaminant concentrations below exposure limits listed above. For materials without listed exposure limits, minimize respiratory exposure. If necessary, use only respiratory protection authorized under appropriate regulations. Oxygen levels below 20% are considered IDLH by U.S. OSHA. In such atmospheres, use of a full-face piece pressure/demand SCBA or a full face piece, supplied air respirator with auxiliary self-contained air supply is required under U.S. OSHA‟s Respiratory Protection Standard (1910.134-1998).

EYE PROTECTION: Wear safety goggles/glasses as appropriate for the task if dust or other particulates are present. Face shields maybe recommended if solutions are made. If necessary, refer to appropriate regulations.

SKIN PROTECTION: Use appropriate protective clothing for the task. Full-body protective clothing and gloves are recommended for emergency response procedures. If necessary, refer to the U.S. OSHA Technical Manual (Section VII: Personal Protective Equipment) or other appropriate regulations.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: No information found.

WORK HYGIENIC PRACTICES: Wash contaminated clothing before reuse.

EXPOSURE GUIDELINES: No information found.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES
APPEARANCE: Powder – Glo Orange Color
ODOR: Odorless
pH AS SUPPLIED: 8.5-9.5 (at 10% solids)
BOILING POINT: No Data Available
MELTING POINT: Decomposes
F: 1517 Deg
C: 825Deg
FREEZING POINT: No Data Available.
VAPOR PRESSURE (mmHg): No Data Available.
VAPOR DENSITY (AIR = 1): No Data Available.
SPECIFIC GRAVITY (H2O = 1): No Data Available.
EVAPORATION RATE: No Data Available.

SECTION 10: STABILITY AND REACTIVITY
STABILITY: Stable under normal temperatures and pressures.

CONDITIONS TO AVOID (STABILITY): Incompatible materials

INCOMPATIBILITY (MATERIAL TO AVOID): Strong oxidizing agents, acids, aluminum, fluorine, magnesium, peroxides, hydrazine, calcium hypochlorite, performic acid, and bromine pentafluoride.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Carbon monoxide, carbon dioxide, calcium oxide.

HAZARDOUS POLYMERIZATION: Does not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION: SYMPTOMS OF EXPOSURE BY ROUTE OF EXPOSURE: The most significant routes of industrial exposure to this product are by skin or eye contact and inhalation.

INHALATION: If dusts or particulates from these products are inhaled, irritation of the nose, throat, and lungs can occur. Symptoms may include sneezing, coughing, nasal congestion, and difficulty breathing. Symptoms are generally alleviated upon exposure to fresh air. If heated, chronic exposure to concentrations of silicon dioxide fume may cause chronic obstructive lung disease. Inhalation of iron oxide fume or dust is cause of pulmonary roentgen graphic appearance called siderosis, or an accumulation of iron that leads to reduced lung capacity. These products contain Crystalline Silica, which is a known human carcinogen. Chronic inhalation exposure to this material may cause silicosis, pulmonary fibrosis, bronchitis or present a hazard of cancer, due to the presence of Crystalline Silica.

CONTACT WITH SKIN or EYES: Skin contact may cause abrasion, redness, and discomfort. Prolonged and repeated skin exposure may cause dermatitis (dry, red skin). Direct eye contact with these products may cause stinging, abrasions, and redness. Dust can cause mechanical irritation to the eye. Repeated contact of dust with the eyes can cause conjunctivitis a disease that may cause eyes to become pink and sore), or can cause discoloration of the eyes.

SKIN ABSORPTION: This product does not pose a hazard of skin absorption.

INGESTION: Ingestion is an unlikely route of occupational exposure to this product. In the unlikely event that dusts from the product are ingested nausea, vomiting, and diarrhea may result.
Repeated ingestion of iron compounds can cause vomiting, diarrhea, pink urine, black stool, and liver or kidney damage. Repeated ingestion of iron compounds can also cause siderosis, which is an accumulation of iron in tissues.

Chronic: Repeated inhalation exposure of crystalline silica above safe levels may cause adverse effects to the respiratory system. Chronic inhalation may result in pulmonary fibrosis. This product contains crystalline silica, which is a known human carcinogen.

SECTION 11 NOTES: The International Agency for Research on Cancer (IARC) classified (quartz) crystalline silica (cs) as a probable carcinogen and in 1997 reclassified it as a Group 1 carcinogen, i.e., that there was sufficient evidence for carcinogenicity in experimental animals and sufficient evidence for carcinogenicity in humans. In its Ninth Annual Report on Carcinogens, the National Toxicology Program (NTP) listed crystalline silica as a known human carcinogen, based on sufficient evidence of carcinogenicity from studies in humans indicating a causal relationship between exposure to respirable crystalline silica and increased lung cancer rates in workers exposed to crystalline silica dust. The International Agency for Research on Cancer (IARC) has evaluated crystalline silica and determined that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1)."

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: Safe practices must be in place to prevent environmental contamination.

SECTION 12 NOTES: These products have not been tested for aquatic or animal toxicity. All release to terrestrial, atmospheric and aquatic environments should be avoided.

SECTION 13: DISPOSAL CONSIDERATIONS
WASTE DISPOSAL METHOD: Waste from residue of this product is NOT hazardous waste according to the EPA regulations. Disposal by landfill may be acceptable. Waste disposal must follow all US Federal, State and Local (EPA) regulations, Canadian and European Governmental Guidelines.

SECTION 14: TRANSPORT INFORMATION
U.S. DEPARTMENT OF TRANSPORTATION: (DOT) These products are not classified as dangerous goods under the DOT regulations 49CFR: 172.101

WATER TRANSPORTATION: (IMO) Not classified as dangerous

AIR TRANSPORTATION: (ATA) Not classified as dangerous

SECTION 15: REGULATORY INFORMATION
U.S. FEDERAL REGULATIONS

OSHA: Components are listed as air contaminates. Regulation standards -29CFR. Standard number 1910.100 Table 2-1

TSCA (TOXIC SUBSTANCE CONTROL ACT): All components are listed on the TSCA inventory

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT): Not Listed

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT): The components of this product has been reviewed on the EAP Hazards Categories in section 311-312 and is considered a chronic health risk.

STATE REGULATIONS: California: (Proposition 65) WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. (Silica Caystalline Quartz, CAS Number: 14808-60-7, Formaldehyde, CAS Number 50-00-0)

CANADA WHIMS: (Workplace Hazardous Materials Information System) This SDS sheet contains all of the information needed by the CPR. (Controlled Products Regulation)

WHIMS CLASSIFICATION D2A: Very toxic (carcinogenicity)

EU CLASSIFICATION, LABELING: This product does meet the definition of hazard class described by the EUROPEAN UNION COUNCIL DIRECTIVE EC# 1272/2008.Classification information for components Crystalline Silica. EU Classification (xn) Harmful EU risk r68/20 harmful: Risk of irreversible damage through inhalation.

SECTION 16: OTHER INFORMATION

Hazard Ratings:
Hazardous Material Identification System (HMIS): Health 1*, Flammability 0, Reactivity 0*chronic effects
National Fire Protection Association (NFPA): Health 1, Flammability 0, Reactivity 0

The contents and format of this SDS are in accordance with the U.S. Hazard Communication Standard 29 CFR 1910.1200; the Canadian CPR, and Workplace Hazardous Materials Information System (WHMIS); and EEC Commission Directive 1999/45/EC, and EEC Commission Regulation 1907/2006/EC (REACH) Annex II.
DISCLAIMER OF LIABILITY The information in this SDS was obtained from sources which we believe are correct. However, the information is provided without any warranty, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product.
If the product is used as a component in another product, this SDS information may not be applicable.

End of document

MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards .This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard (29 CFR 1910.1200). Other government regulations must be reviewed for applicability to these products.

WARNING: PRODUCT COMPONENTS PRESENT HEALTH AND SAFETY HAZARDS. READ AND UNDERSTAND THIS MATERIAL SAFETY DATA SHEET (M.S.DS.). ALSO, FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES. This product may contain Chromium and/or Nickel which are listed by OSHA, NTP, or IARC as being a carcinogen or potential carcinogen. Use of this product may expose you or others to fumes and gases at levels exceeding those established by the American Conference of Governmental Industrial Hygienists (ACGIH) or the Occupational Safety and Health Administration (OSHA) The information contained herein relates only to the specific product. If the product is combined with other materials, all component properties must be considered. **BE SURE TO CONSULT THE LATEST VERSION OF THE MSDS. MATERIAL SAFETY DATA SHEETS ARE AVAILABLE FROM HARRIS PRODUCTS GROUP** salesinfo@jwharris.com 513-754-2000 **www.harrisproductsgroup.com**

STATEMENT OF LIABILITY-DISCLAIMER

To the best of the Harris Products Group knowledge, the information and recommendations contained in this publication are reliable and accurate as of the date prepared. However, accuracy, suitability, or completeness are not guaranteed, and no warranty, guarantee, or representation, expressed or implied, is made by Harris Products Group as to the absolute correctness or sufficiency of any representation contained in this and other publications; Harris Products Group. assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this and other publications, or that other or additional measures may not be required under particular or exceptional conditions or circumstances . Data may be changed from time to time.

PART I *What is the material and what do I need to know in an emergency?*

1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED): **LEAD SOLDER**
CHEMICAL NAME/CLASS: Metal Alloy
SYNONYMS: Not Applicable
PRODUCT USE: Soldering
DOCUMENT NUMBER: 0126
SUPPLIER/MANUFACTURER'S NAME: **HARRIS PRODUCTS GROUP**
ADDRESS: 4501 Quality Place, Mason, Ohio 45040
EMERGENCY PHONE: CHEMTREC: 1-800-424-9300
BUSINESS PHONE: 513-754-2000 **FAX** 513-754-8778
DATE OF PREPARATION: August 13, 2010

2. COMPOSITION and INFORMATION ON INGREDIENTS

NOMINAL COMPOSITION WEIGHT % Wire							
TRADE NAME	**30/70**	**40/60**	**50/50**	**60/40**	**63/37**	**70/30**	**90/10**
Tin (Sn)	30%	40%	50%	60%	63%	70%	90%
Lead (Pb)	70%	60%	50%	40%	37%	30%	10%

NOMINAL COMPOSITION WEIGHT % Flux Core				
TRADE NAME	**Activated Rosin CAS # 8050-09-7**	**Ammonium Chloride CAS #**	**Zinc Chloride CAS # 7646-85-7**	**Water CAS #**
ACID CORE		< 20%	< 70%	Balance
ROSIN CORE	100%			

2. COMPOSITION and INFORMATION ON INGREDIENTS (Continued)

CHEMICAL NAME	CAS #	% w/w	EXPOSURE LIMITS IN AIR					
			ACGIH-TLV		OSHA-PEL		NIOSH	OTHER
			TWA mg/m^3	STEL mg/m^3	TWA mg/m^3	STEL mg/m^3	IDLH mg/m^3	mg/m^3
Activated Rosin Exposure limits are for Rosin Core Solder Decomposition Products, as resin-acids-colophony	8050-09-7	See Table Previous Page	Sensitizer; reduce exposure to as low as possible	NE	NE	NE	NE	DFG MAK: TWA = Danger of sensitization of the skin.
Ammonium Chloride Exposure limits are for Ammonium Chloride, fume	12125-02-9	See Table Previous Page	10	20	10 (Vacated 1989 PEL)	20 (Vacated 1989 PEL)	NE	NIOSH REL: TWA = 10 STEL = 20
Lead Exposure limits are for Lead, elemental & inorganic compounds, as Pb	7439-92-1	See Table Previous Page	0.05 , A4 (Not Classifiable as a Human Carcinogen)	NE	0.05 (see 29 CFR 1910.1025)	NE	100	NIOSH RELs: TWA = < 0.1 (blood Pb < 0.060 mg/100 g whole blood) DFG MAKs: TWA = 0.1 (Inhalable Fraction) PEAK = 10•MAK 30 min., average value DFG MAK Pregnancy Risk Classification: B Carcinogen: EPA-B2, IARC-2B, TLV-A3
Tin Exposure limits are for Tin, Metal	7440-31-5	See Table Previous Page	2	NE	2	NE	100	NE
Zinc Chloride Exposure limits are for Zinc Chloride, fume	7646-85-7	See Table Previous Page	1	2	1	2 (Vacated 1989 PEL)	50	NIOSH RELs: TWA = 1 STEL = 2 Carcinogen: EPA-D

NE = Not Established. See Section 16 for Definitions of Terms Used.

