

# SAFETY DATA SHEET

Compiled in accordance with REACH Regulation (EC) No 1907/2006, as retained and amended in UK law.

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

### 1.1 Product identifier

**Product name:** EMKARATE™ RL 32-3MAF

### 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  
**Address:** THE KNOWLE, NETHER LANE  
HAZELWOOD, DERBYSHIRE, DE56 4AN  
GB  
**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

This product does not meet the classification requirements of the current European legislation.

**Classified in accordance with CLP Regulation (EC) No 1272/2008, as retained and amended in UK law.**

Not classified

### 2.2 Label elements in accordance with CLP Regulation (EC) No 1272/2008, as retained and amended in UK law.

Not applicable

### 2.3 Other hazards:

#### **Endocrine Disruption- Toxicity**

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

#### **Endocrine Disruption- Ecotoxicity**

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or

Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Compiled in accordance with CLP Regulation (EC) No 1272/2008, as retained and amended in UK law.

This material has no known hazards under applicable laws.

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

### 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 with soap and water. If skin irritation occurs, get medical attention. Launder contaminated clothing before reuse. Wash with soap and water. If skin irritation occurs, get medical attention.

**Ingestion:** Treat symptomatically. Get medical attention.

**4.2 Most important symptoms and effects, both acute and delayed:** See section 11.

### 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. No unusual fire or explosion hazards noted.

### 5.1 Extinguishing media

**Suitable extinguishing media:** CO<sub>2</sub>, Dry chemical or Foam. Water can be used to cool and protect exposed material. CO<sub>2</sub>, dry chemical, foam, water spray, water fog.

**Unsuitable extinguishing media:** Do not use water jet as an extinguisher, as this will spread the fire.

<b>5.2 Special hazards arising from the substance or mixture:</b>	See section 10 for additional information. Keep away from heat, sparks and open flame. Water may cause splattering. Container may rupture on heating.
<b>5.3 Advice for firefighters Special fire-fighting procedures:</b>	No data available.
<b>Special protective equipment for fire-fighters:</b>	Wear full protective firegear including self-containing breathing apparatus operated in the positive pressure mode with full facepiece, coat, pants, gloves and boots. Recommend wearing self-contained breathing apparatus.

## SECTION 6: Accidental release measures

<b>6.1 Personal precautions, protective equipment and emergency procedures:</b>	Personal Protective Equipment must be worn, see Personal Protection Section for PPE recommendations. Ventilate area if spilled in confined space or other poorly ventilated areas.
<b>6.2 Environmental Precautions:</b>	Avoid release to the environment. Do not contaminate water sources or sewer. Environmental manager must be informed of all major spillages. Prevent further leakage or spillage if safe to do so.
<b>6.3 Methods and material for containment and cleaning up:</b>	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.
<b>6.4 Reference to other sections:</b>	See sections 8 and 13 for additional information.

## SECTION 7: Handling and storage:

<b>7.1 Precautions for safe handling:</b>	Keep away from ignition sources such as heat, sparks and open flame. No smoking. Keep containers closed when not in use. Wash thoroughly after handling. Launder contaminated clothing before reuse. Empty container contains product residue which may exhibit hazards of product.
	Observe good industrial hygiene practices. Provide adequate ventilation. Wear appropriate personal protective equipment.
<b>Maximum Handling Temperature:</b>	70 °C
<b>7.2 Conditions for safe storage, including any incompatibilities:</b>	Store away from incompatible materials. See section 10 for incompatible materials.
<b>Maximum Storage Temperature:</b>	45 °C
<b>7.3 Specific end use(s):</b>	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.

#### Other exposure limits

Chemical name	Type	Exposure Limit Values	Source
Pentanoic acid, 2,2-bis[[[1-oxopentyl)oxy]methyl]-1,3-propanediyl ester	TWA	5 mg/m <sup>3</sup>	

### 8.2 Exposure controls

#### Appropriate engineering controls:

Use material in well ventilated area only. Adequate ventilation should be provided so that exposure limits are not exceeded. Mechanical ventilation or local exhaust ventilation may be required.

#### 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). Polyvinyl chloride (PVC). Nitrile.

##### 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:** Long sleeve shirt is recommended. Wear apron or protective clothing in case of contact.

**Respiratory Protection:** Use self-contained breathing apparatus for entry into confined space, for other poorly ventilated areas and for large spill clean-up sites. 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. Use respirator with an organic vapor cartridge if exposure limit is exceeded.

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:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

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

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

<b>Physical state:</b>	liquid
<b>Form:</b>	liquid
<b>Color:</b>	Colorless to yellow
<b>Odor:</b>	Mild
<b>Odor Threshold:</b>	No data available.
<b>pH:</b>	Not applicable
<b>Freezing point:</b>	No data available.
<b>Boiling Point:</b>	No data available.
<b>Flash Point:</b>	230 °C (Cleveland Open Cup)
<b>Evaporation Rate:</b>	No data available.
<b>Flammability (solid, gas):</b>	No data available.

