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SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended.

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

1.1 Product identifier

Product name: EMKARATE™ RL 3000 UFI: 6R31-A078-W00A-YSCT

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

Identified uses: Refrigeration Lubricants.

Uses advised against: None identified.

1.3 Details of the supplier of the safety data sheet

Supplier

Company Name: LUBRIZOL LIMITED

THE KNOWLE. NETHER LANE Address:

HAZELWOOD, DERBYSHIRE, DE56 4AN

Telephone: (44) 01332-842211

E-mail contact: EUSDS@lubrizol.com {Lubrizol Safety Data Sheets can be obtained at

www.mylubrizol.com}

1.4 Emergency telephone number:

FOR TRANSPORT EMERGENCY CALL CHEMTREC (+1) 703 527 3887

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

The product has been classified according to the legislation in force.

Classification according to Regulation (EC) No 1272/2008 as amended.

Skin sensitizer H317: May cause an allergic skin reaction. Category 1 Chronic hazards to the aquatic H412: Harmful to aquatic life with long lasting Category 3

environment

effects.

The full text for all H-phrases is displayed in section 16.

2.2 Label elements according to Regulation (EC) No 1272/2008 as amended



Signal Words: Warning

Hazard Statement(s): H317: May cause an allergic skin reaction.

H412: Harmful to aquatic life with long lasting effects.



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Precautionary Statements

Prevention: P261: Avoid breathing dust/fume/gas/mist/vapors/spray.

P272: Contaminated work clothing should not be allowed out of the

workplace.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face

protection.

Response: P333+P313: If skin irritation or rash occurs: Get medical

advice/attention.

Disposal: P501: Dispose of contents/container to an appropriate treatment and

disposal facility in accordance with applicable laws and regulations,

and product characteristics at time of disposal.

Supplemental label information

Not applicable

Components for Label Disclosure:

Chemical nameEC No.Oxirane, [[(2-ethylhexyl)oxy]methyl]-219-553-6

2.3 Other hazards: None identified.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Regulation No. 1272/2008.

Chemical name	Concentration	EC No.	REACH Registration No.	M-Factor:	Notes
Rxn mass of 3-methylphenyl di- 4-methylphenyl Phosphate & 4- methylphenyl di-3-methylphenyl Phosphate & tris(3-methylphenyl) phosphate	1 - 2.5%	215-548-8			
Oxirane, [[(2- ethylhexyl)oxy]methyl]-	0.1 - 1%	219-553-6	01-2119962196-31		

^{600, 700} and 900 ECHA List Numbers do not have any legal significance; rather they are purely technical identifiers and are displayed for informational purposes only.

Classification Regulation No. 1272/2008.

Chemical name	Classification	
Rxn mass of 3-methylphenyl di-4- methylphenyl Phosphate & 4- methylphenyl di-3-methylphenyl Phosphate & tris(3-methylphenyl) phosphate	Repr. 2; H361 Aquatic Chronic 1; H410 Aquatic Acute 1; H400	
Oxirane, [[(2- ethylhexyl)oxy]methyl]-	Skin Corr. 2; H315 Skin Sens. 1A; H317	

The full text for all H-phrases is displayed in section 16.

See Section 15 for Regulation (EC) No. 1907/2006 REACH Article 59(1). Candidate List (Substances of Very High Concern (SVHC))

SECTION 4: First aid measures



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General: IF exposed or concerned: Get medical advice/attention.

4.1 Description of first aid measures

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

Eye contact: Any material that contacts the eye should be washed out immediately with

water. If easy to do, remove contact lenses.

Skin Contact: Wash skin thoroughly with soap and water. If skin irritation or rash occurs:

Get medical attention. Launder contaminated clothing before reuse.

Ingestion: Treat symptomatically. Get medical attention.

4.2 Most important symptoms and effects, both acute and

See section 11.

delayed:

4.3 Indication of any immediate medical attention and special treatment needed

Hazards: No data available.