NOTE (1): The ACGIH has an established exposure limit for Welding Fumes, Not Otherwise Classified. The Threshold Limit Value is 5 mg/m^3. NIOSH classifies welding fumes as carcinogens. Single values shown are maximum, unless otherwise noted.

NOTE (2): ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 format. These products have been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: These products consist of odorless, lead/tin alloy wires, which have a metallic luster and may have a flux core. There are no immediate health hazards associated with these products, as wires. When heated during soldering operations, these products may generate irritating and toxic fumes of lead oxide, tin oxides, hydrogen chloride, zinc oxides, and ammonium compounds. There is a danger of cumulative effects if fumes or dusts from these products are inhaled or ingested. Contact with the rosin core of these wires can result in allergic reaction and sensitization to the skin in susceptible persons. These products are not reactive. If involved in a fire, these products may generate irritating fumes and a variety of metal oxides, as described above. Finely divided dusts of these products may result in explosive air/dust mixtures. Emergency responders must wear personal protective equipment suitable for the situation to which they are responding.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE: During soldering operations, the most significant route of over-exposure is via inhalation of fumes.

INHALATION: Inhalation of large amounts of particulates generated by these products during soldering operations may be physically irritating and cause deposits of dust in nasal passages. Due to the presence of lead, inhalation of fumes or dusts from these products can result in lead poisoning. Symptoms of poisoning include headache, fatigue, nausea, metallic taste in the mouth, abdominal cramps, joint pain, metallic taste in the mouth, vomiting, constipation, bloody diarrhea, and harmful effects on the central nervous system. Exposure to lead can cause significant cumulative toxic effects, effects on the reproductive system and may cause cancer. See information under “Other Health Effects” for additional information. When heated to decomposition, the rosin core of some of these products can include toxic compounds, including formaldehyde, acetaldehyde, or malonaldehyde. Inhalation of these fumes can result in irritation to the respiratory system.

3. HAZARD IDENTIFICATION (Continued)

INHALATION (continued): Exposure to dust or fumes of the Tin components is known to cause a benign

FOR WIRES

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

HEALTH	(BLUE)	0
FLAMMABILITY	(RED)	0
REACTIVITY	(YELLOW)	0
PROTECTIVE EQUIPMENT		X

EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8

For routine industrial applications for the rods

See Section 16 for Definition of Ratings

FOR FUMES OR DUSTS

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

HEALTH	(BLUE)	3
FLAMMABILITY	(RED)	0
REACTIVITY	(YELLOW)	0
PROTECTIVE EQUIPMENT		X

EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8

For routine industrial applications for the rods

See Section 16 for Definition of Ratings

pneumoconiosis (stannosis). This form of pneumoconiosis produces distinctive progressive x-ray changes of the lung as long as exposure persists, but there is no distinctive fibrosis, no evidence of disability, and no special complicating factors. In addition, inhalation of large amounts of dusts or fumes of these products, can cause metal fume fever. Symptoms of metal fume fever include flu-like symptoms, metallic taste, fever, sweating, chills, cough, weakness, chest pain, muscle pain, cardiac abnormalities, and increased white blood cell count. Damage to lungs can occur. Symptoms of metal fume fever can be delayed 24-48 hours. Refer to Section 10 (Stability and Reactivity) for information on the specific composition of soldering fumes and gases. There is some evidence that inhalation of fumes from the Ammonium Chloride component of these products may cause respiratory sensitization in susceptible individuals. Symptoms may include difficulty breathing, persistent coughing and wheezing.

CONTACT WITH SKIN or EYES: Contact of the wire form of these products with the skin is not anticipated to be irritating. Contact with the wire form of these products can be physically damaging to the eye. Fumes generated during soldering operations can be irritating to the skin and eyes. Symptoms of skin over-exposure may include irritation and redness; prolonged or repeated skin over-exposures may lead to dermatitis. Contact with the rosin core can result in allergic reaction and skin sensitization in susceptible individuals. Symptoms could include dermatitis, itching and persistent rash. Contact with the molten core or wire will burn contaminated skin or eyes.

SKIN ABSORPTION: Skin absorption is not known to be a significant route of over-exposure for any component of these products.

INGESTION: Ingestion is not anticipated to be a route of occupational exposure for these products; however, if proper hygiene (e.g. washing of hands) is not followed during handling and use of these products, ingestion of lead from contamination of the hands can occur, resulting is Lead poisoning.

INJECTION: Though not a likely route of occupational exposure for these products, injection (via punctures or lacerations in the skin) may cause local reddening, tissue swelling, and discomfort.

OTHER HEALTH EFFECTS: Due to the presence of Lead in these products, exposure to dusts or fumes may result in significant adverse acute and chronic health effects, as follows. Long-term, low-level lead exposure has resulted in harm to the central nervous system and brain function. Symptoms of chronic, low to moderate levels include forgetfulness, irritability, tiredness, headache, fatigue, impotence, decreased libido, dizziness, altered mood states and depression.

(continued on following page)

3. HAZARD IDENTIFICATION (Continued)

OTHER HEALTH EFFECTS (continued): Symptoms of chronic exposure to moderate to high lead levels include disturbances in hand to eye coordination, reaction times, visual motor performance, mental performance, gradual decrease in visual acuity with slow recovery or possible blindness, changes in hearing ability, and in worse cases, encephalopathy (a progressive degeneration of the brain and its functions). Early symptoms of encephalopathy include dullness, irritability, poor attention span, muscular tremor, headache, and loss of memory and hallucinations. Severe, chronic exposure to Lead at high concentration can result in symptoms on the central nervous system, including delirium, lack of coordination, convulsions, paralysis, coma and death.

Exposure to Lead can also result in significant adverse results on the peripheral nervous system, including harm to nerves in hands, legs and feet. These effects can be reversible if exposure is short term (5 months or less) and treatment is received; if not, these effects can become permanent. A syndrome known as "Lead Palsy" can occur, with symptoms such as weakness of legs or arms, weakness and paralysis of the wrist, fingers and ankles. At lower exposure levels decreased hand dexterity has been reported. At higher exposure levels an ability to hold the foot or hand in extended position can occur.

Exposure to Lead can also cause adverse effects on the gastrointestinal system, including loss of appetite, inflammation of the stomach walls (gastritis), colic, severe abdominal pain, cramps, nausea, vomiting, constipation, anorexia, weight loss and decreased urination. In severe cases of Lead poisoning, a deposit of Lead occurs in the gums near the base of the teeth, resulting in a visible blue-gray line. Reversible kidney injury has been observed in some cases of workers exposed to Lead at chronic, low to moderate levels. Death due to kidney failure has occurred to workers chronically exposed to Lead at moderate levels.

Exposure to Lead can cause harmful effects to certain types of blood cells, including reduced hemoglobin production and reduced life-span and function of red blood cells. This harm can cause anemia in workers exposed to moderate levels. Low, moderate and high level exposure to Lead may increase blood pressure, especially in men. Some studies have indicated that moderate exposure to Lead can result in electrocardiographic abnormalities. There is some evidence that low-level exposure to Lead can cause harmful effects on the thyroid and immune systems, including possible susceptibility to colds and flu infections.

Exposure to Lead, especially at high levels, has resulted in significant adverse effects in the reproductive systems of both men and women. Refer to Section 11 (Toxicological Information, Reproductive Toxicity Information) for additional information.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Symptoms associated with over-exposure to these products and the fumes generated during soldering operations are as follows:

ACUTE: Inhalation of large amounts of particulates generated by these products during metal processing operations may be physically irritating and cause deposits of dust in nasal passages. Inhalation of dusts and fumes of these products can cause metal fume fever or irritation of the respiratory system. Contact with the molten material will burn contaminated skin or eyes. Significant adverse effects on the blood, kidneys, gastrointestinal system, central and peripheral nervous systems.

CHRONIC: Chronic skin over-exposure to the fumes of these products during soldering operations may produce dermatitis (red, inflamed skin). Repeated or prolonged over-exposures, via inhalation, to the dusts generated by these products may cause pulmonary fibrosis (scarring of lung tissue). Chronic inhalation of fumes or dusts of the components of these products, can result in severe, adverse effects on the blood and heart, kidneys, thyroid and immune systems, and central and periphery nervous system, due to the presence of Lead. Contact with the rosin core of some of these products can cause an allergic skin reaction and sensitization in susceptible individuals. Due to the presence of the Ammonium Chloride compound in the flux core of some of these products, inhalation of fumes from soldering may cause allergic respiratory reaction and respiratory sensitization in susceptible individuals. Due to the Lead component in these products, contact may result in significant adverse effects on the reproductive system. See Section 11 (Toxicological Information) for additional information.

TARGET ORGANS: For fumes: ACUTE: Skin, eyes, respiratory system, blood system, central nervous system, peripheral nervous system, gastrointestinal system. CHRONIC: Skin, central nervous system, kidneys, heart, blood, central nervous system, thyroid, immune system, reproductive system.

PART II *What should I do if a hazardous situation occurs?*

4. FIRST-AID MEASURES

Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take a copy of label and MSDS to health professional with victim.

SKIN EXPOSURE: If fumes generated by soldering operations involving these products contaminate the skin, begin decontamination with running water. If molten material contaminates the skin, immediately begin decontamination with cold, running water. Minimum flushing is for 15 minutes. Victim must seek medical attention if any adverse reaction occurs.

4. FIRST-AID MEASURES (Continued)

EYE EXPOSURE: If fumes generated by soldering operations involving these products enter the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Victim must seek immediate medical attention.

INHALATION: If fumes generated by soldering operations involving these products are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions.

INGESTION: If swallowed call physician immediately! Do not induce vomiting unless directed by medical personnel. Rinse mouth with water if person is conscious. Never give fluids or induce vomiting if person is unconscious, having convulsions, or not breathing.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Skin, respiratory, blood, central nervous system and peripheral system, and kidney disorders, may be aggravated by prolonged over-exposures to the dusts or fumes generated by these products.

RECOMMENDATIONS TO PHYSICIANS: Basic Treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by non-rebreather mask at 10 to 15 L/minutes. Monitor for shock and treat if necessary. Anticipate seizures and treat if necessary. For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport. Do not use emetics. For ingestion, rinse mouth and administer 5 mL/kg up to 200 mL of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal.

Advanced Treatment: Consider orotracheal or nasotracheal intubation for airway control in the patient who is unconscious. Use hyperventilation to help control increased intracranial pressure. Start an IV with lactated Ringer's to support vital signs. For hypotension with signs of hypovolemia, administer fluid cautiously. Watch for signs of fluid overload. Treat seizures with diazepam (Valium). Use proparacaine hydrochloride to assist eye irrigation. The treatment of lead poisoning is based on the prompt termination of exposure and on the use of chelating agents. The first requirement is categorical. The second is determined by the severity of poisoning; at present, the greatest issue is whether a symptomatic patients should be treated or not. The most commonly used therapeutic chelating agents are CaEDTA, BAL, and D-penicillamine can be given. DMSA should also be considered.

5. FIRE-FIGHTING MEASURES

FLASH POINT: Not flammable.

AUTOIGNITION TEMPERATURE: Not applicable for products. Dust clouds of Lead, a possible main component of these products, have a minimum ignition temperature range of 270-790°C (518-1454°F).

FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): Not applicable.
Upper (UEL): Not applicable.

FIRE EXTINGUISHING MATERIALS: These products are not flammable; use fire-extinguishing agents appropriate for surrounding materials.

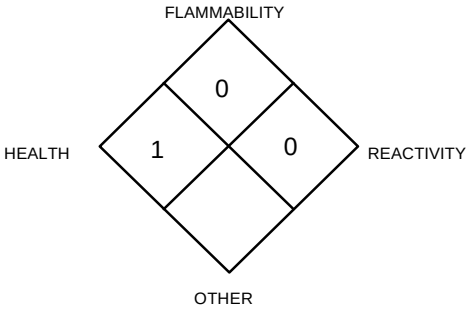
Water Spray: YES
Carbon Dioxide: YES
Halon: YES
Foam: YES
Dry Chemical: YES
Other: Any "ABC" Class

UNUSUAL FIRE AND EXPLOSION HAZARDS When involved in a fire, these products may decompose and produce lead oxide, tin oxides, hydrogen chloride, zinc oxides, and ammonium compounds. The hot material can present a significant thermal hazard to firefighters.