#### Upper/lower limit on flammability or explosive limits

<b>Flammability Limit - Upper (%):</b>	No data available.
<b>Flammability Limit - Lower (%):</b>	No data available.

<b>Vapor pressure:</b>	No data available.
<b>Relative vapor density:</b>	No data available.
<b>Relative density:</b>	0.984 (20 °C)

#### Solubility(ies)

<b>Solubility in Water:</b>	Slightly Soluble
<b>Solubility (other):</b>	No data available.

**Partition coefficient (n-octanol/water):** No data available.

**Autoignition Temperature:** No data available.

<b>Decomposition Temperature:</b>	No data available.
<b>Viscosity:</b>	31.2 mm <sup>2</sup> /s (40 °C); 5.6 mm <sup>2</sup> /s (100 °C )
<b>Explosive properties:</b>	No data available.
<b>Oxidizing properties:</b>	No data available.
<b>VOC Content:</b>	No data available.

#### Particle characteristics

<b>Particle Size:</b>	Not applicable
<b>Particle Size Distribution:</b>	Not applicable
<b>Specific surface area:</b>	Not applicable
<b>Surface charge/Zeta potential:</b>	Not applicable
<b>Assessment:</b>	Not applicable
<b>Shape:</b>	Not applicable
<b>Crystallinity:</b>	Not applicable
<b>Surface treatment:</b>	Not applicable

#### Other information

<b>Pour Point Temperature:</b>	-56 °C
--------------------------------	--------

### SECTION 10: Stability and reactivity

<b>10.1 Reactivity:</b>	No data available.
<b>10.2 Chemical Stability:</b>	Material is stable under normal conditions.
<b>10.3 Possibility of hazardous reactions:</b>	Will not occur.
<b>10.4 Conditions to avoid:</b>	Do not expose to excessive heat, ignition sources, or oxidizing materials.
<b>10.5 Incompatible Materials:</b>	Strong oxidizing agents.
<b>10.6 Hazardous Decomposition Products:</b>	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

<b>Inhalation:</b>	No data available.
<b>Ingestion:</b>	No data available.
<b>Skin Contact:</b>	No data available.
<b>Eye contact:</b>	No data available.

## 11.1 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: Remarks: Not classified as a primary skin irritant. Prolonged or repeated contact may cause irritation.

#### Serious Eye Damage/Eye Irritation:

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

#### Respiratory sensitization:

No data available

#### Skin sensitization:

No data available

#### Specific Target Organ Toxicity - Single Exposure:

Product:

No data available

#### Aspiration Hazard:

No data available

#### Other effects:

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

### Chronic Effects

#### Carcinogenicity:

No data available

#### Germ Cell Mutagenicity:

No data available

#### Reproductive toxicity:

No data available

#### Specific Target Organ Toxicity - Repeated Exposure:

No data available



## 11.2 Information on health hazards

### Other hazards

Product:

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

### Endocrine Disruption

Product:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.;

## SECTION 12: Ecological information

### 12.1 Ecotoxicity

#### Fish

No data available

#### Aquatic Invertebrates

No data available

#### Toxicity to Aquatic Plants

No data available

#### 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

No data available

### 12.2 Persistence and Degradability

#### Biodegradation

No data available

#### BOD/COD Ratio

No data available

### 12.3 Bioaccumulative potential

**Bioconcentration Factor (BCF)**

No data available

**Partition Coefficient n-octanol / water (log Kow)**

No data available

**12.4 Mobility:**

No data available

**12.5 Results of PBT and vPvB assessment**

No data available

**12.6 Endocrine Disruption:**

Product:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**12.7 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. Since emptied containers retain product residue, follow label warnings even after container is emptied.

**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 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. Chemicals Subject to PIC Procedure: Regulation 649/2012/EU on export and import of dangerous chemicals, as amended:**

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.

**EU. Directive 2012/18/EU (SEVESO III) on major accident hazards involving dangerous substances, Annex I:**

None present or none present in regulated quantities.

**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:**

None present or none present in regulated quantities.

## Inventory Status

### Australia (AIC)

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.

### Great Britain (UK REACH)

To obtain information on the UK 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.

### Turkey (KKDIK)

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

### 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  
assessment:**

No Chemical Safety Assessment has been carried out.

**SECTION 16: Other information**

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

**Wording of the H-statements in section 2 and 3:** none  
none

**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

**Issue Date:** 17.08.2022

**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.

Reference to Regulation (EC) No. 1907/2006 (EU REACH), including but not limited to EU REACH registration numbers is provided for informational purposes only. UK REACH (EU Exit Regulation as amended) data and information will be provided as it becomes available.