Treatment: Treat symptomatically.

SECTION 5: Firefighting measures

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

5.1 Extinguishing media

Suitable extinguishing

media:

CO2, dry chemical, foam, water spray, water fog.

Unsuitable extinguishing

media:

Do not use water jet as an extinguisher, as this will spread the fire.

5.2 Special hazards arising

from the substance or

mixture:

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.

5.3 Advice for firefighters

Special fire fighting procedures:

No data available.

Special protective

equipment for fire-fighters:

Recommend wearing self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 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.

6.2 Environmental Precautions:

Avoid release to the environment. Prevent further leakage or spillage if safe

to do so.



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6.3 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.

6.4 Reference to other sections:

See sections 8 and 13 for additional information.

SECTION 7: Handling and storage:

7.1 Precautions for safe handling:

Do not handle until all safety precautions have been read and understood.

Obtain special instructions before use. Avoid breathing

dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Observe good industrial hygiene practices. Provide adequate ventilation. Use personal protective equipment as required. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Launder contaminated clothing before reuse.

Avoid environmental contamination.

Maximum Handling Temperature:

Not determined.

7.2 Conditions for safe storage, including any incompatibilities:

Store away from incompatible materials. See section 10 for incompatible

materials.

Maximum Storage Temperature:

Not determined.

7.3 Specific end use(s):

End uses are listed in an attached exposure scenario when one is required.

SECTION 8: Exposure controls/personal protection

8.1 Control Parameters

Occupational Exposure Limits

None of the components have assigned exposure limits.

8.2 Exposure controls

Appropriate engineering

controls:

No special requirements under ordinary conditions of use and with

adequate ventilation.

Individual protection measures, such as personal protective equipment

General information: Please follow the recommended personal protective equipment (PPE)

guidelines below and refer to the appropriate EN standard where applicable. Use personal protective equipment as required.

Eye/face protection: If contact is likely, safety glasses with side shields are recommended. Eye

protection should meet the standards set out in EN 166.

Skin protection

Hand Protection: Rubber (natural, latex). Suitable gloves can be recommended by the glove

supplier. Polyvinyl chloride (PVC). Nitrile.



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General:

Because specific work environments and material handling practices vary, safety procedures should be specific for each intended application. The correct choice of protective gloves depends upon the chemicals being handled, and the conditions of work and use. Most gloves provide protection for only a limited time before they must be discarded and replaced (even the best chemically resistant gloves will break down after repeated chemical exposures). Gloves should be chosen in consultation with the supplier / manufacturer and taking account of a full assessment of the working conditions. For typical use and handling of chemical substances, gloves should meet the standards set out in EN 374. For applications involving mechanical risks with potential for abrasion or puncture, the standards set out in EN 388 should be considered. For tasks involving thermal hazards, the standards set out in EN 407 should be considered.

Break-through time:

Breakthrough time data are generated by glove manufacturers under laboratory test conditions and represent how long a glove can be expected to provide effective permeation resistance. It is important when following breakthrough time recommendations that actual workplace conditions are taken into account. Always consult with your glove supplier for up-to-date technical information on breakthrough times for the recommended glove type.

For continuous contact, we suggest gloves with a minimum breakthrough time of 240 minutes, or > 480 minutes if suitable gloves can be obtained. If suitable gloves are not available to offer that level of protection, gloves with shorter breakthrough times may be acceptable as long as appropriate glove maintenance and replacement regimes are determined and adhered to. For short-term, transient exposures and splash protection, gloves with shorter breakthrough times may commonly be used. Therefore, appropriate maintenance and replacement regimes must be determined and rigorously followed.

Glove thickness:

For general applications, we recommend gloves with a thickness typically greater than 0.35 mm.

It is important to note that glove thickness is not the only predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the

task requirements and knowledge of breakthrough times.

Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example: Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, before being disposed of. Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential.