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Although these products are not sensitive to static discharge, dusts of these products can form explosive air/dust mixtures and can be ignited by static discharge.

NFPA RATING



See Section 16 for Definition of Ratings

SPECIAL FIRE-FIGHTING PROCEDURES: Lead and its decomposition products are hazardous to health. Fire-fighters should not enter an area in which a fire involves these products without wearing specialized protective equipment suitable for potential Lead exposure. Normal fire-fighter bunker gear is not adequate to protect against exposure to Lead and its decomposition products. A full-body, encapsulating chemical resistant suit with positive-pressure Self-Contained Breathing Apparatus may be necessary.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Not applicable.

PART III *How can I prevent hazardous situations from occurring*

7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting these products ON YOU or IN YOU. Wash thoroughly after handling these products. Do not eat or drink while handling these products. Use ventilation and other engineering controls to minimize potential exposure to these products. If dusts or fumes of these products are present, use of a suitable NIOSH approved respirator must commence immediately to protect against possible Lead poisoning. Unprotected workers must avoid all contact with these products.

STORAGE AND HANDLING PRACTICES: All employees who handle these products should be trained to handle it safely, following the requirements of the OSHA Lead Standard (29 CFR 1910.1025). Use in clearly posted areas(s) indicating Lead hazard. Access doors must remain closed while these products are being used or stored. When handling Lead powder on a large scale, closed-handling systems for processes should be used. If this is not possible, use in the smallest possible amounts in appropriate labeled, containment devices (e.g. fume hood). Containment devices should be made of smooth, unbreakable compatible material. Maintain containment devices at appropriate air-flow and negative pressure. Check regularly. Use in a well-ventilated location. Avoid the generation of dusts and prevent the release of fumes to the workplace. Avoid breathing fumes of these products generated during soldering operations. Open containers on a stable surface. Cover surfaces in which these products are being used with compatible, chemical resistant and/or disposable material for easier containment and clean-up. Good housekeeping is very important. Keep work areas clean. Packages of these products must be properly labeled. When these products are used during soldering operations, follow the requirements of the Federal Occupational Safety and Health Welding and Cutting Standard (29 CFR 1910 Subpart Q) and the safety standards of the American National Standards Institute for welding and cutting (ANSI Z49.1). Store packages in a cool, dry location. Store away from incompatible materials (see Section 10, Stability and Reactivity).

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Not applicable.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: As per the OSHA Lead Standard, 29 CFR 1910.1025, the employer shall assure that no employee is exposed to Lead at concentrations greater than 50 μg/cubic meter averaged over an 8-hour period. If an employee is exposed to Lead for more than 8 hours in any work day, the permissible exposure limit, as a TWA for that day, shall be reduced according to the following formula: Maximum permissible limit (in μg/cubic meter) = 400 divided by the number of hours worked in the day. Use with adequate ventilation to ensure exposure levels are maintained below these limits and the limits for Lead and other components of these products provided in Section 2 (Composition and Information on Ingredients). Prudent practice is to ensure eyewash/safety shower stations are available near areas where these products are used.

RESPIRATORY PROTECTION: Maintain airborne contaminant concentrations below guidelines listed in Section 2 (Composition and Information on Ingredients). If respiratory protection is needed (i.e. a Weld Fume Respirator, or Air-Line Respirator for welding in confined spaces), U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the Canadian CSA Standard Z94.4-93 and applicable standards of Canadian Provinces. Respiratory Protection is recommended to be worn during welding operations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998). The following are NIOSH recommendations for respirator selection for Ammonium Chloride, Lead, Welding fumes, Rosin Core, Pyrolysis Products, Tin and Zinc Chloride, and are provided for additional information:

LEAD

CONCENTRATION	**RESPIRATORY PROTECTION**
Up to 0.5 mg/m^3:	Any Air-Purifying Respirator with a high-efficiency particulate filter, or any Supplied-Air Respirator (SAR).
Up to 1.25 mg/m^3:	Any SAR operated in a continuous-flow mode, or any powered, air-purifying respirator with a high-efficiency particulate filter.
Up to 2.5 mg/m^3:	Any Air-Purifying, Full-Facepiece Respirator with a high-efficiency particulate filter, or any SAR that has a tight-fitting facepiece and is operated in a continuous-flow mode, or any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter, or any Self-Contained Breathing Apparatus (SCBA) with a full facepiece, or any SAR with a full facepiece.
Up to 50 mg/m^3:	Any SAR operated in a pressure-demand or other positive-pressure mode.
Up to 100 mg/m^3:	Any SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

(continued on following page)

8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

RESPIRATORY PROTECTION (continued): NIOSH recommendations for respiratory protection, continued.

LEAD CONCENTRATION RESPIRATORY PROTECTION (continued):

Emergency or Planned Entry into Unknown Concentrations or IDLH Conditions: Any SCBA that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode, or any SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary SCBA operated in pressure-demand or other positive-pressure mode.

Escape: Any Air-Purifying, Full-Facepiece Respirator with a high-efficiency particulate filter, or any appropriate escape-type, SCBA.

ROSIN FLUX PYROLYSIS PRODUCTS

CONCENTRATION RESPIRATORY PROTECTION

At Concentrations above the NIOSH REL, or where there is no REL, at any Detectable Concentration: Any Self-Contained Breathing Apparatus (SCBA) that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode, or any Supplied-Air Respirator (SAR) that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary SCBA operated in pressure-demand or other positive-pressure mode.

Escape: Any Air-Purifying, Full-Facepiece Respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having a high-efficiency particulate filter, or any appropriate escape-type, SCBA.

TIN CONCENTRATION RESPIRATORY PROTECTION

Up to 10 mg/m^3: Any dust and mist respirator.

Up to 20 mg/m^3: Any dust and mist respirator except single-use and quarter-mask respirators, IF NOT present as a fume, or any Supplied-air Respirator (SAR).

Up to mg/m^3: Any SAR operated in a continuous-flow mode, or any Powered, Air-Purifying Respirator with a dust and mist filter, IF NOT present as a fume.

Up to 100 mg/m^3: Any Air-Purifying, Full-Facepiece Respirator with a high-efficiency particulate filter, or any Self-Contained Breathing Apparatus (SCBA) with a full facepiece, or any SAR with a full facepiece.

Emergency or Planned Entry into Unknown Concentrations or IDLH Conditions: Any SCBA that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode, or any SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary SCBA operated in pressure-demand or other positive-pressure mode.

Escape: Any Air-Purifying, Full-Facepiece Respirator with a high-efficiency particulate filter, or any appropriate escape-type, SCBA

WELDING FUMES

CONCENTRATION RESPIRATORY EQUIPMENT FOR WELDING FUMES

At Concentrations above the NIOSH REL, or where there is no REL, at any Detectable Concentration: Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode; or any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Escape: Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having a high-efficiency particulate filter; or any appropriate escape-type, self-contained breathing apparatus

NOTE: IDLH Concentration: Potential NIOSH carcinogen. [Not determined yet].

ZINC CHLORIDE

CONCENTRATION RESPIRATORY PROTECTION

Up to 10 mg/m^3: Any dust, mist, and fume respirator, or any Supplied-Air Respirator (SAR).

Up to 25 mg/m^3: Any SAR operated in a continuous-flow mode, or any Powered, Air-Purifying Respirator (PAPR) with a dust, mist, and fume filter.

Up to 50 mg/m^3: Any Air-Purifying, Full-Facepiece Respirator with a high-efficiency particulate filter, or any PAPR with a tight-fitting facepiece and a high-efficiency particulate filter, or any Self-Contained Breathing Apparatus (SCBA) with a full facepiece, or any SAR with a full facepiece.

Emergency or Planned Entry into Unknown Concentrations or IDLH Conditions: Any SCBA that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode, or any SAR that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary SCBA operated in pressure-demand or other positive-pressure mode.

Escape: Any Air-Purifying, Full-Facepiece Respirator with a high-efficiency particulate filter, or any appropriate escape-type, SCBA.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

EYE PROTECTION: Safety glasses. When these products are used in conjunction with soldering, wear safety glasses, goggles, or face-shield with filter lens of appropriate shade number (per ANSI Z49.1-1988, "Safety in Welding and Cutting") and U.S. OSHA 29 CFR 1910.133 and appropriate Canadian Standards.

HAND PROTECTION: Wear gloves for routine industrial use. When these products are used in conjunction with soldering, wear gloves that protect from sparks and flame (per ANSI Z49.1-1988, "Safety in Welding and Cutting"). If necessary, refer to U.S. OSHA 29 CFR 1910.138 and appropriate Standards of Canada.

BODY PROTECTION: Use body protection appropriate for task. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, as described in U.S. OSHA 29 CFR 1910.136.

9. PHYSICAL and CHEMICAL PROPERTIES

The following information is for Lead, a possible main component:

RELATIVE VAPOR DENSITY (air = 1): Not applicable. **EVAPORATION RATE (nBuAc = 1):** Not applicable.
SPECIFIC GRAVITY @ 20°C (water = 1): 11.34 **FREEZING/MELTING POINT:** 327.4°C (621.36°F)
SOLUBILITY IN WATER: Insoluble. **pH:** Not applicable.
VAPOR PRESSURE, mm Hg @ 980°C: 1 **BOILING POINT:** 1740°C (3164°F)
ODOR THRESHOLD: Not applicable. **VAPOR DENSITY (air = 1):** 7.14
COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not applicable.

The following information is for Tin, a possible main component:

RELATIVE VAPOR DENSITY (air = 1): Not applicable. **EVAPORATION RATE (nBuAc = 1):** Not applicable.
SPECIFIC GRAVITY @ 20°C (water = 1): 7.28 **FREEZING/MELTING POINT:** 232°C (4506°F)
SOLUBILITY IN WATER: Insoluble. **pH:** Not applicable.
VAPOR PRESSURE, mm Hg @ 1492°C: 0 **BOILING POINT:** 2270°C (4118°F)
ODOR THRESHOLD: Not applicable. **VAPOR DENSITY (air = 1):** Not applicable.
COEFFICIENT OF OIL/WATER DISTRIBUTION (PARTITION COEFFICIENT): Not applicable.

The following information is for the products:

APPEARANCE AND COLOR: These odorless products consist of tin/lead alloy with a metallic lust and may have a flux core.

10. STABILITY and REACTIVITY

STABILITY: Normally stable. These products can oxidize rapidly to form an insoluble layer of basic lead carbonate.
DECOMPOSITION PRODUCTS: Lead oxide, tin oxides, hydrogen chloride, zinc oxides, and ammonium compounds.
NOTE: The composition and quality of soldering fumes and gases are dependent upon the metal being soldered, the process, the procedure, and the alloys used. Other conditions that could also influence the composition and quantity of fumes and gases to which workers may be exposed include the following: any coatings on metal being welded (e.g. paint, plating, or galvanizing), the number of work stations and the volume of the work area, the quality of ventilation, the position of the work stations with respect to the fume plume, and the presence of other contaminates in the atmosphere. When the alloy is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 2 (Composition and Information on Ingredients). Fume and gas decomposition products, and not the ingredients in the solders, are important. Concentration of the given fume or gas component may decrease or increase by many times the original concentration. New compounds may form. Decomposition products of normal operations include not only those originating from volatilization, reaction, or oxidation of the product's components but also those from base metals and any coating (as noted previously). The best method to determine the actual composition of generated fumes and gases is to take an air sample from the breathing zone. For additional information, refer to the American Welding Society Publication, "Fumes and Gases in the Welding Environment".
MATERIALS WITH THESE PRODUCTS ARE INCOMPATIBLE: These products will be attacked or can react with strong acids, strong bases, hydrogen peroxide (52% or greater- in presence of manganese dioxide), sodium azide, ammonium nitrate, sodium acetylides, sodium carbide, zirconium, or chlorine trifluoride. The flux or rosin core of these products are incompatible with potassium, strong acids, alkalis, interhalogens, strong oxidizers, ammonium nitrate, hydrogen cyanide, potassium chlorate and lead salts (not lead metal) and silver salts.
HAZARDOUS POLYMERIZATION: Will not occur.
CONDITIONS TO AVOID: Avoid uncontrolled exposure to extreme temperatures and incompatible materials.

