SAFETY DATA SHEET

1. Identification

Identification

Product name: **LUBRIZOL® CV2301**

Additional identification

Chemical name: Mixture

Recommended use and restriction on use

Recommended use: Heavy Duty Diesel
Restrictions on use: None identified.

Details of the supplier of the safety data sheet

Supplier

Company Name: THE LUBRIZOL CORPORATION
Address: 29400 LAKELAND BOULEVARD
WICKLIFFE, OH 44092-2298
US
Telephone: (440)943-1200

Emergency telephone number:
FOR TRANSPORT EMERGENCY CALL CHEMTREC (+1)703 527 3887, OR WITHIN USA 800 424 9300

2. Hazard(s) identification

Hazard Classification

Health Hazards

Skin Corrosion/Irritation	Category 2

Unknown toxicity

Acute toxicity, oral	0.0 %
Acute toxicity, dermal	0.0 %
Acute toxicity, inhalation, vapor	48.5 %
Acute toxicity, inhalation, dust or mist	47.4 %

Label Elements:

Hazard Symbol:

Signal Word: Warning

Hazard Statement: Causes skin irritation.

Precautionary Statements:

Prevention: Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Response: IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Specific treatment (see on this label). Take off contaminated clothing.

Other hazards which do not result in GHS classification: None identified.

3. Composition/information on ingredients

Chemical name	CAS number	Percent by Weight
Mineral oil	Not determined.	40 - 50%
Zinc alkyl dithiophosphate	84605-29-8	5 - 10%
Calcium sulfonate	Confidential	1 - 5%
Alkylated phenol	121158-58-5	0.1 - 0.5%

The mineral oil contained in this material may be described by one or more of the following CAS Nos.: 64742-54-7, 64742-65-0, 64742-55-8, and 64742-56-9.

Trade secret information: A specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Ingestion: Rinse mouth. Get medical attention if symptoms occur.

Inhalation: Remove exposed person to fresh air if adverse effects are observed.

Skin Contact: Take off contaminated clothing and wash before re-use. Wash skin thoroughly with soap and water. If skin irritation occurs, get medical attention. Launder contaminated clothing before reuse.

Eye contact: Flush thoroughly with water. If irritation occurs, get medical assistance. Remove contact lenses, if present and easy to do. Continue rinsing.

Most important symptoms/effects, acute and delayed

Symptoms: See section 11.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically.

5. Fire-fighting measures

General Fire Hazards: No unusual fire or explosion hazards noted.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	CO_2, Dry chemical or Foam. Water can be used to cool and protect exposed material.
Unsuitable extinguishing media:	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical:	A solid stream of water will spread the burning material. Material creates a special hazard because it floats on water. See section 10 for additional information.

Special protective equipment and precautions for firefighters

Special fire fighting procedures:	No data available.
Special protective equipment for fire-fighters:	Wear full protective firegear including self-containing breathing apparatus operated in the positive pressure mode with full facepiece, coat, pants, gloves and boots.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away. See Section 8 of the SDS for Personal Protective Equipment.
Methods and material for containment and cleaning up:	Dike far ahead of larger spill for later recovery and disposal. Pick up free liquid for recycle and/or disposal. Residual liquid can be absorbed on inert material. Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas.
Environmental Precautions:	Avoid release to the environment. Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Precautions for safe handling:	Material can accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or grounding procedures. Use grounding and bonding connection when transferring material. In case of spills, beware of slippery floors and surfaces. Keep container closed when not in use and use with adequate ventilation. Avoid contact with skin. Observe good industrial hygiene practices. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Launder contaminated clothing before reuse. Avoid environmental contamination.
Maximum Handling Temperature:	70 °C 158 °F

Conditions for safe storage, including any incompatibilities: Odorous and toxic fumes may form from the decomposition of this product if stored at temperatures in excess of 113 deg F (45 deg C) for extended periods of time or if heat sources in excess of 250 deg F (121 deg C) are used. Store away from incompatible materials. See section 10 for incompatible materials.