Other: Gloves, coveralls, apron, boots as necessary to minimize contact. Do not wear rings, watches or similar apparel that could entrap the material.



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Respiratory Protection: Consult with an industrial hygienist to determine the appropriate

respiratory protection for your specific use of this material. A respiratory protection program compliant with all applicable regulations must be followed whenever workplace conditions require the use of a respirator.

Respiratory Protective Equipment (RPE) is not normally required where there is adequate natural or local exhaust ventilation to control exposure. In case of insufficient ventilation, wear suitable respiratory equipment. The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment.

Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in

consultation with the supplier/manufacturer and with a full assessment of

the working conditions.

Please refer to the relevant EN standards for the RPE selected.

Hygiene measures: Do not handle until all safety precautions have been read and understood.

Obtain special instructions before use. Observe good industrial hygiene practices. Avoid contact with skin. Contaminated work clothing should not

be allowed out of the workplace.

Environmental No data available. **Controls:** See section 6 for details.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties Appearance

Physical state: liquid
Form: liquid
Color: Clear
Odor: Mild

Odor Threshold:

pH:

No data available.

Not applicable

No data available.

No data available.

No data available.

No data available.

Flash Point: 250 °C (Cleveland Open Cup)

Evaporation Rate:No data available. **Flammability (solid, gas):**No data available.

Upper/lower limit on flammability or explosive limits

Flammability Limit - Upper (%):
No data available.
Relative vapor density:
No data available.
No data available.
No data available.
0.982 (15.6 °C)

Solubility(ies)

Solubility in Water: Insoluble in water
Solubility (other): No data available.



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Partition coefficient (n-octanol/water):

Autoignition Temperature:

No data available.

No data available.

No data available.

Viscosity: 80 mm2/s (40 °C); > 10.2 mm2/s (100 °C)

Explosive properties:No data available.Oxidizing properties:No data available.VOC Content:No data available.

Other information

Pour Point Temperature: -36 °C

SECTION 10: Stability and reactivity

10.1 Reactivity: No data available.

10.2 Chemical Stability: Material is stable under normal conditions.

10.3 Possibility of hazardous

reactions:

Will not occur.

10.4 Conditions to avoid: None known.

10.5 Incompatible Materials: Strong acids. Oxidizing agents. Strong bases.

10.6 Hazardous
Decomposition Products:

Thermal decomposition or combustion may generate smoke, carbon monoxide, carbon dioxide, and other products of incomplete combustion.

SECTION 11: Toxicological information

Information on likely routes of exposure

Inhalation: No data available.

Ingestion: No data available.

Skin Contact: No data available.

Eye contact: No data available.

11.1 Information on toxicological effects

Acute toxicity

Oral

Product: Ingestion of this material can result in neurotoxicity. Signs and

symptoms include increased sweating of hands and feet, numbness, tingling and weakness in extremities, unsteady gait and decreased reflexes. Not classified for acute toxicity based on available data.

Dermal

Product: Skin absorption of components of this material will cause systemic

effects; note toxicity in other sections. Not classified for acute toxicity

based on available data.



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Inhalation

Product: High concentrations may cause headaches, dizziness, fatigue,

nausea, vomiting, drowsiness, stupor, other central nervous system

effects leading to visual impairment, respiratory failure,

unconsciousness and death. Not classified for acute toxicity based

on available data.

Skin Corrosion/Irritation:

Product: Remarks: Not classified as a primary skin irritant.

Serious Eye Damage/Eye Irritation:

Product: Remarks: Not classified as a primary eye irritant.

Respiratory sensitization:

No data available

Skin sensitization:

Oxirane, [[(2-Classification: Strong skin sensitizer. (Literature) May cause

ethylhexyl)oxy]methyl]sensitization by skin contact. Remarks: Category 1A

Specific Target Organ Toxicity - Single Exposure:

Rxn mass of 3-methylphenyl di-4methylphenyl Phosphate & 4methylphenyl di-3-methylphenyl Phosphate & tris(3-methylphenyl)

phosphate

If material is misted or if vapors are generated from heating, exposure may cause irritation of mucous membranes and the upper

respiratory tract.

