Material Safety Data Sheet

1. MATERIAL AND COMPANY IDENTIFICATION

Material Name : **Shell Retinax Grease LX 2**
Product Code : 001D4434
Uses : Automotive and industrial grease.

Manufacturer/Supplier : **Shell Oil Products US**
P.O. Box 4427
Houston TX 77210-4427
USA
SDS Request : (+1) 877-276-7285

Emergency Telephone Number
Spill Information : 877-242-7400
Health Information : 877-504-9351

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Identity	CAS No.	Concentration
Zinc naphthenate	12001-85-3	1.00 - 2.00 %

A lubricating grease consisting of highly-refined mineral oil and additives.
The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance and Odour : Red. Semi-solid at ambient temperature. Slight hydrocarbon.

Health Hazards : High-pressure injection under the skin may cause serious damage including local necrosis.
Safety Hazards : Not classified as flammable but will burn.
Environmental Hazards : Not classified as dangerous for the environment.

Health Hazards : Not expected to be a health hazard when used under normal conditions.

Health Hazards
Inhalation : Under normal conditions of use, this is not expected to be a primary route of exposure.
Skin Contact : Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Eye Contact : May cause slight irritation to eyes.
Ingestion : Low toxicity if swallowed.
Other Information : High-pressure injection under the skin may cause serious damage including local necrosis. Used grease may contain harmful impurities.
Signs and Symptoms : Local necrosis is evidenced by delayed onset of pain and tissue

damage a few hours following injection. Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.

Aggravated Medical Conditions : Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Skin.

Environmental Hazards : Not classified as dangerous for the environment.

Additional Information : 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.

4. FIRST-AID MEASURES

General Information : Not expected to be a health hazard when used under normal conditions.

Inhalation : No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.

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

Eye Contact : Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

Ingestion : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

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

5. FIRE-FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Flash point : > 200 °C / 392 °F (COC)

Upper / lower Flammability or Explosion limits : Typical 1 - 10 %(V)(based on mineral oil)

Auto ignition temperature	:	> 320 °C / 608 °F
Specific Hazards	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide may be evolved if incomplete combustion occurs. Unidentified organic and inorganic compounds.
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 water in a jet.
Protective Equipment for Firefighters	:	Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

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.

Protective measures	:	Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Clean Up Methods	:	Shovel into a suitable clearly marked container for disposal or reclamation in accordance with local regulations.

7. HANDLING AND STORAGE

General Precautions	:	Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. 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.
Handling	:	Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.
Storage	:	Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Store at ambient temperature.
Recommended Materials	:	For containers or container linings, use mild steel or high density polyethylene.
Unsuitable Materials	:	PVC.
Additional Information	:	Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Oil mist, mineral	ACGIH	TWA(Inhalable fraction.)		5 mg/m3	
Oil mist, mineral	OSHA Z1	PEL(Mist.)		5 mg/m3	

Additional Information : Due to the product's semi-solid consistency, generation of mists and dusts is unlikely to occur.

Biological Exposure Index (BEI)
No biological limit allocated.

Exposure 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: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
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. Drain down system prior to equipment break-in or maintenance.
Retain drain downs in sealed storage pending disposal or for subsequent recycle. 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.

Personal Protective Equipment : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory Protection : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. 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. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].

Hand Protection	:	Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. 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. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model.
Eye Protection	:	Wear safety glasses or full face shield if splashes are likely to occur.
Protective Clothing	:	Skin protection not ordinarily required beyond standard issue work clothes.
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/ Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances http://www.hse.gov.uk/ Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany. http://www.dguv.de/inhalt/index.jsp L'Institut National de Recherche et de Securité, (INRS), France http://www.inrs.fr/accueil

Environmental Exposure Controls	:	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. Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Red. Semi-solid at ambient temperature.
Odour	:	Slight hydrocarbon.
pH	:	Not applicable.
Initial Boiling Point and Boiling Range	:	Data not available
Dropping point	:	Typical 245 °C / 473 °F
Flash point	:	> 200 °C / 392 °F (COC)
Upper / lower Flammability or Explosion limits	:	Typical 1 - 10 %(V) (based on mineral oil)
Auto-ignition temperature	:	> 320 °C / 608 °F
Vapour pressure	:	< 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Specific gravity	:	Typical 0.900 at 15 °C / 59 °F
Density	:	Typical 900 kg/m3 at 15 °C / 59 °F
Water solubility	:	Negligible.
n-octanol/water partition coefficient (log Pow)	:	> 6 (based on information on similar products)
Kinematic viscosity	:	Not applicable.
Vapour density (air=1)	:	> 1 (estimated value(s))
Electrical conductivity	:	This material is not expected to be a static accumulator.
Evaporation rate (nBuAc=1)	:	Data not available

10. STABILITY AND REACTIVITY

Stability	:	Stable.
Conditions to Avoid	:	Extremes of temperature and direct sunlight.
Materials to Avoid	:	Strong oxidising agents.
Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage.