Maximum Storage Temperature: 45 °C 113 °F

8. Exposure controls/personal protection

Control Parameters:

Occupational Exposure Limits

Chemical name	Type	Exposure Limit Values	Source
Mineral oil - Inhalable fraction.	TWA	5 mg/m3	US. ACGIH Threshold Limit Values (02 2012)
Mineral oil - Mist.	REL	5 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
Mineral oil - Mist.	STEL	10 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
Mineral oil - Mist.	PEL	5 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)

Appropriate engineering controls: Material should be handled in enclosed vessels and equipment, in which case general (mechanical) room ventilation should be sufficient. Local exhaust ventilation should be used at points where dust, mist, vapors or gases can escape into the room air.

Individual protection measures, such as personal protective equipment

General information: Provide easy access to water supply and eye wash facilities. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Eye/face protection: Wear tight-fitting goggles or face shield.

Skin Protection

Hand Protection: Use nitrile or neoprene gloves. Use good industrial hygiene practices. In case of skin contact, wash hands and arms with soap and water.

Other: Chemical resistant boots. Wear apron or protective clothing in case of contact. Do not wear rings, watches or similar apparel that could entrap the material.

Respiratory Protection: A respiratory protection program compliant with all applicable regulations must be followed whenever workplace conditions require the use of a respirator. Use respirator with an organic vapor and dust/mist cartridge if the recommended exposure limit is exceeded. Use self-contained breathing apparatus for entry into confined space, for other poorly ventilated areas and for large spill clean-up sites.

Hygiene measures: Observe good industrial hygiene practices. Avoid contact with skin. Wash contaminated clothing before reuse. Wash hands before breaks and immediately after handling the product.

9. Physical and chemical properties

Appearance

Physical state:	liquid
Form:	liquid
Color:	Brown
Odor:	Mild
Odor threshold:	No data available.
pH:	No data available.
Freezing point:	No data available.
Boiling Point:	No data available.
Flash Point:	316 °F (158 °C) (Pensky-Martens Closed Cup)
Evaporation rate:	< 1 n-butyl acetate=1
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density:	No data available.
Relative density:	0.962 - 1.002 60.1 °F (15.6 °C)
Solubility(ies)	
Solubility in water:	Insoluble in water
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	1,970 mm2/s (104 °F (40 °C)) 5,753 mm2/s (25 °C (77 °F)) 8,574 mm2/s (20 °C (68 °F)) 110 mm2/s (100 °C (212 °F)) 50 mPa.s (252.3 °F (122.4 °C))

Other information

Bulk density:	8.18 lb/gal 77 °F (25 °C)
Pour Point Temperature:	-0.40 °F (-18 °C)

10. Stability and reactivity

Reactivity: No data available.

Chemical Stability: Material is stable under normal conditions.

Possibility of hazardous reactions:	Will not occur.
Conditions to avoid:	Do not expose to excessive heat, ignition sources, or oxidizing materials.
Incompatible Materials:	Strong oxidizing agents. Halogens and halogenated compounds.
Hazardous Decomposition Products:	Thermal decomposition or combustion may generate smoke, carbon monoxide, carbon dioxide , sulfur oxides, mercaptans, sulfides, including hydrogen sulfide and other products of incomplete combustion.

11. Toxicological information

Information on likely routes of exposure

Inhalation:	No data available.
Ingestion:	No data available.
Skin Contact:	Causes skin irritation.
Eye contact:	No data available.

Information on toxicological effects

Acute toxicity

Oral

Product**:** Not classified for acute toxicity based on available data.

Dermal

Product**:** Not classified for acute toxicity based on available data.

Inhalation

Product**:** Not classified for acute toxicity based on available data.

Skin Corrosion/Irritation:

Product**:** Classification: Irritating. Rabbit.
Remarks: Prolonged or repeated skin contact as from clothing wet with material may cause dermatitis. Symptoms may include redness, edema, drying, and cracking of the skin.
Causes skin irritation.