PART IV *Is there any other useful information about this material?*

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: Presented below are human toxicological data available for the components of these products present in concentration greater than 1%. Other data for animals are available for the components of these products, but are not presented in this Material Safety Data Sheet.

LEAD:

Cytogenetic Analysis-Human-Unreported 50 µg/m

TCLo (Inhalation-Human) 10 µg/m^3: Gastrointestinal tract effects: LIV

TDLo (Oral-Woman) 450 mg/kg/6 years: Peripheral nervous system effects: Central nervous system effects

ZINC CHLORIDE:

TCLo (Inhalation-Man) 4800 mg/m^3/30 minutes: Pulmonary system effects

TCLo (Inhalation-Human) 4800 mg/m^3/3 hours

LCLo (inhalation, human) = 300 µg/m^3/ 10 years/ intermittent; systemic effects

ZINC CHLORIDE (continued):

TDLo (Oral-Child) 169 mg/kg: Lungs, Thorax, or Respiration: dyspnea; Blood: changes in serum composition (e.g. TP, bilirubin, cholesterol); Skin and Appendages: dermatitis, other (after systemic exposure)

SUSPECTED CANCER AGENT: The components of these products are listed as follows:

LEAD: ACGIH TLV-A3 (Confirmed Animal Carcinogen), EPA-B2 (Probable Human Carcinogen - Sufficient Evidence from Animal Studies; inadequate evidence or no data from epidemiologic studies); IARC-2B (Possibly Carcinogenic to Humans)

ZINC CHLORIDE: EPA-D [dusts & mists] (Not Classifiable as to Human Carcinogenicity)

The other components of these products are not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, and CAL/OSHA and therefore are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: Dusts or fumes of these products may be irritating to contaminated skin and eyes. Fumes may be irritating to the respiratory system.

SENSITIZATION TO THE PRODUCT: There is some evidence that inhalation of fumes from the Ammonium Chloride component of some of these products may cause respiratory sensitization in susceptible individuals. Symptoms may include difficulty breathing, persistent coughing and wheezing. Contact with the rosin core can result in allergic reaction and skin sensitization in susceptible individuals.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of these products and their components on the human reproductive system.

Mutagenicity: These products are not reported to produce mutagenic effects in humans. Cytogenic analysis studies of human cells (cell type and duration of exposure unreported) have produced positive results at a level of 50 µg/mL. In *vitro* assays of human lymphocytes indicate that the Zinc Chloride may cause chromosomal aberrations. In animal studies, positive mutagenic results (chromosome aberrations) have been reported in rats, mice and monkeys exposed orally to the Lead component of these products. Positive results were obtained in chromosomal aberrations tests involving the Ammonium Chloride component of these products using cultured Chinese hamster fibroblast cells, with no metabolic agitation.

Embryotoxicity These products are not reported to produce embryotoxic effects in humans. There is evidence that high Lead levels in human mother's blood can significantly increase the risk of spontaneous abortions. The Lead, and Zinc Chloride components of these products have produced embryotoxic effects in animal studies.

Teratogenicity: These products are not reported to cause teratogenic effects in humans. Lead has an adverse effect on human fetuses, particularly in the later stages of development. Distribution of lead in fetal tissues was examined in a case in which a woman was exposed during pregnancy. The female worker was exposed to lead dust for 8 hours daily when conception occurred. Measurements of Lead content were started after the end of the exposure and continued for 6 months until normal values were obtained. Because of half-life of nearly 20 days for lead elimination from blood, the estimated body burden at the end of exposure was about 1200 ppb. The fetal tissue samples contained between 0.4 (brain) and 7.9 (liver) µg Pb/grams dry weight. The fetal lead was stored mainly in bone, blood, and liver. The Lead component of this product has produced teratogenic effects in animal studies.

Reproductive Toxicity: These products are not reported to cause reproductive effects in humans; however, the Lead component of this product has produced embryotoxic effects in humans. There is convincing evidence that Lead is transferred to neonates via maternal milk. It appears that maternal milk might be a source of Lead for the neonates, particularly when metal levels are elevated in the mother. Chronic exposure to Lead in human males has been found to produce infertility, germinal epithelium damage, oligospermia and testicular degeneration, decreased sperm motility, and prostatic hyperplasia. The Lead component of this product has produced reproductive effects in animal studies. Injections of the Zinc Chloride component of these products has produced testicular tumors in animal tests.

A mutagen is a chemical, which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical, which causes damage to a developing embryo (i.e., within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical, which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance, which interferes in any way with the reproductive process.

11. TOXICOLOGICAL INFORMATION (Continued)

BIOLOGICAL EXPOSURE INDICES: The following BEIs are applicable to the Lead component of these products.

CHEMICAL DETERMINANT	SAMPLING TIME	BEI
LEAD • Lead in blood Note: Women of child-bearing potential, whose blood Pb exceeds10μg/dl, are at risk of delivering a child with a blood Pb over the current Centers for Disease control guideline of 10μg/dl. If the blood Pb of such children remains elevated, they may be at increased risk of cognitive deficits. The blood Pb of these children should be closely monitored and appropriate steps should be taken to minimize the child's exposure to environmental Lead.	• Not Critical	• 30 μg/100 mL

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY: Components of these products will react with water and air to form a variety of stable metal oxides.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: Due to the Lead component, adverse effect may occur to animals which come into contact with these products. No data is available on the components of these products and plants

EFFECT OF CHEMICAL ON AQUATIC LIFE: Due to the Lead component of these products, a release of product to an aquatic environment may have a significant adverse effect.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. These products, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

EPA WASTE NUMBER: Wastes of these products should be tested per the Toxicity Characteristic Leaching Procedures requirements of RCRA to determine if such wastes meet the following characteristics: D008 (Lead).

14. TRANSPORTATION INFORMATION

THESE PRODUCTS ARE NOT HAZARDOUS (Per 49 CFR 172.101) BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME: Not applicable.
HAZARD CLASS NUMBER and DESCRIPTION: Not applicable.
UN IDENTIFICATION NUMBER: Not applicable.
PACKING GROUP: Not applicable.
DOT LABEL(S) REQUIRED: Not applicable.

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER, 2000: Not applicable.

MARINE POLLUTANT: No component of these products is designated as a marine pollutant by the Department of Transportation (49 CFR 172.101, Appendix B).

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: These products are not considered as dangerous goods, per regulations of Transport Canada.

15. REGULATORY INFORMATION

ADDITIONAL U.S. REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: The components of these products are subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows:

CHEMICAL NAME	SARA 302 (40 CFR 355, Appendix A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)
Ammonium Chloride	NO	YES	NO
Lead	NO	YES	YES
Zinc Chloride	NO	YES	NO

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for any component of these products. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.

15. REGULATORY INFORMATION (Continued)

ADDITIONAL U.S. REGULATIONS (continued):

U.S. TSCA INVENTORY STATUS: The components of these products are listed on the TSCA Inventory.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Ammonium Chloride = 5000 lb (2270 kg); Lead = 10 lb (4.540 kg); Zinc Chloride = 1000 lb (454 kg)

OTHER U.S. FEDERAL REGULATIONS: Components of these products have requirements under other U.S. Federal regulations, as follows:

AMMONIUM CHLORIDE: EPA: Ammonium Chloride is designated as a hazardous substance under Section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of this substance.

LEAD: EPA: Lead is listed as a hazardous air pollutant (HAP) generally known or suspected to cause serious health problems. The Clean Air Act, as amended in 1990, directs EPA to set standards requiring major sources to sharply reduce routine emissions of toxic pollutants. EPA is required to establish and phase in specific performance based standards for all air emission sources that emit one or more of the listed pollutants. Lead is included on this list. Lead is designated as a toxic pollutant, pursuant to Section 307(a)(1) of the Clean Water Act and is subject to effluent limitations. Lead is designated as a hazardous substance under Section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of Lead.

OSHA: Employers are required to follow the exposure limits and other requirements as defined under the Lead Standard, 29 CFR 1910.1025.

ZINC CHLORIDE: EPA: Zinc Chloride is designated as a hazardous substance under Section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of this substance. Zinc Chloride is a designated as a toxic pollutant designated pursuant to Section 307(a)(1) of the Clean Water Act and is subject to effluent limitations.

U.S. STATE REGULATORY INFORMATION: The components of these products are covered under specific State regulations, as denoted below:

Alaska-Designated Toxic and Hazardous Substances: Ammonium Chloride, Lead, and Zinc Chloride.

California-Permissible Exposure Limits for Chemical Contaminants: Ammonium Chloride, Lead, Tin, and Zinc Chloride.

Florida-Substance List: Ammonium Chloride, Lead, Tin, and Zinc Chloride.

Illinois-Toxic Substance List: Ammonium Chloride, Lead, and Zinc Chloride.

Kansas-Section 302/313 List: Lead.

Massachusetts-Substance List: Ammonium Chloride, Lead, Tin, and Zinc Chloride.

Michigan - Critical Materials Register: Lead.

Minnesota-List of Hazardous Substances: Ammonium Chloride, Lead, Tin, and Zinc Chloride.

Missouri-Employer Information/Toxic Substance List: Ammonium Chloride, Lead, Tin, and Zinc Chloride.

New Jersey-Right to Know Hazardous Substance List: Ammonium Chloride, Lead, Tin, and Zinc Chloride.

North Dakota-List of Hazardous Chemicals, Reportable Quantities: Ammonium Chloride, Lead, and Zinc Chloride.

Pennsylvania-Hazardous Substance List: Ammonium Chloride, Lead, Tin, and Zinc Chloride.

Rhode Island-Hazardous Substance List: Ammonium Chloride, Tin, and Zinc Chloride.

Texas-Hazardous Substance List: Lead, Tin, and Zinc Chloride.

West Virginia-Hazardous Substance List: , Tin, Zinc Chloride.

Wisconsin-Toxic and Hazardous Substances: Lead, Tin, and Zinc Chloride.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): The Lead component of these products is on the California Proposition 65 Lists. **WARNING: These products contain a chemical that is known to the State of California to cause cancer and reproductive harm. In addition, these products, when used for soldering may produce fumes or gases containing chemicals, known to the State of California to cause cancer, and/or birth defects (or other reproductive harm.)**

LABELING (Precautionary Statements): DANGER OF CUMULATIVE EFFECTS IF DUSTS OR FUMES ARE INHALED! POSSIBLE CANCER AND REPRODUCTIVE HAZARD. CONTAINS POTENTIAL TERATOGEN AND/OR MUTAGEN.

WARNING:

PROTECT yourself and others. Read and understand this information.

FUMES AND GASES can be hazardous to your health.

ARC RAYS can injure your eyes and burn skin.

ELECTRIC SHOCK can kill.

- Before use, read and understand the manufacturer's instructions. Material Safety Data Sheets (MSDSs), and your employer's safety policies.
- Keep your head out of the fumes.
- Use enough ventilation, exhaust at the arc, or both, to keep fumes and gases from your breathing zone and the general area.
- Wear correct eye, ear, and body protection.
- See American National Standard Z49.1 *Safety in Welding, Cutting, and Allied Processes*, published by the American Welding Society, 550 N.W. LeJeune Road, Miami, Florida 33126. OSHA Safety and Health Standards, *29 CFR 1910*, available from the U.S. Government Printing Office, Washington, DC 20402.

DO NOT REMOVE THIS INFORMATION

15. REGULATORY INFORMATION (Continued)

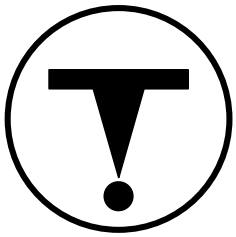
ADDITIONAL CANADIAN REGULATIONS:

CANADIAN DSL/NDSL INVENTORY STATUS: The components of these products are on the DSL Inventory.

OTHER CANADIAN REGULATIONS: Not applicable.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: No component of these products are on the CEPA Priority Substances Lists (PSL).

CANADIAN WHMIS SYMBOLS: D2A: Poisonous and Infections Material - Other Effects: Very Toxic (chronic toxicity, embryotoxicity, teratogenicity, reproductive toxicity, carcinogenicity); **D2B:** - Poisonous and Infections Material - Other Effects: Toxic (mutagenicity).



