

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: PARATHERM™ MR

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

Identified uses: Heat Transfer Fluid
Uses advised against: Lubricating oils; Hydraulic fluid additive

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

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

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

Acute toxicity (Inhalation - dust and mist)	Category 4	H332: Harmful if inhaled.
Aspiration Hazard	Category 1	H304: May be fatal if swallowed and enters airways.

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

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



Signal Words:

Danger

Hazard Statement(s): H304: May be fatal if swallowed and enters airways.
H332: Harmful if inhaled.

Precautionary Statements

Prevention: P271: Use only outdoors or in a well-ventilated area.

Response: P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P331: Do NOT induce vomiting.
P304+P312: IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell.
P340: Remove person to fresh air and keep comfortable for breathing.

Storage: P405: Store locked up.

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 name	EC No.
Dec-1-ene, dimers, hydrogenated	500-228-5
1-Dodecene, dimer with 1-decene, hydrogenated	417-050-8

2.3 Other hazards: No data available.

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.

Chemical name	Concentration	EC No.	REACH Registration No.	M-Factor:	Notes
Dec-1-ene, dimers, hydrogenated	20 - 50%	500-228-5			
1-Dodecene, dimer with 1-decene, hydrogenated	20 - 50%	417-050-8			

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.

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

Chemical name	Classification	Notes
Dec-1-ene, dimers, hydrogenated	Asp. Tox. 1; H304 Acute Tox. 4; H332	
1-Dodecene, dimer with 1-decene, hydrogenated	Acute Tox. 4; H332 Asp. Tox. 1; H304	

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

4.1 Description of first aid measures

- Inhalation:** Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
- 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.
- Ingestion:** Do NOT induce vomiting. Aspiration of material due to vomiting can cause chemical pneumonitis which can be fatal. If vomiting occurs naturally, the casualty should lean forward to reduce the risk of aspiration. Immediately call a POISON CENTER or doctor/ physician.

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.

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.

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| 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

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| 6.1 Personal precautions, protective equipment and emergency procedures: | Ventilate closed spaces before entering them. Keep upwind. Keep unauthorized personnel away. See Section 8 of the SDS for Personal Protective Equipment. Personal Protective Equipment must be worn, see Personal Protection Section for PPE recommendations. |
| 6.2 Environmental Precautions: | Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. |
| 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. Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. |
| 6.4 Reference to other sections: | See sections 8 and 13 for additional information. |

SECTION 7: Handling and storage:

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| 7.1 Precautions for safe handling: | Avoid breathing dust/fume/gas/mist/vapors/spray. Observe good industrial hygiene practices. Use only in well-ventilated areas. Wear appropriate personal protective equipment. |
| 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

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| 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
Dec-1-ene, dimers, hydrogenated	TWA	1 mg/m ³	

DNEL-Values

Critical component	Type	Route of Exposure	Health Warnings	Remarks
Dec-1-ene, dimers, hydrogenated	Workers	Inhalation	Systemic, short-term; 60 mg/m ³	Acute toxicity
Dec-1-ene, dimers, hydrogenated	General population	Inhalation	Systemic, short-term; 50 mg/m ³	Acute toxicity

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. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Supplementary local exhaust ventilation, closed systems, or respiratory and eye protection may be needed in special circumstances, such as poorly ventilated spaces, heating, evaporation of liquids from large surfaces, spraying of mists, mechanical generation of dusts, drying of solids, etc.

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:

Nitrile. Suitable gloves can be recommended by the glove supplier.

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: No data available.

Respiratory Protection: A respiratory protection program compliant with all applicable regulations must be followed whenever workplace conditions require the use of a respirator. Under normal use conditions, respirator is not usually required. Use appropriate respiratory protection if exposure to dust particles, mist or vapors is likely. Use self-contained breathing apparatus for entry into confined space, for other poorly ventilated areas and for large spill clean-up sites.

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: Observe good industrial hygiene practices.

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

Physical state: liquid

Form: liquid

Color: Clear

Odor: Odorless

Odor Threshold: No data available.

pH: Not applicable

Freezing point: No data available.

Boiling Point: No data available.

Flash Point: > 149 °C (ASTM D93 (Pensky-Martens (A and B Closed 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.

Flammability Limit - Lower (%): No data available.

Vapor pressure: < 0.013 kPa (20 °C)

Relative vapor density: No data available.

Relative density: 0.802 (15.6 °C)

Solubility(ies)

Solubility in Water: Insoluble in water

Solubility (other): No data available.

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

Autoignition Temperature: No data available.

Decomposition Temperature: No data available.

Viscosity: 5.2 mm²/s (40 °C); 1.9 mm²/s (100 °C)

Explosive properties: No data available.

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

Particle characteristics

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

Other information

Pour Point Temperature: < -54 °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 oxidizing agents.
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: Harmful if inhaled.
Ingestion: No data available.
Skin Contact: No data available.
Eye contact: No data available.

11.1 Information on toxicological effects

Acute toxicity

Oral

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

Dermal

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

Inhalation

Product: ATEmix (4 h): 2 - 5 mg/l.Dusts, mists and fumes

Skin Corrosion/Irritation:

Product: Remarks: Prolonged or repeated contact may cause irritation. 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:

Dec-1-ene, dimers, hydrogenated Classification: Not a skin sensitizer. (read across) Not a skin sensitizer.

Specific Target Organ Toxicity - Single Exposure:

Dec-1-ene, dimers, hydrogenated 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:

Product: May be fatal if swallowed and enters airways.

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:

No data available.

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)

Dec-1-ene, dimers, hydrogenated Log Kow: 10.09 20 °C

12.4 Mobility:

No data available

12.5 Results of PBT and vPvB assessment

No data available

12.6 Endocrine Disruption:

Product: No data available.

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. 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 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:

Chemical name	EC No.	Concentration
1-Dodecene, dimer with 1-decene, hydrogenated	417-050-8	30 - 40%

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:

H304 May be fatal if swallowed and enters airways.
H332 Harmful if inhaled.

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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Disclaimer:

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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.