SAFETY DATA SHEET

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

Product identifier

Product name  GEOlube® 50 A 380

Other means of identification

Product code  745708
Synonyms  Polyalkylene glycol monobutyl ether

Recommended use of the chemical and restrictions on use

Recommended use [RU]  Component: Lubricant, Metal working fluids
Uses advised against  No information available

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

Contact Point  safety-data-sheet-fp@geosc.com

Emergency telephone number

24 Hour Emergency Phone Number  CHEMTREC: (800) 424-9300
Outside USA - +1 (703) 527-3887 collect calls accepted

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Acute Toxicity - Inhalation  Category 4

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Color</th>
<th>Appearance</th>
<th>Odor</th>
</tr>
</thead>
<tbody>
<tr>
<td>liquid</td>
<td>colorless</td>
<td>clear</td>
<td>characteristic</td>
</tr>
</tbody>
</table>
WARNING

Hazard statements
Harmful if inhaled

Precautionary Statements - Prevention
Use only outdoors or in a well-ventilated area
Do not breathe vapor or mist

Precautionary Statements - Response
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell

Other information
• Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>weight-%</th>
<th>TRADE SECRET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxirane, 2-methyl-, polymer with oxirane, monobutyl ether</td>
<td>9038-95-3</td>
<td>&gt; 95%</td>
<td>*</td>
</tr>
</tbody>
</table>

If CAS number is “proprietary”, the specific chemical identity and percentage of composition has been withheld as a trade secret

*The exact percentage (concentration) of composition has been withheld as a trade secret

4. FIRST AID MEASURES

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/advice.

Most important symptoms and effects, both acute and delayed

Most important symptoms and effects
See Section 11 for more information.

Acute effects
None known.

Chronic effects
None known.
Indication of any immediate medical attention and special treatment needed

Note to physicians
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

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.

Special hazards arising from the substance or mixture

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

Advice for firefighters

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

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

Explosion data

Sensitivity to Mechanical Impact
None.

Sensitivity to Static Discharge
None.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

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

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.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
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.
7. HANDLING AND STORAGE

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

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

Incompatible products
Oxidizing agents. Reducing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering controls
Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details. If there are no applicable or established exposure limit requirements or guidelines, general ventilation should be sufficient.

Individual protection measures, such as 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
Standard work clothing and work shoes.

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.
### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks / Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>colorless</td>
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</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>
</tbody>
</table>

#### Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks / Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>1.055 g/cm³ @ 20 °C - ASTM D 1298-99</td>
<td></td>
</tr>
<tr>
<td>Bulk Density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not an explosive.</td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>The substance or mixture is not classified as oxidizing</td>
<td></td>
</tr>
<tr>
<td>Softening point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Molecular weight</td>
<td>2950 g/mol</td>
<td></td>
</tr>
<tr>
<td>Volatile organic compounds (VOCs) content</td>
<td>Not a VOC</td>
<td></td>
</tr>
<tr>
<td>Percent Volatile, wt.%</td>
<td>Not a VOC</td>
<td></td>
</tr>
</tbody>
</table>
11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye contact
May cause slight irritation.

Skin contact
May cause slight irritation.

Ingestion
Low toxicity by this route.

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

Acute toxicity - Product Information

Oral LD50
> 5000 mg/kg (analogy)

Dermal LD50
No information available

Inhalation LC50
> 1 mg/l (analogy)

Information on toxicological effects
Symptoms
No information available.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**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**
This product does not contain any components in concentrations greater than or equal to 0.1% that are listed as known or suspected carcinogens by NTP, IARC, ACGIH, or OSHA.

**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.

**Other information**
Conclusions are drawn from sources other than direct testing.

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**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Acute aquatic toxicity - Product Information**

- **Fish**
  LC50 > 100 mg/l (analogy)

- **Crustacea**
  No information available

- **Algae/aquatic plants**
  No information available

**Persistence and degradability**

- **Persistence and degradability**
  No information available

- **Biodegradation**
  Not readily biodegradable

**Bioaccumulative potential**

- **Bioaccumulative potential**
  The bioaccumulation potential is low.
Mobility

Mobility
No information available

Results of PBT and vPvB assessment

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

Other adverse effects

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

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

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

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

14. TRANSPORT INFORMATION

DOT
Not regulated

ICAO/IATA
Not regulated.

IMDG
Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA (United States)
All ingredients are on the inventory or exempt from listing

Australia (AICS)
All ingredients are on the inventory or exempt from listing

Canada (DSL)
All ingredients are on the inventory or exempt from listing

Canada (NDSL)
None of the ingredients are on the inventory.

China (IECSC)
All ingredients are on the inventory or exempt from listing

EINECS (European Inventory of Existing Chemical Substances)
All ingredients are on the inventory or exempt from listing
ELINCS (European List of Notified Chemical Substances)
None of the ingredients are on the inventory.

ENCs (Japan)
All ingredients are on the inventory or exempt from listing

South Korea (KECL)
All ingredients are on the inventory or exempt from listing

Philippines (PICCS)
All ingredients are on the inventory or exempt from listing

Legend
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
AICS - Australian Inventory of Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
IECSC - China Inventory of Existing Chemical Substances
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCs - Japan Existing and New Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

U.S. Federal Regulations

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

SARA 311/312 Hazard Categories
Acute health hazard  Yes
Chronic health hazard  No
Fire hazard  No
Sudden release of pressure hazard  No
Reactive hazard  No

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

U.S. State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations
This product does not contain any substances regulated under applicable state right-to-know regulations

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA Rating</th>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Special Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMIS Rating</td>
<td>Health</td>
<td>Flammability</td>
<td>Physical hazard</td>
<td>Personal protection</td>
</tr>
</tbody>
</table>

Product code 745708
Revision date 2016-02-12

Revision number 1

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

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet