1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name: GEOlube® 50 A 225
Product code: 745706
Synonyms: Polyalkylene glycol monobutyl ether

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

Recommended use [RU]: Component: Lubricant, Metal working fluids
Uses advised against: None known

1.3 Details of the supplier of the safety data sheet

Supplier:
GEO Specialty Chemicals UK Ltd
Charleston Road, Hardley, Hythe
Southampton, Hampshire SO45 3ZG
United Kingdom
Phone: +44 (0)23 80894666
Fax No: +44 (0)23 80243113

Responsibility Statement: For further information, please contact safety-data-sheet-fp@geosc.com

1.4 Emergency telephone number

Emergency telephone: 24 Hour Emergency Phone Number
GEO Specialty Chemicals UK Ltd
+44 (0)23 80891806

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

REGULATION (EC) No 1272/2008

| Acute inhalation toxicity - dust/mist | Category 4 |

2.2 Label elements

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Signal word  WARNING

Hazard statements
H332 - Harmful if inhaled

Precautionary statements
P271 - Use only outdoors or in a well-ventilated area
P260 - Do not breathe mist
P260 - Do not breathe vapor
P312 - Call a POISON CENTER or doctor if you feel unwell
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Hazard components for labeling  Oxirane, 2-methyl-, polymer with oxirane, monobutyl ether

2.3 Other information
None known

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>EU EINECS</th>
<th>weight-%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
<th>REACH Regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxirane, 2-methyl-, polymer with oxirane, monobutyl ether 9038-95-3</td>
<td>Not applicable</td>
<td>&gt; 95%</td>
<td>Acute Tox. 4 (H332)</td>
<td>In compliance</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

3.2 Mixtures
Not applicable

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye contact
Immediately flush with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of the entire surface.

Skin contact
Wash off immediately with soap and plenty of water. Remove contaminated clothing and shoes.

Ingestion
Rinse mouth thoroughly with water. Drink plenty of water.

Inhalation
Remove to fresh air. Seek immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Most important symptoms and effects
See Section 11 for more information.
4.3  Indication of any immediate medical attention and special treatment needed

Note to physicians
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

5.1  Extinguishing media

Suitable extinguishing media
Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons
High pressure waterjet

5.2  Special hazards arising from the substance or mixture

Special Hazard
Thermal decomposition can lead to release of irritating and toxic gases and vapors.

5.3  Advice for firefighters

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for firefighting personnel.

Firefighting measures
Cool exposed containers with water spray after extinguishing fire.

6. ACCIDENTAL RELEASE MEASURES

6.1  Personal precautions, protective equipment and emergency procedures

Personal precautions
Wear suitable protective clothing and gloves. Wear self-contained breathing apparatus.

6.2  Environmental precautions

Environmental precautions
Do not empty into drains/surface water/ground water. Prevent fire extinguishing water from contaminating surface water or the ground water system. Retain contaminated washing water and dispose it.

6.3  Methods and material for containment and cleaning up

Methods for cleaning up
Prevent further leakage or spillage if safe to do so. Clear spills immediately. Small spill: Soak up with inert absorbent material. Dispose of according to regulations. Large spill: Use mechanical means such as pumps and absorbent materials.

6.4  Reference to other sections

See Section 12 for additional Ecological Information
7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling
Handle and open container with care
Use only in well-ventilated areas
Take precautionary measures against static discharges
Avoid generation of aerosols/mist

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions
Do not store together with oxidants.
Do not store together with reductants.
Keep away from heat
Protect from direct sunlight
Keep container tightly closed in a cool place
Keep only in the original container

7.3 Specific end use(s)

Specific use(s)
Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational exposure limit value

<table>
<thead>
<tr>
<th>Component</th>
<th>European Union</th>
<th>United Kingdom</th>
<th>Spain</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxirane, 2-methyl-, polymer with oxirane, monobutyl ether 9038-95-3</td>
<td>NAV</td>
<td>NAV</td>
<td>NAV</td>
<td>NAV</td>
</tr>
</tbody>
</table>

Biological limit values

<table>
<thead>
<tr>
<th>Component</th>
<th>European Union</th>
<th>United Kingdom</th>
<th>Spain</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxirane, 2-methyl-, polymer with oxirane, monobutyl ether 9038-95-3</td>
<td>NAV</td>
<td>NAV</td>
<td>NAV</td>
<td>NAV</td>
</tr>
</tbody>
</table>

Legend
NAV - Not available

8.2 Exposure controls

Personal Protective Equipment

Eye/face Protection
Wear safety glasses with side shields (or goggles).

Hand Protection
Appropriate chemical resistant gloves should be worn. Nitrile gloves. Coating thickness 0.4 mm. Level 6 > 480 min breakthrough time.

Skin and body protection
Wear suitable protective clothing.
Respiratory protection
When processing in open systems with aerosol formation wear suitable respiratory protection to avoid inhalation of aerosol particles.