Serious Eye Damage/Eye Irritation:

Product**:** Classification: Not irritating Rabbit.
Remarks: Not classified as a primary eye irritant.

Respiratory sensitization:

No data available

Skin sensitization:

Mineral oil	Classification: Not a skin sensitizer. (Read across)
Zinc alkyl dithiophosphate	Classification: Not a skin sensitizer. (Literature)
Calcium sulfonate	Classification: Skin sensitizer (Read across) Category 1B
Alkylated phenol	Classification: Not a skin sensitizer. (Literature)

Specific Target Organ Toxicity - Single Exposure:

Mineral oil	If material is misted or if vapors are generated from heating, exposure may cause irritation of mucous membranes and the upper respiratory tract.
Alkylated phenol	May cause irritation to the mucous membranes and upper respiratory tract.

Aspiration Hazard:

Mineral oil	Material can be aspirated into the lungs during the act of swallowing or vomiting. This could result in severe injury to the lungs and death.

Chronic Effects

Carcinogenicity:

Product**:**	This product contains mineral oils which are severely refined and not considered carcinogenic. All of the oils in this product have been demonstrated to contain less than 3% extractables by the IP 346 test.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

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

No carcinogenic components identified

Germ Cell Mutagenicity:

Calcium sulfonate	In vitro and in vivo genetic toxicity studies were negative.
Alkylated phenol	This material has not exhibited mutagenic or genotoxic potential in laboratory tests.

Reproductive toxicity:

Alkylated phenol	May damage fertility.

Specific Target Organ Toxicity - Repeated Exposure:

Alkylated phenol	This product contains para-dodecylphenol. Rats given high, repeated daily doses of para-dodecylphenol by oral intubation experienced effects on a number of organs including adrenal, thyroid, liver, ovary, testes, bone marrow and blood cell formation.

12. Ecological information

Ecotoxicity

Fish

Mineral oil	LC 50 (Fathead Minnow, 4 d): > 100 mg/l
Zinc alkyl dithiophosphate	LC 50 (Rainbow Trout, 4 d): 4.5 mg/l LC 50 (Sheepshead Minnow, 4 d): 46 mg/l NOEC (Rainbow Trout, 4 d): 1.8 mg/l
Calcium sulfonate	LC 50 (Rainbow Trout, 96 h): > 100 mg/l LC 50 (Fathead Minnow, 96 h): > 1,000 mg/l LC 50 (Sheepshead Minnow, 96 h): > 10,000 mg/l
Alkylated phenol	LC 50 (Fathead Minnow, 4 d): 40 mg/l

Aquatic Invertebrates

Mineral oil	EC 50 (Water flea (Daphnia magna), 2 d): > 10,000 mg/l EC 50 (Water flea (Daphnia magna), 21 d): > 10 mg/l NOEC (Water flea (Daphnia magna), 21 d): > 10 mg/l
Zinc alkyl dithiophosphate	EC 50 (Water flea (Daphnia magna), 2 d): 23 mg/l NOEC (Water flea (Daphnia magna), 2 d): 10 mg/l EC 50 (Water flea (Daphnia magna), 21 d): > 0.8 mg/l NOEC (Water flea (Daphnia magna), 21 d): 0.4 mg/l
Calcium sulfonate	EC 50 (Water flea (Daphnia magna), 48 h): > 1,000 mg/l
Alkylated phenol	EC 50 (Water flea (Daphnia magna), 2 d): 0.037 mg/l EC 50 (Shrimp (Mysidopsis Bahia), 4 d): > 0.58 mg/l EC 50 (Water flea (Daphnia magna), 21 d): 0.0079 mg/l NOEC (Water flea (Daphnia magna), 21 d): 0.0037 mg/l

