SAFETY DATA SHEET

1. Identification

Product identifier Anti-IDH1 mAb

Other means of identification
- Product code: D336-3
- Recommended use: Research use only.
- Recommended restrictions: None known.

Manufacturer and Supplier / Distributor information
- Manufacturer and Supplier (Asia): Medical & Biological Laboratories (MBL) Co., Ltd.
  4-5-3 Sakae, Naka-ku, Nagoya, Aichi 460-0008, Japan
  Telephone number: +81-52-238-1901 (Monday to Friday, 9 AM to 5 PM JST)
  Fax: +81-52-238-1440
  E-mail: sds-support@mbl.co.jp
  URL: http://www.mbl.co.jp/e/index.html
- Supplier: MBL International Corporation
  15A Constitution Way, Woburn, MA 01801, USA
  Telephone number: +1-800-200-5459, option 3
  Fax: +1-781-939-6963
  E-mail: tech@mblintl.com
  URL: http://www.mblintl.com/
- Contact person: Technical Service

2. Hazard(s) identification

Physical hazards: Not classified.
Health hazards: Not classified.
OSHA hazard(s): Not classified.

Label elements
- Hazard symbol: None.
- Signal word: None.
- Hazard statement: None.

Precautionary statement
- Prevention: Observe good industrial hygiene practices.
- Response: Wash thoroughly after handling.
- Storage: Store away from incompatible materials.
- Disposal: Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC): None.

3. Composition/Information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol (Glycerin)</td>
<td>56-81-5</td>
<td>50 - 60</td>
</tr>
</tbody>
</table>

Composition comments: All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First aid measures

Inhalation: Move to fresh air. Get medical attention if discomfort develops or persists.
Skin contact: Remove contaminated clothing. Wash with soap and water. Get medical attention if irritation develops or persists. Wash contaminated clothing before reuse.
Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation develops or persists.

Ingestion: Drink plenty of water. Seek medical advice.

Most important symptoms/effects, acute and delayed: Irritation of eyes and mucous membranes. Mild skin irritation.

Indication of immediate medical attention and special treatment needed: Treat symptomatically.

General information: Get medical attention if any discomfort develops.

5. Fire fighting measures


Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: Fire or high temperatures create: Carbon oxides.

Special protective equipment and precautions for firefighters: Self-contained breathing apparatus, operated in positive pressure mode and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions: Move containers from fire area if you can do that without risk. Use water spray to cool unopened containers. Prevent entry to sewers and public waters.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Ensure adequate ventilation. Avoid inhalation of mist and contact with skin and eyes. For personal protection, see Section 8 of the SDS.

Methods and materials for containment and cleaning up: Dike far ahead of liquid spill for later disposal. Small Spills: Absorb spillage with suitable absorbent material. Clean contaminated surface thoroughly. After removal, flush contaminated area thoroughly with water. Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Environmental precautions: Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Precautions for safe handling: Provide adequate ventilation. Use work methods which minimize production of vapors and mists. Avoid inhalation of mist and contact with skin and eyes. Wash hands after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities: Keep container tightly closed. Store away from incompatible materials.

8. Exposure controls/personal protection

OCCUPATIONAL EXPOSURE LIMITS

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Component</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol (CAS 56-81-5)</td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Component</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol (CAS 56-81-5)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Mist.</td>
</tr>
</tbody>
</table>

Biological limit values: No biological exposure limits noted for the ingredient(s).

Exposure guidelines: No exposure standards allocated.

Appropriate engineering controls: Provide adequate ventilation and minimize the risk of inhalation of vapors and mists.

Individual protection measures, such as personal protective equipment

Eye/face protection: Wear safety glasses.

Skin protection:
Hand protection

Wear protective gloves. Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.

Other

Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear protective gloves. Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.

