SAFETY DATA SHEET

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

1.1 Product identifier

Product name: GEOlube® 50 A 20
Product code: 745697
Synonyms: n-Butanol with EO and PO

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

Recommended use [RU]: Lubricant
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

Not a hazardous substance or mixture according to the Globally Harmonized System (GHS)

2.2 Label elements

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

Not a hazardous substance or mixture according to the Globally Harmonized System (GHS)

Signal word: Not classified
Hazard statements
None

Precautionary statements
None

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>
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<tbody>
<tr>
<td>n-Butanol with EO and PO</td>
<td>Not applicable</td>
<td>&gt; 99%</td>
<td>Not Classified as Hazardous</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 with plenty of water and soap. Remove contaminated clothing and shoes.

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

Inhalation
Remove to fresh air. If breathing is difficult, give oxygen. 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 (fog). Dry chemical. Foam.

Extinguishing media which must not be used for safety reasons
No information available
5.2 Special hazards arising from the substance or mixture

Special Hazard
In the event of fire and/or explosion do not breathe fumes.

Hazardous combustion products
Irritating 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
In case of fire, keep containers cool with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions
Wear suitable protective clothing and gloves. Use suitable breathing apparatus.

6.2 Environmental precautions

Environmental precautions
Prevent fire extinguishing water from contaminating surface water or the ground water system. Do not empty into drains/surface water/ground water.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up
Soak up with inert absorbent material. Dispose of contaminated material as waste according to Section 13.

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
Use only in well-ventilated areas
Avoid contact with eyes, skin and clothing
Avoid generation of aerosols/mist
Use adequate ventilation and/or engineering controls in high temperature processing to prevent exposure to vapors
Take precautionary measures against static discharges

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.
Store in a dry place
Keep container tightly closed in a cool place

7.3 Specific end use(s)
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>
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</thead>
<tbody>
<tr>
<td>n-Butanol with EO and PO</td>
<td>NAV</td>
<td>NAV</td>
<td>NAV</td>
<td>NAV</td>
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</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>
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<tbody>
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<td>n-Butanol with EO and PO</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**
Nitrile gloves. Coating thickness 0.4 mm. Level 6 > 480 min breakthrough time. Polyvinylchloride. Coating thickness 0.7 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. Recommended Filter type: EN 143, P2; EN 149, FFP2.

**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>
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</thead>
<tbody>
<tr>
<td>Physical state</td>
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</tr>
<tr>
<td>Color</td>
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<tr>
<td>Appearance</td>
<td>clear</td>
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<tr>
<td>Odor</td>
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</tr>
<tr>
<td>Odor threshold</td>
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<td></td>
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</table>
9.2 Other information

<table>
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<tr>
<td>pH</td>
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<tr>
<td>Melting / freezing point</td>
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<tr>
<td>Boiling point / boiling range</td>
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<tr>
<td>Flash point</td>
<td>$&gt; 150 , ^\circ \text{C} / &gt; 302 , ^\circ \text{F}$, ASTM D 92-97</td>
</tr>
<tr>
<td>Evaporation rate</td>
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<td>Flammability (solid, gas)</td>
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<td>Flammability Limit in Air</td>
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<tr>
<td>Upper flammability limit</td>
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<tr>
<td>Lower flammability limit</td>
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<td>Vapor pressure</td>
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<td>Specific gravity</td>
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<td>Solubility in other solvents</td>
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<td>Partition coefficient: n-octanol/water</td>
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<td>Autoignition temperature</td>
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<td>Decomposition temperature</td>
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<td>Kinematic viscosity</td>
<td>19 mm²/s @ 40 °C, ASTM D 445-97</td>
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<td>Dynamic viscosity</td>
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<tr>
<td>Density</td>
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<td>Explosive properties</td>
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<td>Softening point</td>
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<td>Molecular weight</td>
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<td>Volatile organic compounds (VOCs) content</td>
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<tr>
<td>Percent Volatile, wt.%</td>
<td>No information available</td>
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10. STABILITY AND REACTIVITY

10.1 Reactivity

Reactivity
Not applicable.

10.2 Chemical stability

Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions
Possibility of hazardous reactions
Reaction with oxidants. Reaction with strong acids

Hazardous polymerization
Not anticipated under normal or recommended handling and storage conditions.

10.4 Conditions to avoid

Conditions to avoid
No special precautions are needed in handling this material.

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
None known.

Eye contact
Not expected to cause eye irritation.

Skin contact
Health injuries are not known or expected under normal use.

Ingestion
Low toxicity by this route.

Acute toxicity

Oral LD50
> 5000 mg/kg (analogy)

Dermal LD50
No information available

Inhalation LC50
> 5.0 mg/l (analogy)

Skin corrosion/irritation
Slightly irritating, does not require labeling (analogy)

Serious eye damage/eye irritation
Slightly irritating, does not require labeling (analogy)

Sensitization
No information available

Germ cell mutagenicity
No information available

Carcinogenicity
Not likely to be carcinogenic to humans
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

Bacteria toxicity
EC0 > 100 mg/L (analogy)

Algae/aquatic plants
No information available

12.2 Persistence and degradability

Persistence and degradability
No information available

Ultimate biodegradation
Readily and rapidly degradable. All organic substances contained in the product achieve > 60% BOD/COD or CO2 liberation, or > 70% DOC reduction in tests for ease of degradability. Threshold values for 'readily degradable' (e.g. to OECD method 301) are reached.

12.3 Bioaccumulative potential

Bioaccumulative potential
No information available.

12.4 Mobility in soil

Mobility
No information available.

12.5 Results of PBT and vPvB assessment

PBT and vPvB assessment
No information available

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
Waste incineration with the approval of the responsible local authority.

Contaminated packaging
Do not reuse empty containers
Since empty containers retain product residue, follow label warnings even after container is emptied

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

Sea transport (IMDG) 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

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable
15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

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

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

Legend
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
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

15.2 Chemical Safety Report

A Chemical Safety Assessment is not required for this substance.

16. OTHER INFORMATION

Product code
745697

Revision date
2015-08-10

Full text of H-Statements referred to under sections 2 and 3
None

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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