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	:	Information given is based on data on 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).
Acute Oral Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat
Acute Dermal Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit

Acute Inhalation Toxicity	:	Not considered to be an inhalation hazard under normal conditions of use.
Skin Irritation	:	Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Eye Irritation	:	Expected to be slightly irritating.
Respiratory Irritation	:	Inhalation of vapours or mists may cause irritation.
Sensitisation	:	Not expected to be a skin sensitiser.
Repeated Dose Toxicity	:	Not expected to be a hazard.
Mutagenicity	:	Not considered a mutagenic hazard.
Carcinogenicity	:	Not expected to be carcinogenic. Product contains mineral oils of types shown to be non-carcinogenic in animal skin-painting studies. Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC).

Distillates (petroleum), hydrotreated heavy paraffinic	:	GHS / CLP: No carcinogenicity classification
Hydroxystearic acid	:	GHS / CLP: No carcinogenicity classification
Lithium hydroxide	:	GHS / CLP: No carcinogenicity classification
Zinc alkyl dithiophosphate	:	GHS / CLP: No carcinogenicity classification

Blended lubricant	:	GHS / CLP: No carcinogenicity classification
Hydroxystearic acid	:	GHS / CLP: No carcinogenicity classification
Lithium hydroxide	:	GHS / CLP: No carcinogenicity classification

Reproductive and Developmental Toxicity	:	Not expected to be a hazard.
Additional Information	:	Used grease may contain harmful impurities that have accumulated during use. The concentration of such harmful impurities will depend on use and they may present risks to health and the environment on disposal. ALL used grease should be handled with caution and skin contact avoided as far as possible. High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed.

12. ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Acute Toxicity	:	Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract. Mineral oil is not expected to cause any chronic effects

to aquatic organisms at concentrations less than 1 mg/l.

Mobility	:	Semi-solid under most environmental conditions. If it enters soil, it will adsorb to soil particles and will not be mobile. Floats on water.
Persistence/degradability	:	Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.
Bioaccumulation	:	Contains components with the potential to bioaccumulate.
Other Adverse Effects	:	Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

13. DISPOSAL CONSIDERATIONS

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.
Container Disposal	:	Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
Local Legislation	:	Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

US Department of Transportation Classification (49CFR)
This material is not subject to DOT regulations under 49 CFR Parts 171-180.

IMDG
This material is not classified as dangerous under IMDG regulations.

IATA (Country variations may apply)
This material is either not classified as dangerous under IATA regulations or needs to follow country specific requirements.

15. REGULATORY INFORMATION

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

Federal Regulatory Status

Notification Status

EINECS	All components listed or polymer exempt.
TSCA	All components listed.
DSL	Not all components listed.

Shell classifies this material as an "oil" under the CERCLA Petroleum Exclusion, therefore releases to the environment are not reportable under CERCLA.

State Regulatory Status

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)

This material does not contain any chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

16. OTHER INFORMATION

NFPA Rating (Health, Fire, Reactivity)	:	0, 1, 0
SDS Version Number	:	1.2
SDS Effective Date	:	02/05/2014
SDS Revisions	:	A vertical bar (|) in the left margin indicates an amendment from the previous version.
SDS Regulation	:	The content and format of this MSDS is in accordance with the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
SDS Distribution	:	The information in this document should be made available to all who may handle the product.
Disclaimer	:	The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

SAFETY DATA SHEET

Print date: 01/29/2018 **Revision Date:** 01/29/2018 **Revision Number:** 1.02

1. IDENTIFICATION

Product identifier

Product Name: FERROCOTE® 5856 BF T1
Product code: 013315-05

Other means of identification

Synonyms No information available

Application

Recommended Use Corrosion Preventive
Uses advised against For industrial use only

Supplier/Manufacturer:

Supplier:
Quaker Chemical Corporation
Quaker Park One
901 Hector Street
Conshohocken, PA 19428
610-832-4000
E-mail: she@quakerchem.com

Emergency telephone number:
* 24 HOUR TRANSPORTATION:
**CHEMTREC: 1-800-424-9300
+703-527-3887 (Call collect outside of US)
* 24 HOUR EMERGENCY HEALTH & SAFETY:
**QUAKER CHEMICAL CORPORATION: (800) 523-7010
(Within US only) Outside of US call (703) 527-3887