Other personal protection data
Eyewash fountains and safety showers must be easily accessible.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls
No information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>colorless</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>clear</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>characteristic</td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Lower flammability limit</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting / freezing point</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 216.0 °C / &gt; 420.8 °F</td>
<td>ASTM D92</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
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<td>No information available</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Lower flammability limit</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
<td>No information available</td>
</tr>
<tr>
<td>Specific gravity</td>
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<td>No information available</td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>Soluble</td>
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</tr>
<tr>
<td>Solubility in other solvents</td>
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<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
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<td>No information available</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>&gt; 370.0 °C / &gt; 698.0 °F</td>
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</tr>
<tr>
<td>Decomposition temperature</td>
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<td>No information available</td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>220 mm2/s @ 40 °C</td>
<td>ASTM D 445-97</td>
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<tr>
<td>Dynamic viscosity</td>
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<td>No information available</td>
</tr>
<tr>
<td>Density</td>
<td>1.053 g/cm³ @ 20 °C</td>
<td>ASTM D 1298-99</td>
</tr>
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</table>
9.2 Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk Density</td>
<td>No information available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not an explosive</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>The substance or mixture is not classified as oxidizing.</td>
</tr>
<tr>
<td>Softening point</td>
<td>No information available</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>2350 g/mol</td>
</tr>
<tr>
<td>Volatile organic compounds (VOCs) content</td>
<td>Not a VOC</td>
</tr>
<tr>
<td>Percent Volatile, wt.%</td>
<td>Not a VOC</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

10.1 Reactivity

Reactivity
No information available.

10.2 Chemical stability

Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions

Possibility of hazardous reactions
None under normal use conditions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Conditions to avoid
Avoid heat, sparks and open flame.

10.5 Incompatible materials

Materials to avoid
Oxidizing agents. Reducing agents.

10.6 Hazardous decomposition products

Hazardous decomposition products
None known.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute health hazard

Inhalation
Harmful if inhaled. Symptoms may be delayed. Unlikely to be hazardous by inhalation unless present as an AEROSOL.

Eye contact
May cause slight irritation.

Skin contact
May cause slight irritation.
Ingestion
Low toxicity by this route.

**Acute toxicity**

Oral LD50  > 5000 mg/kg (analogy)

Dermal LD50  No information available

Inhalation LC50  > 1 mg/l (analogy)

**Skin corrosion/irritation**
Not irritating, rabbits

**Serious eye damage/eye irritation**
Not irritating, rabbits

**Sensitization**
Dermal sensitization: non-sensitizing

**Germ cell mutagenicity**
No information available

**Carcinogenicity**
No information available

**Reproductive toxicity**
No information available

**Specific target organ toxicity - Single exposure**
No information available

**Specific target organ toxicity - Repeated exposure**
No information available

**Aspiration hazard**
No information available

---

**12. ECOLOGICAL INFORMATION**

**12.1 Toxicity**

**Acute aquatic toxicity**

- Fish  LC50 > 100 mg/l (analogy)
- Crustacea  No information available
- Algae/aquatic plants  No information available

**12.2 Persistence and degradability**

**Persistence and degradability**
No information available

**Biodegradation**
Not readily biodegradable

**12.3 Bioaccumulative potential**

**Bioaccumulative potential**
The bioaccumulation potential is low.
12.4 Mobility in soil

Mobility
No information available.

12.5 Results of PBT and vPvB assessment

PBT and vPvB assessment
This preparation contains no substance considered to be persistent, bioaccumulating nor toxic (PBT)
This preparation contains no substance considered to be very persistent nor very bioaccumulating (vPvB)

12.6 Other adverse effects

Other information
No other ecological studies have been carried out on this product.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Disposal of wastes
This material and its container must be disposed of as hazardous waste.

Contaminated packaging
Packaging that cannot be cleaned are to be disposed of in the same manner as the product.
Disposal must be made according to official regulations.

14. TRANSPORT INFORMATION

DOT (US) Not regulated
14.1 UN number
14.2 Proper shipping name
14.3 Hazard class
14.4 Packing group
14.5 Environmental hazard
14.6 Special precautions for user

Land transport (ADR/RID) Not regulated
14.1 UN number
14.2 Proper shipping name
14.3 Hazard class
14.4 Packing group
14.5 Environmental hazard
14.6 Special precautions for user

Inland waterway transport (ADN) Not regulated
14.1 UN number
14.2 Proper shipping name
14.3 Hazard class
14.4 Packing group
14.5 Environmental hazard
14.6 Special precautions for user

Air transport (ICAO-TI / IATA-DGR) Not regulated
14.1 UN number
14.2 Proper shipping name
14.3 Hazard class
14.4 Packing group
14.5 Environmental hazard
14.6 Special precautions for user
14. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
   Not applicable
16. OTHER INFORMATION

Product code 745706
Revision date 2015-07-08

Full text of H-Statements referred to under sections 2 and 3
H332 - Harmful if inhaled

Key or legend to abbreviations and acronyms used in the safety data sheet
NAV - Not available

This safety data sheet complies with the requirements of: Regulation (EC) No. 1907/2006.

Additional information
GEOlube® is a registered trademark of GEO Specialty Chemicals, Inc.

Disclaimer
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