SAFETY DATA SHEET

1. Identification

Identification
Product name: EMKARATE(TM) RL 22HT

Additional identification
Chemical name: Mixture

Recommended use and restriction on use
Recommended use: Not determined.
Restrictions on use: Not determined.

Details of the supplier of the safety data sheet
Supplier
Company Name: CPI FLUID ENGINEERING
A DIV. OF THE LUBRIZOL CORPORATION
Address: 2300 JAMES SAVAGE ROAD
MIDLAND, MI 48642
US
Telephone: 989-496-3780

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

2. Hazard(s) identification

Hazard Classification

<table>
<thead>
<tr>
<th>Health Hazards</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin sensitizer</td>
<td>1A</td>
</tr>
</tbody>
</table>

Unknown toxicity

<table>
<thead>
<tr>
<th>Toxicity Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity, oral</td>
<td>0.0 %</td>
</tr>
<tr>
<td>Acute toxicity, dermal</td>
<td>0.0 %</td>
</tr>
<tr>
<td>Acute toxicity, inhalation, vapor</td>
<td>99.1 %</td>
</tr>
<tr>
<td>Acute toxicity, inhalation, dust or mist</td>
<td>98.3 %</td>
</tr>
</tbody>
</table>

Label Elements:

Hazard Symbol: [Image]

Signal Word: Warning

Hazard Statement: May cause an allergic skin reaction.
Precautionary Statement:

**Prevention:** Avoid breathing dust/fume/gas/mist/vapors/spray. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment.

**Response:** IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Specific treatment (see this label). Wash contaminated clothing before reuse.

**Disposal:** 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.

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

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>Percent by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Ethylhexyl glycidyl ether</td>
<td>2461-15-6</td>
<td>0.5 - 1%</td>
</tr>
<tr>
<td>tert-Butylphenyl diphenyl phosphate</td>
<td>56803-37-3</td>
<td>0.5 - 1%</td>
</tr>
<tr>
<td>Triphenyl phosphate</td>
<td>115-86-6</td>
<td>0.5 - 1%</td>
</tr>
</tbody>
</table>

4. First-aid measures

**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.

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

**Skin Contact:** Wash skin thoroughly with soap and water. If skin irritation or rash occurs: Get medical attention. Launder contaminated clothing before reuse.

**Eye contact:** Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses.

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:** 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.

### 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:**
Recommend wearing self-contained breathing apparatus.

### 6. Accidental release measures

<table>
<thead>
<tr>
<th>Personal precautions, protective equipment and emergency procedures</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods and material for containment and cleaning up</td>
<td>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.</td>
</tr>
<tr>
<td>Environmental Precautions</td>
<td>Avoid release to the environment. Prevent further leakage or spillage if safe to do so.</td>
</tr>
</tbody>
</table>

### 7. Handling and storage

<table>
<thead>
<tr>
<th>Precautions for safe handling</th>
<th>Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Observe good industrial hygiene practices. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Launder contaminated clothing before reuse. Avoid environmental contamination. Keep away from ignition sources such as heat, sparks and open flame. No smoking. Keep containers closed when not in use.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Handling Temperature</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Conditions for safe storage, including any incompatibilities</td>
<td>Store away from incompatible materials. See section 10 for incompatible materials.</td>
</tr>
<tr>
<td>Maximum Storage Temperature</td>
<td>Not determined.</td>
</tr>
</tbody>
</table>

### 8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th>Control Parameters:</th>
<th>None of the components have assigned exposure limits.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupational Exposure Limits</td>
<td>None of the components have assigned exposure limits.</td>
</tr>
<tr>
<td>Appropriate engineering controls</td>
<td>No special requirements under ordinary conditions of use and with adequate ventilation.</td>
</tr>
</tbody>
</table>
Individual protection measures, such as personal protective equipment

General information: Use personal protective equipment as required.

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

Skin Protection
Hand Protection: Neoprene. Suitable gloves can be recommended by the glove supplier.

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

Respiratory Protection: Use respirator with an organic vapor cartridge if exposure limit is exceeded. 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.