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Skin Sensitization	Category 1
Aspiration toxicity	Category 1
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1
Flammable liquids	Category 4

Label Elements

Emergency Overview

DANGER

Hazard Statements
Causes skin irritation
Causes serious eye irritation
May cause an allergic skin reaction
Very toxic to aquatic life with long lasting effects
May be fatal if swallowed and enters airways
Combustible liquid

Appearance Clear, Amber **Physical State** Liquid **Odor** Pleasant

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace
Avoid release to the environment
Keep away from heat/sparks/open flames/hot surfaces. — No smoking

Precautionary Statements - Response
Specific treatment (see First Aid)
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 ON SKIN: Wash with plenty of water and soap Take off contaminated clothing and wash it before reuse If skin irritation or rash occurs: Get medical advice/attention
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician Do not induce vomiting
In case of fire: Use CO2, dry chemical, or foam for extinction
Collect spillage

Precautionary Statements - Storage
Store locked up
Store in a well-ventilated place. Keep cool

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
None known

Other Information
None known.

Unknown acute toxicity 0% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Weight-%
Severely hydrotreated light distillates	64742-47-8	60 - 70%
Calcium Salt	Proprietary	1 - 5%
Amine	Proprietary	1 - 5%
Scent, fruity	Proprietary	<1%

Physico-chemical properties: Combustible material

The exact percentage (concentration) of composition has been withheld as a trade secret. If CAS number is "proprietary", the specific chemical identity and percentage of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

General advice: Show this safety data sheet to the doctor in attendance. Remove contaminated clothing and shoes. Wash contaminated clothing before re-use. Wash off with soap and water. If symptoms persist, call a physician

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin contact: Remove contaminated clothing and shoes. Wash contaminated clothing before re-use. Wash off immediately with soap and plenty of water.

Ingestion: If swallowed, seek medical advice immediately and show this container or label. Do not induce vomiting: contains petroleum distillates and/or aromatic solvents. Risk of product entering the lungs on vomiting after ingestion. Never give anything by mouth to an unconscious person Do not induce vomiting without medical advice.

Inhalation: Move to fresh air in case of accidental inhalation of vapors. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Consult a physician.

Note to physician: This product contains petroleum distillates. Aspiration may cause pulmonary edema and pneumonitis.

Medical condition aggravated by exposure: Dermatitis and asthma.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Carbon dioxide (CO2) Dry chemical Foam

Specific hazards: Combustible material Do not allow material to contaminate ground water system.

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

Specific methods: Water mist may be used to cool closed containers

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Remove all sources of ignition. Evacuate personnel to safe areas. Ensure adequate ventilation. Do not breathe vapour/dust. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. Local authorities should be advised if significant spillages cannot be contained.

Methods for cleaning up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Ground and bond containers when transferring material. Sweep up and shovel into suitable containers for disposal.

7. HANDLING AND STORAGE

Handling

Technical measures/precautions: Provide sufficient air exchange and/or exhaust in work rooms.

Safe handling advice: To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. In case of insufficient ventilation, wear suitable respiratory equipment. Do not breathe vapors or spray mist. Wear personal protective equipment. Avoid contact with skin and eyes. Wash thoroughly after handling. Keep container tightly closed.

Storage

Technical measures/storage conditions: Keep containers tightly closed in a cool, well-ventilated place.

Incompatible products: Strong oxidizing agents

Safe storage temperature: 40 - 100 ° F

Shelf life: 12 months

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	ACGIH Exposure Limits	OSHA TWA (final)	NIOSH - Pocket Guide
Mineral Oil	5 mg/m³	5mg/m³	5mg/m³
Calcium carbonate	None	None	10 mg/m³ (TWA) 5 mg/m³ (TWA)

Engineering measures: Provide adequate ventilation In case of insufficient ventilation, wear suitable respiratory equipment

Personal Protective Equipment:

General: Provide easy access to eyewash/safety shower facilities.

Respiratory protection: If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, respiratory protection may be required. Contact your site safety representative for proper respirator selection.