16. OTHER INFORMATION

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858/565-0302

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This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard (29 CFR 1910.1200). Other government regulations must be reviewed for applicability to these products. The information contained herein relates only to the specific products. If the products are combined with other materials, all component properties must be considered. To the best of the Harris Products Group knowledge, the information and recommendations contained in this publication are reliable and accurate as of the date of issue. However, accuracy, suitability, or completeness are not guaranteed, and no warranty, guarantee, or representation, expressed or implied, is made by Harris Products Group., Inc. assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures may not be required under particular or exceptional conditions or circumstances. Data may be changed from time to time. Be sure to consult the latest edition.

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these, which are commonly used, include the following:

CAS #: This is the Chemical Abstract Service Number, which uniquely identifies each constituent.

EXPOSURE LIMITS IN AIR:

ACGIH - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits. **TLV -** Threshold Limit Value - an airborne concentration of a substance, which represents conditions under which it is generally believed that nearly all workers, may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average **(TWA)**, the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level **(C)**. Skin absorption effects must also be considered.

OSHA - U.S. Occupational Safety and Health Administration.

PEL - Permissible Exposure Limit - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL, which was vacated by Court Order. **IDLH -** Immediately Dangerous to Life and Health **-** This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. **The DFG - MAK** is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). NIOSH issues exposure guidelines called Recommended Exposure Levels (**REL**s). When no exposure guidelines are established, an entry of **NE** is made for reference.

HAZARD RATINGS:

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: Health Hazard: **0** (minimal acute or chronic exposure hazard); **1** (slight acute or chronic exposure hazard); **2** (moderate acute or significant chronic exposure hazard); **3** (severe acute exposure hazard; onetime overexposure can result in permanent injury and may be fatal); **4** (extreme acute exposure hazard; onetime overexposure can be fatal). Flammability Hazard: **0** (minimal hazard); **1** (materials that require substantial pre-heating before burning); **2** (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); **3** (Class IB and IC flammable liquids with flash points below 38°C [100°F]); **4** (Class IA flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C [100°F]. Reactivity Hazard: **0** (normally stable); 1 (material that can become unstable at elevated temperatures or which can react slightly with water); **2** (materials that are unstable but do not detonate or which can react violently with water); **3** (materials that can detonate when initiated or which can react explosively with water); **4** (materials that can detonate at normal temperatures or pressures).

NATIONAL FIRE PROTECTION ASSOCIATION: Health Hazard: **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure causes death or major residual injury). Flammability Hazard and Reactivity Hazard: Refer to definitions for "Hazardous Materials Identification System".

FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the National Fire Protection Association (**NFPA**). Flash Point - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. Autoignition Temperature: The minimum temperature required to initiate combustion in air with no other source of ignition. LEL - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:

Human and Animal Toxicology: Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds is presented. Definitions of some terms used in this section are: **LD_{50}** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC_{50}** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m^3** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects. **Cancer Information:** The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. **Other Information: BEI** - ACGIH Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV. **Ecological Information:** EC is the effect concentration in water. **BCF** = Bioconcentration Factor, which is used to determine if a substance will concentrate in lifeforms which consume contaminated plant or animal matter. Coefficient of Oil/Water Distribution is represented by **log K_{ow}** or **log K_{oc}** and is used to assess a substance's behavior in the environment.

REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. **U.S.: EPA** is the U.S. Environmental Protection Agency. **DOT** is the U.S. Department of Transportation. **SARA** is the Superfund Amendments and Reauthorization Act. **TSCA** is the U.S. Toxic Substance Control Act. **CERCLA (or Superfund)** refers to the Comprehensive Environmental Response, Compensation, and Liability Act. Labeling is per the American National Standards Institute (**ANSI Z129.1**). **CANADA: CEPA** is the Canadian Environmental Protection Act. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **TC** is Transport Canada. **DSL/NDSL** are the Canadian Domestic/Non-Domestic Substances Lists. **The CPR is the Canadian Product Regulations.** This section also includes information on the precautionary warnings, which appear, on the materials package label.

MATERIAL SAFETY DATA SHEET

Review Date: 04/17/2008

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: PENNZOIL™ Multi-Grade Motor Oil - All Grades

MSDS NUMBER: 612978LU - 3
PRODUCT CODE(S): 2010, 2011, 2012, 3560, 3600, 3606, 3610, 3616, 3650, 3656, 5041969, 5041970, 5041971, 5044482, 5044491, 5047954, 5060206, 5065725, 5069624, 5070239, 5076150, 5076175, 59751, 62569, 62710

PRODUCT USE: Motor Oil

MANUFACTURER
SOPUS Products
P.O. Box 4427
Houston, TX. 77210-4427

TELEPHONE NUMBERS
Spill Information: (877) 242-7400
Health Information: (877) 504-9351
MSDS Assistance Number: (877) 276-7285

SECTION 2 PRODUCT/INGREDIENTS

INGREDIENTS	CAS#	CONCENTRATION
Multigrade Motor Oil		
Highly refined petroleum oils	Mixture	90 - 99 %weight
Proprietary additives (<1% zinc)	Mixture	1 - 3 %weight

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
Appearance & Odor: Amber liquid. Petroleum oil odor.
Health Hazards: No known immediate health hazards.
Physical Hazards: No known physical hazards.
NFPA Rating (Health, Fire, Reactivity): 0, 1, 0
Hazard Rating: Least - 0 Slight - 1 Moderate - 2 High - 3 Extreme - 4

Route(s) of Exposure: Skin

Inhalation:
Inhalation of vapors (generated at high temperatures only) or oil mist may cause mild irritation of the nose, throat, and respiratory tract.

Eye Irritation:
Lubricating oils are generally considered no more than minimally irritating to the eyes.

Skin Contact:
Lubricating oils are generally considered no more than minimally irritating to the skin. Prolonged and repeated contact may result in defatting and drying of the skin that may cause various skin disorders such as dermatitis, folliculitis or oil acne.

Ingestion:
Lubricating oils are generally no more than slightly toxic if swallowed.

Other Health Effects:
The International Agency for Research on Cancer (IARC) has determined there is sufficient evidence for the carcinogenicity in experimental animals of used gasoline motor oils. Handling procedures and safety precautions in the MSDS should be followed to minimize exposure to the used product.

Signs and Symptoms:
Irritation as noted above.

Aggravated Medical Conditions:
Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.

For additional health information, refer to section 11.

SECTION 4 FIRST AID MEASURES

Inhalation:
Remove victim to fresh air and provide oxygen if breathing is difficult. Get medical attention.

Skin:
Remove contaminated clothing and shoes and wipe excess from skin. Flush skin with water, then wash with soap and water. If irritation occurs, get medical attention. Do not reuse clothing until cleaned.

Eye:
Flush with water. If irritation occurs, get medical attention.

Ingestion:
Do not induce vomiting. In general, no treatment is necessary unless large quantities of product are ingested. However, get medical attention.

Note to Physician:
In general, emesis induction is unnecessary in high viscosity, low volatility products such as oils and greases.

SECTION 5 FIRE FIGHTING MEASURES

Flash Point [Method]: >430 ºF/>221.11 ºC [Cleveland Open Cup]
Upper Flammability Limit: Not Determined
Lower Flammability Limit: Not Determined

Extinguishing Media:
This material is non-flammable. Material will float and can be re-ignited on surface of water. Use water fog, 'alcohol foam', dry chemical or carbon dioxide (CO2) to extinguish flames. Do not use a direct stream of water.

Fire Fighting Instructions:
Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots), including a positive pressure, NIOSH approved, self-contained breathing apparatus.

Unusual Fire Hazards:
Material may ignite when preheated.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures:
May burn although not readily ignitable.

Wear appropriate personal protective equipment when cleaning up spills. Refer to Section 8.

Spill Management:
FOR LARGE SPILLS: Remove with vacuum truck or pump to storage/salvage vessels.

FOR SMALL SPILLS: Soak up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking container and seal tightly for proper disposal.

Reporting:
CERCLA: Product is covered by EPA's Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) petroleum exclusion. Releases to air, land, or water are not reportable under CERCLA (Superfund).

CWA: This product is an oil as defined under Section 311 of EPA's Clean Water Act (CWA). Spills into or leading to surface waters that cause a sheen must be reported to the National Response Center, 1-800-424-8802.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures:
Wash with soap and water before eating, drinking, smoking, applying cosmetics, or using toilet. Launder contaminated clothing before reuse. Properly dispose of contaminated leather articles such as shoes or belts that cannot be decontaminated. Avoid heat, open flames, including pilot lights, and strong oxidizing agents. Use explosion-proof ventilation to prevent vapor accumulation. Ground all handling equipment to prevent sparking.

Storage:
Do not store in open or unlabeled containers. Store in a cool, dry place with adequate ventilation. Keep away from open flames and high temperatures.

Container Warnings:
Keep containers closed when not in use. Containers, even those that have been emptied, can contain explosive vapors. Do not cut, drill, grind, weld or perform similar operations on or near containers.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical	Limit	TWA	STEL	Ceiling	Notation
Oil mist, mineral	ACGIH TLV	5 mg/m3	10 mg/m3		
Oil mist, mineral	OSHA PEL	5 mg/m3			

Exposure Controls

Provide adequate ventilation to control airborne concentrations below the exposure guidelines/limits.

Personal Protection

Personal protective equipment (PPE) selections vary based on potential exposure conditions such as handling practices, concentration and ventilation. Information on the selection of eye, skin and respiratory protection for use with this material is provided below.

Eye Protection:
Chemical Goggles, or Safety glasses with side shields

Skin Protection:
Use protective clothing which is chemically resistant to this material. Selection of protective clothing depends on potential exposure conditions and may include gloves, boots, suits and other items. The selection(s) should take

into account such factors as job task, type of exposure and durability requirements.

Published literature, test data and/or glove and clothing manufacturers indicate the best protection is provided by:
Neoprene, or Nitrile Rubber

Respiratory Protection:
If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, an approved respirator must be worn. Respirator selection, use and maintenance should be in accordance with the requirements of the OSHA Respiratory Protection Standard, 29 CFR 1910.134.

Types of respirator(s) to be considered in the selection process include:
For Mist: Air Purifying, R or P style NIOSH approved respirator.
For Vapors: Air Purifying, R or P style prefilter & organic cartridge, NIOSH approved respirator. Self-contained breathing apparatus for use in environments with unknown concentrations or emergency situations.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odor: Amber liquid. Petroleum oil odor.
Substance Chemical Family: Lubricants
Physical State: Liquid

Flash Point	> 430 ºF [Cleveland Open Cup]	**Odor**	Petroleum oil odor.
Specific Gravity	0.874	**Viscosity**	70 cSt - 90 cSt @ 40 ºC

Odor Threshold: Not Determined
Partition Coefficient: Not Determined
pH: Not Determined

SECTION 10 REACTIVITY AND STABILITY

Stability:
Material is stable under normal conditions.

Conditions to Avoid:
Avoid heat and open flames.

Materials to Avoid:
Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products:

Thermal decomposition products are highly dependent on combustion conditions. A complex mixture of airborne solids, liquids and gases will evolve when this material undergoes pyrolysis or combustion. Carbon Monoxide, Carbon Dioxide and other unidentified organic compounds may be formed upon combustion.

SECTION 11 TOXICOLOGICAL INFORMATION

Acute Toxicity

TEST	Result	OSHA Classification	Material Tested
Dermal LD50	>5.0 g/kg(Rabbit)	Non-Toxic	Based on components(s)

Oral LD50	>5.0 g/kg(Rat)	Non-Toxic	Based on components(s)

Carcinogenicity Classification

Chemical Name	NTP	IARC	ACGIH	OSHA
Multigrade Motor Oil	Not Reviewed	Not Reviewed	No	No

SECTION 12 ECOLOGICAL INFORMATION

Environmental Impact Summary:
There is no ecological data available for this product. However, this product is an oil. It is persistent and does not readily biodegrade. However, it does not bioaccumulate.

SECTION 13 DISPOSAL CONSIDERATIONS

RCRA Information:

Under RCRA, it is the responsibility of the user of the material to determine, at the time of the disposal, whether the material meets RCRA criteria for hazardous waste. This is because material uses, transformations, mixtures, processes, etc. may affect the classification. Refer to the latest EPA, state and local regulations regarding proper disposal.

SECTION 14 TRANSPORT INFORMATION

US Department of Transportation Classification
This material is not subject to DOT regulations under 49 CFR Parts 171-180.