Hygiene measures: Observe good industrial hygiene practices. Avoid contact with skin. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Physical state: Liquid
Form: Liquid
Color: Colorless to yellow
Odor: Mild
Odor threshold: No data available.

pH: No data available.
Freezing point: No data available.
Boiling Point: No data available.
Flash Point: 410 °F (210 °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.
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: 0.992 - 1.0868 °F (20 °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: 788 °F (420 °C)
Decomposition temperature: No data available.
Viscosity: 18.3 mm²/s (104 °F (40 °C)) 4.13 mm²/s (100 °C (212 °F))
Other information

Pour Point Temperature: -62 °F (-52 °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.
Hazardous Decomposition Products: Thermal decomposition or combustion may generate smoke, carbon monoxide, carbon dioxide, 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: No data available.
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: Prolonged or repeated contact may cause irritation. 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:

2-Ethylhexyl glycidyl ether Classification: Strong skin sensitizer. (Literature) May cause sensitization by skin contact.

Triphenyl phosphate (Read across) May cause skin sensitization in sensitive individuals.
Specific Target Organ Toxicity - Single Exposure:
No data available

Aspiration Hazard:
No data available

Chronic Effects
Carcinogenicity:
No data available

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

No carcinogenic components identified

Germ Cell Mutagenicity:
- tert-Butylphenyl diphenyl phosphate
  This material has not exhibited mutagenic or genotoxic potential in laboratory tests.
- Triphenyl phosphate
  This material has not exhibited mutagenic or genotoxic potential in laboratory tests.

Reproductive toxicity:
No data available

Specific Target Organ Toxicity - Repeated Exposure:
No data available

12. Ecological information

Ecotoxicity
Fish
- tert-Butylphenyl diphenyl phosphate
  LC 50 (Not reported, 4 d): 13.7 mg/l
- Triphenyl phosphate
  LC 50 (Fathead Minnow, 4 d): 0.87 mg/l
  LC 50 (Rainbow Trout, 4 d): 0.3 mg/l

Aquatic Invertebrates
- tert-Butylphenyl diphenyl phosphate
  EC 50 (Not reported, 4 d): 0.39 mg/l
- Triphenyl phosphate
  EC 50 (Water flea (Daphnia magna), 2 d): 1 mg/l

Toxicity to Aquatic Plants
- tert-Butylphenyl diphenyl phosphate
  EC 50 (Green algae (Selenastrum capricornutum), 4 d): 2.6 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

No data available

Persistence and Degradability

Biodegradation

Triphenyl phosphate

Miscellaneous, 94%, 20 d, Readily biodegradable

Bioaccumulative Potential

Bioconcentration Factor (BCF)

No data available

Partition Coefficient n-octanol / water (log Kow)

Triphenyl phosphate

Log Kow: 4.59 (Measured)

Mobility:

No data available

Other Adverse Effects:

No data available.

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 MARPOL73/78 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. 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)
None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

<table>
<thead>
<tr>
<th>Hazard categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute</td>
</tr>
<tr>
<td>(Immediate)</td>
</tr>
</tbody>
</table>

SARA 302 Extremely Hazardous Substance
SARA 304 Emergency Release Notification
SARA 311/312 Hazardous Chemical
SARA 313 (TRI Reporting)
This product may contain chemical(s) regulated under the Superfund Amendments and Reauthorization Act (SARA). For additional information please contact Lubrizol Customer Assistance: America(s): AmerLZAMCustomerAssistance@Lubrizol.com ; Europe: EMEAICustomerAssistance@Lubrizol.com ; Asia: APCustomerAssistance@Lubrizol.com

**US State Regulations**

US. California Proposition 65
No ingredient regulated by CA Prop 65 present.

**Inventory Status**

Australia (AICS)
This product requires notification before sale in Australia.

Canada (DSL/NDSL)
All components are in compliance with the Canadian Environmental Protection Act and are present on the Domestic Substances List.

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 visit Lubrizol.com/REACH, or e-mail us at REACH_MSDS_INQUIRIES@Lubrizol.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)
This product requires notification before sale in Taiwan.
United States (TSCA)
All components of this material are on the US TSCA Inventory.

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

<table>
<thead>
<tr>
<th>Issue Date:</th>
<th>03/10/2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version #:</td>
<td>1.0</td>
</tr>
<tr>
<td>Source of information:</td>
<td>Internal company data and other publically available resources.</td>
</tr>
<tr>
<td>Further Information:</td>
<td>Contact supplier (see Section 1)</td>
</tr>
<tr>
<td>Disclaimer:</td>
<td>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.</td>
</tr>
</tbody>
</table>