Eye protection:	Wear safety glasses with side shields (or goggles)
Hand protection:	Wear chemical-resistant gloves as appropriate for the risk of exposure. Contact your safety department for specific recommendations
Skin and body protection:	Wear protective clothing and appropriate footwear necessary for the risk of exposure. Contact your health and safety department for specific recommendations
Hygiene measures:	Handle in accordance with sound chemical hygiene practices. Wear the appropriate PPE. Avoid contact with skin, eyes and clothing. Remove and wash contaminated clothing before re-use. Do not eat, drink, or smoke while using chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Clear, Amber
Odor	Pleasant
Odor Threshold	No information available
pH concentrate:	No information available
pH Dilution	No information available
Melting/freezing point	No information available
Boiling Point/Range	> 148 °C / 300 °F
Flash Point	80 °C / 176 °F
Method	No information available
Evaporation rate	No information available
Flammability Limits in Air	
upper flammability limit	No information available
lower flammability limit	No information available
VOC Content Product (lb/gal)	No information available
VOC Content Product (g/L)	3.48 lb/gal (EPA Method 24)

Vapor pressure	No information available
Vapor density	No information available
Specific Gravity (g/cc, 15 C)	0.828
Bulk Density (lb/gal, 15 C)	6.91
Water Solubility	Insoluble in water
Solubility in other solvents	No information available
Partition coefficient: n-octanol/water	No information available
Autoignition temperature	No information available
Decomposition Temperature	No information available
Kinematic viscosity	No information available
Dynamic viscosity	No information available
Molecular Weight	No information available

10. STABILITY AND REACTIVITY

Stability:	Stable under recommended storage conditions.
Conditions to avoid:	Heat, flames and sparks.
Materials to avoid:	Strong oxidizing agents.
Hazardous decomposition products:	Carbon oxides. Sulphur oxides. Nitrogen oxides (nox).
Hazardous Polymerization:	No information available.

11. TOXICOLOGICAL INFORMATION

No toxicological information is available on the product. Data obtained on components are summarized below.

Information on likely routes of exposure

Inhalation	May cause irritation of respiratory tract.
Eye Contact	Irritating to eyes.
Skin Contact	Irritating to skin. May cause sensitization by skin contact.
Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Severely hydrotreated light distillates	> 5000 mg/kg (Rat) Oral LD50 Rat >5000 mg/kg (Source: IUCLID)	> 2000 mg/kg (Rabbit) Dermal LD50 Rabbit >2000 mg/kg (Source: NLM_CIP)	> 5.2 mg/L (Rat) 4 h Inhalation LC50 Rat >5.2 mg/L 4 h (Source: IUCLID)
Calcium Salt	> 5000 mg/kg (Rat) Oral LD50 Rat >5000 mg/kg (in oil, Source: CHEMVIEW)	> 20000 mg/kg (Rabbit) Dermal LD50 Rabbit >20000 mg/kg (in oil; no deaths occurred, Source: CHEMVIEW)	> 18 mg/L (Rat) 1 h Inhalation LC50 Rat >18 mg/L 1 h (in oil; no deaths occurred, aerosol, Source: CHEMVIEW)
Amine	-	-	-
Scent, fruity	-	-	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical Name	IARC Carcinogens	NTP	OSHA - Select Carcinogens
Severely hydrotreated light distillates	Not listed	Not listed	Not listed
Calcium Salt	Not listed	Not listed	Not listed
Amine	Not listed	Not listed	Not listed
Scent, fruity	Not listed	Not listed	Not listed

Sensitization Product contains a component that is classified as a skin sensitizer. No studies have been conducted on the product itself.

Mutagenic effects: No information available.

Reproductive Toxicity No information available.

Developmental Toxicity No information available.

Teratogenic No information available.

Specific target organ systemic toxicity (single exposure) No information available.

Specific target organ systemic toxicity (repeated exposure) No information available.

Aspiration hazard May be fatal if swallowed and enters airways. Risk of serious damage to the lungs (by aspiration).

Additional information on toxicological effects

Reports of animal studies using both sexes of several species have shown that kidney effects can occur in male rats after prolonged and repeated inhalation exposures to light hydrocarbon vapors of the general type represented by this product. While the effects are of low order of severity in animals, the implications of these results have not yet been determined.

12. ECOLOGICAL INFORMATION

Chemical Name	Ecotoxicity - Fish Species Data:	Ecotoxicity - Freshwater Algae Data:	Ecotoxicity - Water Flea Data:
Severely hydrotreated light distillates	LC50 (Lepomis macrochirus - 96h) = 2.2 mg/L LC50 (Oncorhynchus mykiss - 96h) = 2.4 mg/L LC50 (Pimephales promelas - 96h) = 45 mg/L	No data	LC50 (Den-dronereides heteropoda - 96h) = 4720 mg/L
Calcium Salt	No data	No data	No data
Amine	No data	No data	No data
Scent, fruity	No data	No data	No data

0.3% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Persistence and Degradability No information available.