Oil: This product is an oil under 49CFR (DOT) Part 130. If shipped by rail or highway in a tank with a capacity of 3500 gallons or more, it is subject to these requirements. Mixtures or solutions containing 10% or more of this product may also be subject to this rule.

International Air Transport Association
Not regulated under IATA rules.

International Maritime Organization Classification
Not regulated under International Maritime Organization rules.

SECTION 15 REGULATORY INFORMATION

Federal Regulatory Status

OSHA Classification:
Under normal conditions of use or in a foreseeable emergency, this product does not meet the definition of a hazardous chemical when evaluated according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

WHMIS Classification: Not a controlled substance.

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

Ozone Depleting Substances (40 CFR 82 Clean Air Act):

This material does not contain nor was it directly manufactured with any Class I or Class II ozone depleting substances.

Superfund Amendment & Reauthorization Act (SARA) Title III:
There are no components in this product on the SARA 302 list.

SARA Hazard Categories (311/312):

Immediate Health	Delayed Health	Fire	Pressure	Reactivity
NO	NO	NO	NO	NO

SARA Toxic Release Inventory (TRI) (313):
There are no components in this product on the SARA 313 list.

Toxic Substances Control Act (TSCA) Status:
All component(s) of this material is(are) listed on the EPA/TSCA Inventory of Chemical Substances.

Other Chemical Inventories:
Component(s) of this material is (are) listed on the Australian AICS, Canadian DSL, Chinese Inventory, European EINECS, Korean Inventory, Philippines PICCS,

State Regulation

This material is not regulated by California Prop 65, New Jersey Right-to-Know Chemical List or Pennsylvania Right-To-Know Chemical List. However for details on your regulation requirements you should contact the appropriate agency in your state.

SECTION 16 OTHER INFORMATION

Revision#: 3
Revision Date: 04/17/2008
Review Date: 04/17/2008
Revisions since last change (discussion): This Material Safety Data Sheet (MSDS) has been reviewed to fully comply with the guidance contained in the ANSI MSDS standard (ANSI Z400.1-2003). We encourage you to take the opportunity to read the MSDS and review the information contained therein.

SECTION 17 LABEL INFORMATION

READ AND UNDERSTAND MATERIAL SAFETY DATA SHEET BEFORE HANDLING OR DISPOSING OF PRODUCT. THIS LABEL COMPLIES WITH THE REQUIREMENTS OF THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200) FOR USE IN THE WORKPLACE. THIS LABEL IS NOT INTENDED TO BE USED WITH PACKAGING INTENDED FOR SALE TO CONSUMERS AND MAY NOT CONFORM WITH THE REQUIREMENTS OF THE CONSUMER PRODUCT SAFETY ACT OR OTHER RELATED REGULATORY REQUIREMENTS.

PRODUCT CODE(S): 2010, 2011, 2012, 3560, 3600, 3606, 3610, 3616, 3650, 3656, 5041969, 5041970, 5041971, 5044482, 5044491, 5047954, 5060206, 5065725, 5069624, 5070239, 5076150, 5076175, 59751, 62569, 62710

PENNZOIL™ Multi-Grade Motor Oil - All Grades

ATTENTION!

PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE OIL ACNE OR DERMATITIS. USED GASOLINE ENGINE OIL HAS BEEN SHOWN TO CAUSE CANCER IN LABORATORY ANIMALS.

Precautionary Measures:
Avoid prolonged or repeated contact with eyes, skin and clothing. Wash thoroughly after handling.

FIRST AID

Inhalation: Remove victim to fresh air and provide oxygen if breathing is difficult. Get medical attention.
Skin Contact: Remove contaminated clothing and shoes and wipe excess from skin. Flush skin with water, then wash with soap and water. If irritation occurs, get medical attention. Do not reuse clothing until cleaned.
Eye Contact: Flush with water. If irritation occurs, get medical attention.
Ingestion: Do not induce vomiting. In general, no treatment is necessary unless large quantities of product are ingested. However, get medical attention.

FIRE

In case of fire, Use water fog, 'alcohol foam', dry chemical or carbon dioxide (CO2) to extinguish flames. Do not use a direct stream of water. Material will float and can be re-ignited on surface of water.

SPILL OR LEAK

Dike and contain spill.
FOR LARGE SPILLS: Remove with vacuum truck or pump to storage/salvage vessels.

FOR SMALL SPILLS: Soak up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking container and seal tightly for proper disposal.

CONTAINS: Highly refined petroleum oils, Mixture; Proprietary additives (<1% zinc), Mixture

NFPA Rating (Health, Fire, Reactivity): 0, 1, 0

TRANSPORTATION

US Department of Transportation Classification
This material is not subject to DOT regulations under 49 CFR Parts 171-180.

Oil: This product is an oil under 49CFR (DOT) Part 130. If shipped by rail or highway in a tank with a capacity of 3500 gallons or more, it is subject to these requirements. Mixtures or solutions containing 10% or more of this product may also be subject to this rule.

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flames or heat. Keep container closed and drum bungs in place.

Name and Address

SOPUS Products
P.O. Box 4427
Houston, TX 77210-4427

ADMINISTRATIVE INFORMATION	
MANUFACTURER ADDRESS:	SOPUS Products, P.O. Box 4427, Houston, TX. 77210-4427

THE INFORMATION CONTAINED IN THIS DATA SHEET IS BASED ON THE DATA AVAILABLE TO US AT THIS TIME, AND IS BELIEVED TO BE ACCURATE BASED UPON THAT : IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT, FOR PURPOSE OF HAZARD COMMUNICATION. IT IS NOT INTENDED TO CONSTITUTE PRODUCT PERFORMANCE INFORMATION, AND NO EXPRESS OR IMPLIED WARRANTY

OF ANY KIND IS MADE WITH RESPECT TO THE PRODUCT, UNDERLYING DATA OR THE INFORMATION CONTAINED HEREIN. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE, AND ARE ENCOURAGED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

TO DETERMINE THE APPLICABILITY OR EFFECT OF ANY LAW OR REGULATION WITH RESPECT TO THE PRODUCT, YOU SHOULD CONSULT WITH YOUR LEGAL ADVISOR OR THE APPROPRIATE GOVERNMENT AGENCY. WE WILL NOT PROVIDE ADVICE ON SUCH MATTERS, OR BE RESPONSIBLE FOR ANY INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN. THE UNDERLYING DATA, AND THE INFORMATION PROVIDED HEREIN AS A RESULT OF THAT DATA, IS THE PROPERTY OF SOPUS PRODUCTS AND IS NOT TO BE THE SUBJECT OF SALE OR EXCHANGE WITHOUT THE EXPRESS WRITTEN CONSENT OF SOPUS PRODUCTS.

44419-11418-100R-04/17/2008

SDSE7144

ITEM: 1UYJ9 - Water Soluble Lead Free Flux,16 Oz

DELIVERY: **6415224813** HU NUMBER: U810851052

SAFETY DATA SHEET (SDS)

This SDS should be attached or kept with the respective product with which it is associated.

SDS - E7144

Associated Items
1UYJ9

WORTHINGTON INDUSTRIES

SAFETY DATA SHEET

----1. IDENTIFICATION ----

PRODUCT IDENTIFIER: WORTHINGTON WATER SOLUBLE SOLDERING FLUX

OTHER MEANS OF IDENTIFICATION:

SDS NUMBER: WC015

RECOMMENDED USE: SOLDERING FLUX.

RECOMMENDED RESTRICTIONS: NONE KNOWN.

MANUFACTURER/IMPORTER/SUPPLIER/DISTRIBUTOR INFORMATION:

MANUFACTURER/SUPPLIER: WORTHINGTON CYLINDER CORPORATION

ADDRESS:
200 OLD WILSON BRIDGE ROAD
COLUMBUS, OH 43085
UNITED STATES

EMAIL: CYLINDERS@WORTHINGTONINDUSTRIES.COM

TELEPHONE NUMBER: 866-928-2657

CHEMTREC - 24 HOURS:
WITHIN US AND CANADA: 800-424-9300
OUTSIDE US AND CANADA: +1 703-741-5970 (COLLECT CALLS ACCEPTED)

----2. HAZARD(S) IDENTIFICATION -----

PHYSICAL HAZARDS: NOT CLASSIFIED.

HEALTH HAZARDS:
SKIN CORROSION/IRRITATION: CATEGORY 2
SERIOUS EYE DAMAGE/EYE IRRITATION: CATEGORY 1

ENVIRONMENTAL HAZARDS:
HAZARDOUS TO THE AQUATIC ENVIRONMENT, ACUTE HAZARD: CATEGORY 2
HAZARDOUS TO THE AQUATIC ENVIRONMENT, LONG-TERM HAZARD: CATEGORY 2

OSHA DEFINED HAZARDS: NOT CLASSIFIED.

LABEL ELEMENTS:
CORROSION
ENVIRONMENT

SIGNAL WORD: DANGER

HAZARD STATEMENT:
CAUSES SKIN IRRITATION. CAUSES SERIOUS EYE DAMAGE. TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

PRECAUTIONARY STATEMENT:
PREVENTION WASH THOROUGHLY AFTER HANDLING. AVOID RELEASE TO THE ENVIRONMENT. WEAR PROTECTIVE GLOVES/EYE PROTECTION/FACE PROTECTION.

RESPONSE:
IF ON SKIN: WASH WITH PLENTY OF WATER.

IF SKIN IRRITATION OCCURS: GET MEDICAL ADVICE/ATTENTION.

TAKE OFF CONTAMINATED CLOTHING AND WASH IT BEFORE REUSE.

IF IN EYES:
RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND EASY TO DO. CONTINUE RINSING. IMMEDIATELY CALL A POISON CENTER/DOCTOR. COLLECT SPILLAGE.

STORAGE: STORE AWAY FROM INCOMPATIBLE MATERIALS.

DISPOSAL:
DISPOSE OF CONTENTS/CONTAINER IN ACCORDANCE WITH LOCAL/REGIONAL/NATIONAL/ INTERNATIONAL REGULATIONS.

HAZARD(S) NOT OTHERWISE CLASSIFIED (HNOC): NONE KNOWN.

SUPPLEMENTAL INFORMATION: NONE.

-----3. COMPOSITION/INFORMATION ON INGREDIENTS -----

MIXTURES:

CHEMICAL NAME	CAS NUMBER	%
WATER	7732-18-5	85
WAX BINDER	NA	10
HYDROCHLORIC ACID	7647-01-0	2.5
ZINC CHLORIDE	7646-85-7	2.5

COMPOSITION COMMENTS: ALL CONCENTRATIONS ARE IN PERCENT BY WEIGHT.

-----4. FIRST-AID MEASURES -----

INHALATION:
MOVE TO FRESH AIR. IF BREATHING IS DIFFICULT, GIVE OXYGEN. DO NOT USE MOUTH-TO-MOUTH METHOD IF VICTIM INHALED THE SUBSTANCE. INDUCE ARTIFICIAL RESPIRATION WITH THE AID OF A POCKET MASK EQUIPPED WITH A ONE-WAY VALVE OR OTHER PROPER RESPIRATORY MEDICAL DEVICE. GET MEDICAL ATTENTION IF DISCOMFORT PERSISTS.

SKIN CONTACT:
REMOVE AND ISOLATE CONTAMINATED CLOTHING AND SHOES. IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. WASH CLOTHING SEPARATELY BEFORE REUSE. GET MEDICAL ATTENTION IF IRRITATION DEVELOPS AND PERSISTS.

EYE CONTACT:
IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND EASY TO DO. CONTINUE RINSING. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:
IF SWALLOWED, RINSE MOUTH WITH WATER (ONLY IF THE PERSON IS CONSCIOUS). NEVER GIVE ANYTHING BY MOUTH TO A VICTIM WHO IS UNCONSCIOUS OR IS HAVING CONVULSIONS. IF VOMITING OCCURS NATURALLY, HAVE VICTIM LEAN FORWARD TO REDUCE RISK OF ASPIRATION. DO NOT USE MOUTH-TO-MOUTH METHOD IF VICTIM INGESTED THE SUBSTANCE. GET MEDICAL ATTENTION IF SYMPTOMS OCCUR.

MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAYED:
CAUSES SKIN IRRITATION. MAY CAUSE REDNESS AND PAIN. CAUSES SERIOUS EYE DAMAGE. SYMPTOMS MAY INCLUDE STINGING, TEARING, REDNESS, SWELLING, AND BLURRED VISION. PERMANENT EYE DAMAGE INCLUDING BLINDNESS COULD RESULT.

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:
TREAT SYMPTOMATICALLY. EXPOSURE MAY AGGRAVATE PRE-EXISTING RESPIRATORY, LUNG OR KIDNEY DISORDERS.

GENERAL INFORMATION:
SHOW THIS SAFETY DATA SHEET TO THE DOCTOR IN ATTENDANCE.

----5. FIRE-FIGHTING MEASURES -----

SUITABLE EXTINGUISHING MEDIA:
USE FIRE-EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING MATERIALS.

UNSUITABLE EXTINGUISHING MEDIA: NONE.

SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:
FIRE MAY PRODUCE IRRITATING, CORROSIVE AND/OR TOXIC GASES.

SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:
FIREFIGHTERS SHOULD WEAR FULL PROTECTIVE CLOTHING INCLUDING SELF CONTAINED BREATHING APPARATUS.

FIRE FIGHTING EQUIPMENT/INSTRUCTIONS:
MOVE CONTAINERS FROM FIRE AREA IF YOU CAN DO IT WITHOUT RISK.

SPECIFIC METHODS:
USE STANDARD FIREFIGHTING PROCEDURES AND CONSIDER THE HAZARDS OF OTHER INVOLVED MATERIALS.

GENERAL FIRE HAZARDS:
WILL RELEASE SMALL AMOUNTS OF HCL UPON DECOMPOSITION.

----6. ACCIDENTAL RELEASE MEASURES -----

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:
KEEP UNNECESSARY PERSONNEL AWAY. KEEP PEOPLE AWAY FROM AND UPWIND OF SPILL/LEAK. WEAR APPROPRIATE PROTECTIVE EQUIPMENT AND CLOTHING DURING CLEAN-UP. DO NOT TOUCH DAMAGED CONTAINERS OR SPILLED MATERIAL UNLESS WEARING APPROPRIATE PROTECTIVE CLOTHING. ENSURE ADEQUATE VENTILATION. 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:
PREVENT PRODUCT FROM ENTERING DRAINS. STOP THE FLOW OF MATERIAL, IF THIS IS WITHOUT RISK. NEUTRALIZE WITH SODIUM BICARBONATE OR SODA ASH. DILUTE WITH PLENTY OF WATER. CLEAN SURFACE THOROUGHLY TO REMOVE RESIDUAL CONTAMINATION. DO NOT FLUSH TO SEWER.

NEVER RETURN SPILLS TO ORIGINAL CONTAINERS FOR RE-USE. FOR WASTE DISPOSAL, SEE SECTION 13 OF THE SDS.

ENVIRONMENTAL PRECAUTIONS:
AVOID RELEASE TO THE ENVIRONMENT. INFORM APPROPRIATE MANAGERIAL OR SUPERVISORY PERSONNEL OF ALL ENVIRONMENTAL RELEASES. PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. AVOID DISCHARGE INTO DRAINS, WATER COURSES OR ONTO THE GROUND.

-----7. HANDLING AND STORAGE -----

PRECAUTIONS FOR SAFE HANDLING:
DO NOT GET IN EYES AND AVOID CONTACT WITH SKIN AND CLOTHING. DO NOT BREATHE FUME/MIST/VAPORS. AVOID PROLONGED EXPOSURE. PROVIDE ADEQUATE VENTILATION. WEAR APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT. AVOID RELEASE TO THE ENVIRONMENT. OBSERVE GOOD INDUSTRIAL HYGIENE PRACTICES.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:
STORE LOCKED UP. STORE IN ORIGINAL TIGHTLY CLOSED CONTAINER. STORE BELOW MELTING TEMPERATURE. KEEP AWAY FROM HEAT. STORE AWAY FROM INCOMPATIBLE MATERIALS (SEE SECTION 10 OF THE SDS).

----8. EXPOSURE CONTROLS/PERSONAL PROTECTION ----

OCCUPATIONAL EXPOSURE LIMITS:

US. OSHA TABLE Z-1 LIMITS FOR AIR CONTAMINANTS (29 CFR 1910.1000):

COMPONENTS	TYPE	VALUE	FORM
HYDROCHLORIC ACID (CAS 7647-01-0)	CEILING	7 MG/M3 5 PPM	
ZINC CHLORIDE (CAS 7646-85-7)	PEL	1 MG/M3	FUME.

US. ACGIH THRESHOLD LIMIT VALUES:

COMPONENTS	TYPE	VALUE	FORM
HYDROCHLORIC ACID (CAS 7647-01-0)	CEILING	2 PPM	
ZINC CHLORIDE (CAS 7646-85-7)	STEL	2 MG/M3	FUME.
	TWA	1 MG/M3	FUME.

US. NIOSH: POCKET GUIDE TO CHEMICAL HAZARDS

COMPONENTS	TYPE	VALUE	FORM
HYDROCHLORIC ACID (CAS 7647-01-0)	CEILING	7 MG/M3 5 PPM	
ZINC CHLORIDE (CAS 7646-85-7)	STEL	2 MG/M3	FUME.
	TWA	1 MG/M3	FUME.

BIOLOGICAL LIMIT VALUES:
NO BIOLOGICAL EXPOSURE LIMITS NOTED FOR THE INGREDIENT(S).

APPROPRIATE ENGINEERING CONTROLS:
GOOD GENERAL VENTILATION (TYPICALLY 10 AIR CHANGES PER HOUR) SHOULD BE USED. VENTILATION RATES SHOULD BE MATCHED TO CONDITIONS. IF APPLICABLE, USE PROCESS ENCLOSURES, LOCAL EXHAUST VENTILATION, OR OTHER ENGINEERING CONTROLS TO MAINTAIN AIRBORNE LEVELS BELOW RECOMMENDED EXPOSURE LIMITS. IF EXPOSURE LIMITS HAVE NOT BEEN ESTABLISHED, MAINTAIN AIRBORNE LEVELS TO AN ACCEPTABLE LEVEL. PROVIDE EASY ACCESS TO WATER SUPPLY AND EYE WASH FACILITIES.

INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT:

EYE/FACE PROTECTION: WEAR APPROVED SAFETY GLASSES OR GOGGLES.

SKIN PROTECTION:

HAND PROTECTION:
WEAR APPROPRIATE CHEMICAL RESISTANT GLOVES. SUITABLE GLOVES CAN BE RECOMMENDED BY THE GLOVE SUPPLIER.

SKIN PROTECTION:
OTHER: WEAR APPROPRIATE CHEMICAL RESISTANT CLOTHING.

RESPIRATORY PROTECTION:
USE A RESPIRATOR WHEN LOCAL EXHAUST OR VENTILATION IS NOT ADEQUATE TO KEEP EXPOSURES BELOW THE OEL. IN A CONFINED SPACE A SUPPLIED RESPIRATOR MAY BE REQUIRED. SELECTION AND USE OF RESPIRATORY PROTECTIVE EQUIPMENT SHOULD BE IN ACCORDANCE WITH OSHA GENERAL INDUSTRY STANDARD 29 CFR 1910.134; OR IN CANADA WITH CSA STANDARD Z94.4.

THERMAL HAZARDS:
WEAR APPROPRIATE THERMAL PROTECTIVE CLOTHING, WHEN NECESSARY.

GENERAL HYGIENE CONSIDERATIONS:
ALWAYS OBSERVE GOOD PERSONAL HYGIENE MEASURES, SUCH AS WASHING AFTER HANDLING THE MATERIAL AND BEFORE EATING, DRINKING, AND/OR SMOKING. ROUTINELY WASH WORK CLOTHING AND PROTECTIVE EQUIPMENT TO REMOVE CONTAMINANTS.

----9. PHYSICAL AND CHEMICAL PROPERTIES ----

APPEARANCE:

PHYSICAL STATE: SEMI-SOLID.

FORM: PASTE.

COLOR: WHITE.

ODOR: ODORLESS.

ODOR THRESHOLD: NOT AVAILABLE.

PH: 1

MELTING POINT/FREEZING POINT:

140 DEG. F (60 DEG. C) / 14 DEG. F (-10 DEG. C)

INITIAL BOILING POINT AND BOILING RANGE: 219.2 DEG. F (104 DEG. C)

FLASH POINT: NOT APPLICABLE.

EVAPORATION RATE: 0.6 (BUTYL ACETATE = 1)

FLAMMABILITY (SOLID, GAS): NON FLAMMABLE.

UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS:
FLAMMABILITY LIMIT - LOWER (%): NOT APPLICABLE.
FLAMMABILITY LIMIT - UPPER (%): NOT APPLICABLE.

EXPLOSIVE LIMIT - LOWER (%): NOT APPLICABLE.
EXPLOSIVE LIMIT - UPPER (%): NOT APPLICABLE.

VAPOR PRESSURE: NOT APPLICABLE.

VAPOR DENSITY: NOT APPLICABLE.

RELATIVE DENSITY: 0.99 (H20=1)

SOLUBILITY(IES):
SOLUBILITY (WATER): COMPLETELY SOLUBLE IN WATER.

PARTITION COEFFICIENT (N-OCTANOL/WATER): NOT AVAILABLE.

AUTO-IGNITION TEMPERATURE: NOT APPLICABLE.

DECOMPOSITION TEMPERATURE: NOT AVAILABLE.

VISCOSITY: NOT AVAILABLE.

OTHER INFORMATION:

EXPLOSIVE PROPERTIES: NOT EXPLOSIVE.

OXIDIZING PROPERTIES: NOT OXIDIZING.

VOC: 0 %

-----10. STABILITY AND REACTIVITY ----

REACTIVITY:
THE PRODUCT IS NON-REACTIVE UNDER NORMAL CONDITIONS OF USE, STORAGE AND TRANSPORT.

CHEMICAL STABILITY: MATERIAL IS STABLE UNDER NORMAL CONDITIONS.

POSSIBILITY OF HAZARDOUS REACTIONS:
HAZARDOUS POLYMERIZATION DOES NOT OCCUR.

CONDITIONS TO AVOID:
CONTACT WITH METALS. EXCESSIVE HEAT OR COLD. CONTACT WITH INCOMPATIBLE MATERIALS.

INCOMPATIBLE MATERIALS:
ALKALINES. STRONG OXIDIZING AGENTS. REDUCING AGENTS. CYANIDES. COMBUSTIBLE MATERIAL.

HAZARDOUS DECOMPOSITION PRODUCTS:
THERMAL DECOMPOSITION OR COMBUSTION MAY LIBERATE CORROSIVE GASES OR FUMES. HYDROGEN CHLORIDE GAS. ZINC OXIDES. ZINC CHLORIDE. AMMONIUM FUME.

----11. TOXICOLOGICAL INFORMATION ----

INFORMATION ON LIKELY ROUTES OF EXPOSURE:

INHALATION: IRRITATING TO RESPIRATORY SYSTEM.

SKIN CONTACT: CAUSES SKIN IRRITATION.

EYE CONTACT: CAUSES SERIOUS EYE DAMAGE.

INGESTION: MAY CAUSE DISCOMFORT IF SWALLOWED.

SYMPTOMS RELATED TO THE PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS:
CAUSES SKIN IRRITATION. MAY CAUSE REDNESS AND PAIN. CAUSES SERIOUS EYE DAMAGE. SYMPTOMS MAY INCLUDE STINGING, TEARING, REDNESS, SWELLING, AND BLURRED VISION. PERMANENT EYE DAMAGE INCLUDING BLINDNESS COULD RESULT.

INFORMATION ON TOXICOLOGICAL EFFECTS:

ACUTE TOXICITY: NOT EXPECTED TO BE ACUTELY TOXIC.

COMPONENTS	SPECIES	TEST RESULTS
HYDROCHLORIC ACID (CAS 7647-01-0):		
ACUTE:		
DERMAL:		
LD50	RABBIT	>5100 MG/KG
INHALATION:		
GAS:		
LC50	RAT	4.2 MG/L, 1 HOURS
ORAL:		
LD50	RAT	238 - 277 MG/KG

ZINC CHLORIDE (CAS 7646-85-7):

ACUTE:

ORAL:

LD50 MOUSE 350 MG/KG

SKIN CORROSION/IRRITATION: CAUSES SKIN IRRITATION.