Aspiration Hazard:

No data available

Other effects: **Chronic Effects** Carcinogenicity:

No data available

Germ Cell Mutagenicity:

No data available

Reproductive toxicity:

Rxn mass of 3-methylphenyl di-4methylphenyl Phosphate & 4methylphenyl di-3-methylphenyl Phosphate & tris(3-methylphenyl) phosphate

Suspected of damaging fertility. This material has been shown to impair fertility and cause adverse reproductive effects in rats and mice.

Specific Target Organ Toxicity - Repeated Exposure:

Rxn mass of 3-methylphenyl di-4methylphenyl Phosphate & 4methylphenyl di-3-methylphenyl Phosphate & tris(3-methylphenyl) phosphate

Repeated occupational exposure to tricresyl phosphate over a prolonged period of time may cause delayed neurotoxicity characterized by ataxia and tremors.



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SECTION 12: Ecological information

12.1 Ecotoxicity

Fish

Rxn mass of 3-methylphenyl di-4methylphenyl Phosphate & 4methylphenyl di-3-methylphenyl Phosphate & tris(3-methylphenyl) phosphate

LC 50 (Rainbow Trout, 4 Days): 0.6 mg/l NOEC (Rainbow Trout, 4 Days): 0.56 mg/l

Aquatic Invertebrates

Rxn mass of 3-methylphenyl di-4methylphenyl Phosphate & 4methylphenyl di-3-methylphenyl Phosphate & tris(3-methylphenyl) phosphate

EC 50 (Water flea (Daphnia magna), 2 d): 0.146 mg/l

Toxicity to Aquatic Plants

Rxn mass of 3-methylphenyl di-4methylphenyl Phosphate & 4methylphenyl di-3-methylphenyl Phosphate & tris(3-methylphenyl) phosphate

EC 50 (Alga, 3 Days): 0.4042 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

Rxn mass of 3-methylphenyl di-4methylphenyl Phosphate & 4methylphenyl di-3-methylphenyl Phosphate & tris(3-methylphenyl) phosphate

LC 50 (Sludge, 0.1 Days): > 1,000 mg/l

12.2 Persistence and Degradability

Biodegradation

Rxn mass of 3-methylphenyl di-4methylphenyl Phosphate & 4methylphenyl di-3-methylphenyl Phosphate & tris(3-methylphenyl) phosphate

OECD TG 301 D, 24.2 %, 28 d, Not readily degradable.



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BOD/COD Ratio

No data available

12.3 Bioaccumulative potential
Bioconcentration Factor (BCF)

No data available

Partition Coefficient n-octanol / water (log Kow)

Rxn mass of 3-methylphenyl di-4methylphenyl Phosphate & 4methylphenyl di-3-methylphenyl
Phosphate & tris(3-methylphenyl)
phosphate

12.4 Mobility:

No data available

12.5 Results of PBT and vPvB assessment

No data available

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Disposal methods: 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.

SECTION 14: Transport information

ADR

Not regulated.

IMDG

Not regulated.

IATA

Not regulated.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

None known.

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. For transportation, steps must be taken to prevent load shifting or materials



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falling, and all relating legal statutes should be obeyed. Review classification requirements before shipping materials at elevated temperatures.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

EU Regulations

EU. Regulation 1005/2009/EC on substances that deplete the ozone layer, Annex I, Controlled Substances:

None present or none present in regulated quantities.

EU. Regulation 2019/1021/EU on persistent organic pollutants (POPs) (recast), as amended: None present or none present in regulated quantities.

EU. Regulation EU No. 649/2012 concerning the export and import of dangerous chemicals: None present or none present in regulated quantities.

Regulation (EC) No. 1907/2006, REACH Article 59(1). Candidate List:

None present or none present in regulated quantities.