Toxicity to Aquatic Plants

Mineral oil	EC 50 (Green algae (Scenedesmus quadricauda), 3 Days): > 100 mg/l
Zinc alkyl dithiophosphate	EC 50 (Green algae (Scenedesmus quadricauda), 3 d): 21 mg/l NOEC (Green algae (Scenedesmus quadricauda), 3 d): 10 mg/l
Calcium sulfonate	EC 50 (Green algae (Selenastrum capricornutum), 96 h): > 1,000 mg/l
Alkylated phenol	EC 50 (Green algae (Scenedesmus quadricauda), 72 h): 0.36 mg/l

Toxicity to soil dwelling organisms

No data available

Sediment Toxicity

No data available

Toxicity to Terrestrial Plants

No data available

Toxicity to Above-Ground Organisms

No data available

Toxicity to microorganisms

Zinc alkyl dithiophosphate	EC 50 (Sludge, 0.1 d): > 10,000 mg/l
Calcium sulfonate	EC 50 (Sludge, 0.1 d): > 10,000 mg/l
Alkylated phenol	EC 50 (Sludge, 0.1 d): > 1,000 mg/l

Persistence and Degradability

Biodegradation

Mineral oil	OECD TG 301 B, 31 %, 28 d, Not readily degradable.
Zinc alkyl dithiophosphate	OECD TG 301 B, 1.5 %, 28 d, Not readily degradable.
Calcium sulfonate	OECD TG 301 D, 8 %, 28 d, Not readily degradable.
Alkylated phenol	Miscellaneous, 10 %, 56 d, Not readily degradable. OECD TG 301 B, 25 %, 28 d, Not readily degradable.

Bioaccumulative Potential

Bioconcentration Factor (BCF)

Alkylated phenol	Bioconcentration Factor (BCF): 794.33 (Measured)

Partition Coefficient n-octanol / water (log Kow)

Zinc alkyl dithiophosphate	Log Kow: 0.56 (Measured)
Calcium sulfonate	Log Kow: 10.88 (Read across)
Alkylated phenol	Log Kow: 7.14 (Measured)

Mobility:

No data available

Other Adverse Effects:

This material contains one or more components that have an impurity (alkylated phenol) that is highly toxic to aquatic organisms (Aquatic Acute 1 and Aquatic Chronic 1). The component containing the impurity (calcium phenate) was tested in fish, invertebrates and algae and the results showed that it may cause long lasting harmful effects to aquatic life (Aquatic Chronic 4). Therefore the classification shown in Section 3 for the alkylphenol impurity should not be used to classify the product for aquatic toxicity.

13. Disposal considerations

Disposal instructions:

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.
Dispose of packaging or containers in accordance with local, regional, national and international regulations. Empty container contains product residue which may exhibit hazards of product.

Contaminated Packaging:

Container packaging may exhibit hazards.

14. Transport information

DOT
Not regulated.

IMDG
Not regulated.

IATA
Not regulated.

Transport in bulk according to Annex II of MARPOL and the IBC Code
MARPOL ANNEX II: Not Determined

USCG Compatibility: Not Determined

The DOT shipping information in this section is based on a bulk container. Please review the accompanying shipping papers for the correct shipping descriptions based the size of the package. Shipping descriptions may vary based on mode of transport, quantities, temperature of the material, package size, and/or origin and destination. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material. During transportation, steps must be taken to prevent load shifting or materials falling, and all relating legal statutes should be obeyed. Review classification requirements before shipping materials at elevated temperatures.