Bioaccumulation No information available.

Chemical Name	Octanol/water partition coefficient
Severely hydrotreated light distillates	-
Calcium Salt	-
Amine	-
Scent, fruity	-

Mobility: No data available

Ozone: No data available

13. DISPOSAL CONSIDERATIONS

Waste from residues/unused products: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

Contaminated packaging: Do not re-use empty containers

Methods for cleaning up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust) Ground and bond containers when transferring material Sweep up and shovel into suitable containers for disposal

14. TRANSPORT INFORMATION

U. S. DEPARTMENT OF TRANSPORTATION:

UN/NA ID Number: NA1993

Proper shipping name: Combustible liquid n.o.s. (hydrotreated light petroleum distillates)

Hazard class:	Combustible
PG:	III
DOT ERG:	ERG 128

TDG (CANADA):

Proper shipping name:	Not regulated

IMDG/IMO:

UN nr:	UN3082
Proper shipping name:	Environmentally hazardous substance, liquid, n.o.s. (Hexadecylamine)
Class:	9
Packing group:	III
Limited quantity:	1 L

IATA/ICAO:

UN nr:	UN3082
Proper shipping name:	Environmentally hazardous substance, liquid, n.o.s. (Hexadecylamine)
Hazard Class:	9
Packing group:	III
Maximum quantity for cargo only:	450 L
Maximum quantity for passenger:	450 L
Limited quantity:	30 kg

15. REGULATORY INFORMATION

Federal Regulations

OSHA Hazard Communication Standard: This product is considered to be hazardous under the OSHA Hazard Communication Standard.

CERCLA/SARA Information:

SARA (311, 312) hazard class: See GHS Classification in Section 2 for hazard class information.

Chemical Name	Hazardous Substances and RQs	Extremely Hazardous Substances and TPQs	SARA 313 Emission Reporting
Severely hydrotreated light distillates	Not listed	Not listed	Not listed
Calcium Salt	Not listed	Not listed	Not listed
Amine	Not listed	Not listed	Not listed
Scent, fruity	Not listed	Not listed	Not listed

Clean Air and Clean Water Acts:

Chemical Name	Hazardous Air Pollutants	CWA - Hazardous Substances	CWA - Toxic Pollutants	CWA - Priority Pollutants
Severely hydrotreated light distillates	Not listed	Not listed	Not listed	Not listed

Calcium Salt	Not listed	Not listed	Not listed	Not listed
Amine	Not listed	Not listed	Not listed	Not listed
Scent, fruity	Not listed	Not listed	Not listed	Not listed

U.S. STATE REGULATIONS (RTK):

Chemical Name	California Proposition 65	PARTK	MI Critical Materials	NJRTK	MARTK
Severely hydrotreated light distillates	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Calcium Salt	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Amine	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed
Scent, fruity	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed

California Proposition 65 Status: No components are listed

CANADIAN REGULATIONS:

Chemical Name	CEPA Schedule I	Challenge Substances
Severely hydrotreated light distillates	Not listed	Not listed
Calcium Salt	Not listed	Not listed
Amine	Not listed	Not listed
Scent, fruity	Not listed	Not listed

INVENTORY STATUS:

United States TSCA Inventory: This product complies with TSCA

Canada DSL/NDSL Inventory List This product complies with DSL

16. OTHER INFORMATION

Sources of key data used to compile the data sheet: Material safety data sheets of the ingredients.

Prepared by: Quaker Chemical Corporation -Safety, Health and Environmental Affairs Group - US

Revision Date: 01/29/2018
Reason for revision: This data sheet contains changes from the previous version in section(s) 14.

Personal protection recommendations should be reviewed by purchasers. Workplace conditions are important factors in specifying adequate protection.

Disclaimer
This product's safety information is provided to assist our customers in assessing compliance with safety/health/environmental regulations. The information contained herein is based on data available to us and is believed to be accurate. However, no warranty of merchantability, fitness for any use, or any other warranty is expressed or implied regarding the accuracy of this data, the results to be obtained from the use thereof, or the hazards connected with the use of the product. Since the use of this product is within the exclusive control of the user, it is the user's obligation to determine the conditions for safe use of the product. Such conditions should comply with all regulations concerning the product. The company referenced in this Safety Data Sheet assumes no liability for any injury or damage, direct or consequential, resulting from the use of this product unless such injury or damage is attributable to the gross negligence of

such company.

End of Safety Data Sheet