SERIOUS EYE DAMAGE/EYE IRRITATION: CAUSES SERIOUS EYE DAMAGE.

RESPIRATORY OR SKIN SENSITIZATION:

RESPIRATORY SENSITIZATION: NOT A RESPIRATORY SENSITIZER.

SKIN SENSITIZATION: NOT A SKIN SENSITIZER.

GERM CELL MUTAGENICITY:
NO DATA AVAILABLE TO INDICATE PRODUCT OR ANY COMPONENTS PRESENT AT GREATER THAN 0.1% ARE MUTAGENIC OR GENOTOXIC.

CARCINOGENICITY: NOT CLASSIFIABLE AS TO CARCINOGENICITY TO HUMANS.

IARC MONOGRAPHS. OVERALL EVALUATION OF CARCINOGENICITY:

HYDROCHLORIC ACID (CAS 7647-01-0):
3 NOT CLASSIFIABLE AS TO CARCINOGENICITY TO HUMANS.

NTP REPORT ON CARCINOGENS: NOT LISTED.

OSHA SPECIFICALLY REGULATED SUBSTANCES (29 CFR 1910.1001-1050):
NOT REGULATED.

REPRODUCTIVE TOXICITY:
THIS PRODUCT IS NOT EXPECTED TO CAUSE REPRODUCTIVE OR DEVELOPMENTAL EFFECTS.

SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE: NOT CLASSIFIED.

SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE: NOT CLASSIFIED.

ASPIRATION HAZARD: NOT AN ASPIRATION HAZARD.

CHRONIC EFFECTS: CAN CAUSE DELAYED LUNG INJURY.

FURTHER INFORMATION:
NO OTHER SPECIFIC ACUTE OR CHRONIC HEALTH IMPACT NOTED.

----12. ECOLOGICAL INFORMATION ------

ECOTOXICITY: TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

COMPONENTS SPECIES TEST RESULTS

HYDROCHLORIC ACID (CAS 7647-01-0):

AQUATIC:

ACUTE:

CRUSTACEA EC50 DAPHNIA MAGNA 0.492 MG/L, 48 HOURS

FISH LC50 ONCORHYNCHUS MYKISS 7.45 MG/L, 96 HOURS

ZINC CHLORIDE (CAS 7646-85-7):

AQUATIC:

CRUSTACEA EC50 AMERICAN OR VIRGINIA OYSTER (CRASSOSTREA VIRGINICA) 0.1511 - 0.2782 MG/L, 48 HOURS

FISH LC50 RAINBOW TROUT, DONALDSON TROUT (ONCORHYNCHUS MYKISS) 0.101 - 0.197 MG/L, 96 HOURS

PERSISTENCE AND DEGRADABILITY:
NO DATA IS AVAILABLE ON THE DEGRADABILITY OF THIS PRODUCT.

BIOACCUMULATIVE POTENTIAL: NO DATA AVAILABLE ON BIOACCUMULATION.

MOBILITY IN SOIL: THIS PRODUCT IS WATER SOLUBLE AND MAY DISPERSE IN SOIL.

OTHER ADVERSE EFFECTS:
THIS PRODUCT CONTAINS ONE OR MORE SUBSTANCES IDENTIFIED AS HAZARDOUS AIR POLLUTANTS (HAPS) PER THE US FEDERAL CLEAN AIR ACT (SEE SECTION 15).

THE PRODUCT MAY AFFECT THE ACIDITY (PH-FACTOR) IN WATER WITH RISK OF HARMFUL EFFECTS TO AQUATIC ORGANISMS.

-----13. DISPOSAL CONSIDERATIONS -----

DISPOSAL INSTRUCTIONS:
COLLECT AND RECLAIM OR DISPOSE IN SEALED CONTAINERS AT LICENSED WASTE DISPOSAL SITE. 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:
D002: WASTE CORROSIVE MATERIAL [PH <=2 OR =>12.5, OR CORROSIVE TO STEEL]

THE WASTE CODE SHOULD BE ASSIGNED IN DISCUSSION BETWEEN THE USER, THE PRODUCER AND THE WASTE DISPOSAL COMPANY.

WASTE FROM RESIDUES / UNUSED PRODUCTS:
DISPOSE OF IN ACCORDANCE WITH LOCAL REGULATIONS. EMPTY CONTAINERS OR LINERS MAY RETAIN SOME PRODUCT RESIDUES. THIS MATERIAL AND ITS CONTAINER MUST BE DISPOSED OF IN A SAFE MANNER (SEE: DISPOSAL INSTRUCTIONS).

CONTAMINATED PACKAGING:
SINCE EMPTIED CONTAINERS MAY RETAIN PRODUCT RESIDUE, FOLLOW LABEL WARNINGS EVEN AFTER CONTAINER IS EMPTIED. EMPTY CONTAINERS SHOULD BE TAKEN TO AN APPROVED WASTE HANDLING SITE FOR RECYCLING OR DISPOSAL.

----14. TRANSPORT INFORMATION -----

DOT:

UN NUMBER: UN3077

UN PROPER SHIPPING NAME:
ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (ZINC CHLORIDE)

TRANSPORT HAZARD CLASS(ES):

CLASS: 9

SUBSIDIARY RISK:

LABEL(S): 9

PACKING GROUP: III

ENVIRONMENTAL HAZARDS:

MARINE POLLUTANT: YES

SPECIAL PRECAUTIONS FOR USER:
READ SAFETY INSTRUCTIONS, SDS AND EMERGENCY PROCEDURES BEFORE HANDLING.

SPECIAL PROVISIONS: 8, 146, 335, A112, B54, IB8, IP3, N20, T1, TP33

PACKAGING EXCEPTIONS: 155

PACKAGING NON BULK: 213

PACKAGING BULK: 240

IATA:

UN NUMBER: UN3077

UN PROPER SHIPPING NAME:
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (ZINC CHLORIDE)

TRANSPORT HAZARD CLASS(ES):

CLASS: 9

SUBSIDIARY RISK:

LABEL(S): 9

PACKING GROUP: III

ENVIRONMENTAL HAZARDS: YES

ERG CODE: 9L

SPECIAL PRECAUTIONS FOR USER:
READ SAFETY INSTRUCTIONS, SDS AND EMERGENCY PROCEDURES BEFORE HANDLING.

IMDG:

UN NUMBER: UN3077

UN PROPER SHIPPING NAME:
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (ZINC CHLORIDE)

TRANSPORT HAZARD CLASS(ES):

CLASS: 9

SUBSIDIARY RISK:

PACKING GROUP: III

ENVIRONMENTAL HAZARDS:

MARINE POLLUTANT: YES

EMS: F-A, S-F

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 APPLICABLE.

-----15. REGULATORY INFORMATION -----

US FEDERAL REGULATIONS:
THIS PRODUCT IS A "HAZARDOUS CHEMICAL" AS DEFINED BY THE OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200.

TSCA SECTION 12(B) EXPORT NOTIFICATION (40 CFR 707, SUBPT. D):
NOT REGULATED.

OSHA SPECIFICALLY REGULATED SUBSTANCES (29 CFR 1910.1001-1050):
NOT REGULATED.

CERCLA HAZARDOUS SUBSTANCE LIST (40 CFR 302.4):

HYDROCHLORIC ACID (CAS 7647-01-0) LISTED

ZINC CHLORIDE (CAS 7646-85-7) LISTED

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA):

HAZARD CATEGORIES:
IMMEDIATE HAZARD: YES
DELAYED HAZARD: NO
FIRE HAZARD: NO
PRESSURE HAZARD: NO
REACTIVITY HAZARD: NO

SARA 302 EXTREMELY HAZARDOUS SUBSTANCE:

CHEMICAL NAME	CAS NUMBER	REPORTABLE QUANTITY (POUNDS)	THRESHOLD PLANNING QUANTITY (POUNDS)
HYDROCHLORIC ACID	7647-01-0	5000	500

CHEMICAL NAME	THRESHOLD PLANNING QUANTITY, LOWER VALUE (POUNDS)	THRESHOLD PLANNING QUANTITY, UPPER VALUE (POUNDS)
HYDROCHLORIC ACID		

SARA 311/312 HAZARDOUS CHEMICAL: YES

SARA 313 (TRI REPORTING):

CHEMICAL NAME	CAS NUMBER	% BY WT.
HYDROCHLORIC ACID	7647-01-0	2.5
ZINC CHLORIDE	7646-85-7	2.5

OTHER FEDERAL REGULATIONS:

CLEAN AIR ACT (CAA) SECTION 112 HAZARDOUS AIR POLLUTANTS (HAPS) LIST:
HYDROCHLORIC ACID (CAS 7647-01-0)

CLEAN AIR ACT (CAA) SECTION 112(R) ACCIDENTAL RELEASE PREVENTION (40 CFR 68.130): HYDROCHLORIC ACID (CAS 7647-01-0)

SAFE DRINKING WATER ACT (SDWA): NOT REGULATED.

DRUG ENFORCEMENT ADMINISTRATION (DEA). LIST 2, ESSENTIAL CHEMICALS (21 CFR 1310.02(B) AND 1310.04(F)(2) AND CHEMICAL CODE NUMBER:

HYDROCHLORIC ACID (CAS 7647-01-0) 6545

DRUG ENFORCEMENT ADMINISTRATION (DEA). LIST 1 & 2 EXEMPT CHEMICAL MIXTURES (21 CFR 1310.12(C)):

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

DEA EXEMPT CHEMICAL MIXTURES CODE NUMBER:

HYDROCHLORIC ACID (CAS 7647-01-0) 6545

US STATE REGULATIONS:

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.

US. MASSACHUSETTS RTK - SUBSTANCE LIST:
HYDROCHLORIC ACID (CAS 7647-01-0)
ZINC CHLORIDE (CAS 7646-85-7)

US. NEW JERSEY WORKER AND COMMUNITY RIGHT-TO-KNOW ACT:
HYDROCHLORIC ACID (CAS 7647-01-0)
ZINC CHLORIDE (CAS 7646-85-7)

US. PENNSYLVANIA WORKER AND COMMUNITY RIGHT-TO-KNOW LAW:
HYDROCHLORIC ACID (CAS 7647-01-0)
ZINC CHLORIDE (CAS 7646-85-7)

US. RHODE ISLAND RTK:
HYDROCHLORIC ACID (CAS 7647-01-0)
ZINC CHLORIDE (CAS 7646-85-7)

INTERNATIONAL INVENTORIES:

COUNTRY(S) OR REGION	INVENTORY NAME	ON INVENTORY (YES/NO)*
AUSTRALIA	AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES (AICS)	YES
CANADA	DOMESTIC SUBSTANCES LIST (DSL)	YES
CANADA	NON-DOMESTIC SUBSTANCES LIST (NDSL)	NO
CHINA	INVENTORY OF EXISTING CHEMICAL SUBSTANCES IN CHINA (IECSC)	YES
EUROPE	EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES (EINECS)	YES
EUROPE	EUROPEAN LIST OF NOTIFIED CHEMICAL SUBSTANCES (ELINCS)	NO
JAPAN	INVENTORY OF EXISTING AND NEW CHEMICAL SUBSTANCES (ENCS)	YES
KOREA	EXISTING CHEMICALS LIST (ECL)	YES
NEW ZEALAND	NEW ZEALAND INVENTORY	YES
PHILIPPINES	PHILIPPINE INVENTORY OF CHEMICALS AND CHEMICAL SUBSTANCES (PICCS)	YES
UNITED STATES & PUERTO RICO	TOXIC SUBSTANCES CONTROL ACT (TSCA) INVENTORY	YES

*A "YES" INDICATES 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: 28-MAY-2015

REVISION DATE: 21-JUNE-2017

VERSION #: 02

NFPA RATINGS:
3
0
0

DISCLAIMER:
ALL INFORMATION IN THIS SAFETY DATA SHEET IS BELIEVED TO BE ACCURATE AND RELIABLE. HOWEVER, NO GUARANTEE OR WARRANTY OF ANY KIND IS MADE WITH REGARD TO THE ACCURACY OF INFORMATION OR THE SUITABILITY OF THE RECOMMENDATIONS CONTAINED HEREIN. IT IS THE USER'S RESPONSIBILITY TO ASSESS THE SAFETY AND TOXICITY OF THIS PRODUCT UNDER THEIR OWN CONDITIONS OF USE AND TO COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS.

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