15. Regulatory information

US Federal Regulations

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

Chemical Identity	Reportable quantity
Alkylated phenol	De minimis concentration: 0.1%

CERCLA Hazardous Substance List (40 CFR 302.4)

Chemical Identity	CAS number	Reportable quantity	Calculated[1]
Isobutyl alcohol	78-83-1	5000 lbs	> 50000 lbs > 22680 kgs
Hydrogen sulfide	7783-06-4	100 lbs	> 50000 lbs > 22680 kgs
n-Nonane	Confidential	100 lbs	> 50000 lbs > 22680 kgs
Maleic anhydride	108-31-6	5000 lbs	> 50000 lbs > 22680 kgs
n-Octane	Confidential	100 lbs	> 50000 lbs > 22680 kgs

[1]This is the amount product/material required to be released before CERCLA reporting is required.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 311 Classifications
Skin Corrosion or Irritation

SARA 302 Extremely Hazardous Substance
None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

Chemical Identity	CAS number	Percent by Weight	Reportable quantity
Zinc alkyl dithiophosphate	84605-29-8	8.3 %	*See regulation for further details
Isobutyl alcohol	78-83-1	146.0 PPM	5000 lbs
Hydrogen sulfide	7783-06-4	70.0 PPM	100 lbs
n-Nonane	Confidential	46.0 PPM	100 lbs
Maleic anhydride	108-31-6	31.0 PPM	5000 lbs
n-Octane	Confidential	23.0 PPM	100 lbs

*These specific chemicals are not listed please check the generic entries on the SARA 304 listings for applicability.

SARA 313 (TRI Reporting)

Chemical Identity	CAS number	Percent by Weight	Reporting threshold for other uses	Reporting threshold for manufacturing and processing
Zinc alkyl dithiophosphate	84605-29-8	8.3 %	10000 lbs	25000 lbs

US State Regulations

US. California Proposition 65

This product can expose you to chemicals including: ++ Benzene (5.00PPB) which is [are] known to the State of California to cause cancer and birth defects or other reproductive harm.

Inventory Status

Australia (AICS)
All components are in compliance with chemical notification requirements in Australia.

Canada (DSL/NDSL)
All substances contained in this product are in compliance with the Canadian Environmental Protection Act and are present on the Domestic Substances List (DSL) or are exempt.

China (IECSC)
This product contains a substance or polymer that has been notified and is restricted to import by the notifier.

European Union (REACh)
To obtain information on the REACH compliance status of this product, please e-mail REACH@SDSInquiries.com.

Japan (ENCS)
This product contains a substance or polymer that has been notified and is restricted to import by specific legal entities.

Korea (ECL)
All components are in compliance in Korea.

New Zealand (NZIoC)
All components are in compliance with chemical notification requirements in New Zealand.

Philippines (PICCS)
All components are in compliance with the Philippines Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 (R.A. 6969).

Switzerland (SWISS)
All substances contained in this product are in compliance with the Environmentally Hazardous Substances Ordinance in Switzerland and approved for sale. However, third party importers must be notified to the manufacturer.

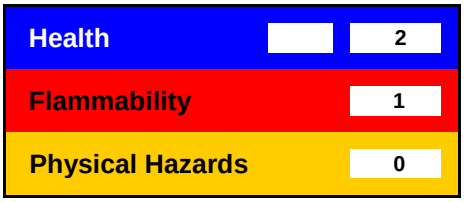
Taiwan (TCSCA)
All components of this product are listed on the Taiwan inventory.

United States (TSCA)
All substances contained in this product are listed on the TSCA inventory or are exempt.

The information that was used to confirm the compliance status of this product may deviate from the chemical information shown in Section 3.

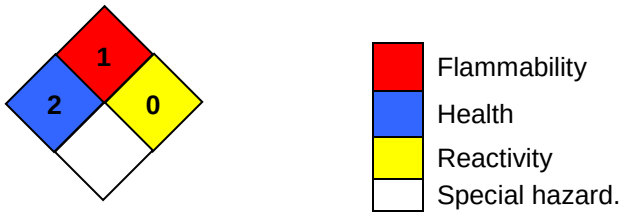
16.Other information, including date of preparation or last revision

HMIS Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible; *Chronic health effect

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

Issue Date:	10/17/2018
Version #:	6.0
Source of information:	Internal company data and other publically available resources.
Further Information:	Contact supplier (see Section 1)

Disclaimer:

As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this product. Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, expressed or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable federal, state, and local regulations remains the responsibility of the user.