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorisation, as amended: None present or none present in regulated quantities.

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use: None present or none present in regulated quantities.

Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work.:

None present or none present in regulated quantities.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breast feeding.:

None present or none present in regulated quantities.

Directive 2012/18/EU (Seveso III): on the control of major accident hazards involving dangerous substances:

Chemical name	EC No.	Concentration
Rxn mass of 3-methylphenyl di-4-methylphenyl	215-548-8	1.0 - 10%
Phosphate & 4-methylphenyl di-3-methylphenyl		
Phosphate & tris(3-methylphenyl) phosphate		

EU. Regulation No. 166/2006 PRTR (Pollutant Release and Transfer Registry), Annex II: Pollutants: None present or none present in regulated quantities.

Directive 98/24/EC on the protection of workers from the risks related to chemical agents at work:

Chemical name	EC No.	Concentration
Rxn mass of 3-methylphenyl di-4-methylphenyl	215-548-8	1.0 - 10%
Phosphate & 4-methylphenyl di-3-methylphenyl		
Phosphate & tris(3-methylphenyl) phosphate		



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Inventory Status

Australia (AIIC)

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)

All components of this product are listed on the Inventory of Existing Chemical Substances in China.

European Union (REACh)

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

Japan (ENCS)

All components are in compliance with the Chemical Substances Control Law of Japan.

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 components are in compliance with the Environmentally Hazardous Substances Ordinance in Switzerland.

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.

15.2 Chemical safety

No Chemical Safety Assessment has been carried out.

assessment:

SECTION 16: Other information

Key literature references and Internal company data and other publically available resources. **sources for data:**

Wording of the H-statements in section 2 and 3:

H317 May cause an allergic skin reaction.

H361 Suspected of damaging fertility or the unborn child.



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H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.H412 Harmful to aquatic life with long lasting effects.

Other information:

Abbreviations and acronyms:

ACGIH - American Conference of Governmental Industrial Hygienist

ADR - International Carriage of Dangerous Goods by Road

AICS - Australian Inventory of Chemical Substances

ATEmix - Acute Toxicity Estimate for the mixture

BCF - Bio concentration factor

DMSO - Dimethyl sulfoxide

DSL - Domestic Substance List

EC50 - Effective concentration that gives a response in 50% of the population

ECHA - European Chemical Agency

ECL - Existing Chemical List

ENCS - Existing and New Chemical Substances

EPA - Environmental Protection Agency

IARC - International Agency for Research on Cancer

IATA - International Air Transport Association

IECSC - Inventory of Existing Chemical Substances

IMDG - International Maritime Dangerous Goods

IP 346 – A gravimetric assay used to determine the percentage weight of polycyclic aromatics in oil, via a DMSO extraction technique

LC50 - Lethal concentration required to kill 50% of the population

MARPOL - International Conventions for the Prevention of Pollution from Ships

NDSL - Non Domestic Substance List

NOAEC - No observed adverse effect concentration

NOAEL - No observed adverse effect level

NOEC - No observed effective concentration

NTP - National Toxicology Program

NZloc - New Zealand Inventory of chemicals

OECD TG - Organization for Economic Cooperation and Development Test Guidelines

OSHA - Occupational, Safety, and Health Administration

PBT - Persistent bioaccumulative toxic chemical

PEL – Permissible Exposure Level

PICCS - Philippine Inventory of Chemicals and Chemical Substances

PPE - Personal Protective Equipment

PRTR - Pollutant Release and Transfer Register

REACH - Registration, Evaluation, Authorization & restriction of Chemicals

SVHC - Substance of Very High Concern

SWISS - Switzerland chemical ordinance

TCSCA - Toxic Chemical Substance Control Act

TLV - Threshold Limit Value

TSCA - Toxic Substances Control Act

TWA - Time Weighted Average

vPvB - very Persistent very Bioaccumulative

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