Respiratory protection

In case of inadequate ventilation or risk of inhalation of vapors, use suitable respiratory equipment with combination filter (gas filter/dust filter). Seek advice from local supervisor.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice. Wash hands after handling. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

| Physical state | Liquid. |
| Form | Viscous liquid. |
| Color | Colorless. |
| Odor | Odorless. |
| Odor threshold | Not available. |
| pH | Neutral. |
| Melting point/freezing point | Not available. |
| Initial boiling point and boiling range | Not available. |
| Flash point | Not available. |
| Evaporation rate | Not available. |
| Flammability (solid, gas) | Not applicable. |
| Upper/lower flammability or explosive limits |
| Flammability limit - lower (%) | Not available. |
| Flammability limit - upper (%) | Not available. |
| Vapor pressure | Not available. |
| Vapor density | Not available. |
| Relative density | Not available. |
| Solubility(ies) | Soluble in water. |
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | Not available. |
| Decomposition temperature | Not available. |
| Viscosity | Not available. |

10. Stability and reactivity

Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

Chemical stability

Stable at normal conditions.

Possibility of hazardous reactions

Hazardous reactions do not occur.

Conditions to avoid

Strong heating. Contact with incompatible materials.

Incompatible materials

Strong oxidizing agents.

Hazardous decomposition products

None known.

11. Toxicological information

Information on likely routes of exposure

Ingestion

Ingestion may cause irritation and malaise.

Inhalation

Under normal conditions of intended use, this material is not expected to be an inhalation hazard.
### Skin contact
May cause skin irritation. Causes skin irritation.

### Eye contact
May cause eye irritation on direct contact. Causes eye irritation.

### Symptoms related to the physical, chemical and toxicological characteristics
Irritation of eyes and mucous membranes. Mild skin irritation.

### Information on toxicological effects

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute toxicity</strong></td>
<td>Ingestion may cause irritation and malaise.</td>
</tr>
<tr>
<td><strong>Skin corrosion/irritation</strong></td>
<td>May cause skin irritation.</td>
</tr>
<tr>
<td><strong>Serious eye damage/eye irritation</strong></td>
<td>May cause eye irritation on direct contact.</td>
</tr>
<tr>
<td><strong>Respiratory sensitization</strong></td>
<td>Not classified.</td>
</tr>
<tr>
<td><strong>Skin sensitization</strong></td>
<td>Not a skin sensitizer.</td>
</tr>
<tr>
<td><strong>Germ cell mutagenicity</strong></td>
<td>Not classified.</td>
</tr>
<tr>
<td><strong>Carcinogenicity</strong></td>
<td>IARC not listed.</td>
</tr>
<tr>
<td><strong>Reproductive toxicity</strong></td>
<td>Not classified.</td>
</tr>
<tr>
<td><strong>Specific target organ toxicity</strong></td>
<td>Knowledge about health hazard is incomplete.</td>
</tr>
<tr>
<td>- <strong>single exposure</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Specific target organ toxicity</strong></td>
<td>Knowledge about health hazard is incomplete.</td>
</tr>
<tr>
<td>- <strong>repeated exposure</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Aspiration hazard</strong></td>
<td>Not classified.</td>
</tr>
</tbody>
</table>

### 12. Ecological information

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ecotoxicity</strong></td>
<td>The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills have a harmful or damaging effect on the environment.</td>
</tr>
<tr>
<td><strong>Persistence and degradability</strong></td>
<td>The product is biodegradable.</td>
</tr>
<tr>
<td><strong>Bioaccumulative potential</strong></td>
<td>The product is not bioaccumulating.</td>
</tr>
<tr>
<td><strong>Partition coefficient n-octanol / water (log Kow)</strong></td>
<td>Glycerol (CAS 56-81-5) -1.76</td>
</tr>
<tr>
<td><strong>Mobility in soil</strong></td>
<td>Expected to be highly mobile in soil.</td>
</tr>
<tr>
<td><strong>Mobility in general</strong></td>
<td>The product is water soluble and may spread in water systems.</td>
</tr>
<tr>
<td><strong>Other adverse effects</strong></td>
<td>No data available.</td>
</tr>
</tbody>
</table>

### 13. Disposal considerations

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disposal instructions</strong></td>
<td>Dispose of in accordance with all applicable regulations. Do not discharge into drains, water courses or onto the ground.</td>
</tr>
<tr>
<td><strong>Local disposal regulations</strong></td>
<td>Dispose of in accordance with local regulations.</td>
</tr>
<tr>
<td><strong>Hazardous waste code</strong></td>
<td>Not regulated.</td>
</tr>
<tr>
<td><strong>Waste from residues / unused products</strong></td>
<td>Dispose of in accordance with local regulations.</td>
</tr>
<tr>
<td><strong>Contaminated packaging</strong></td>
<td>Dispose of in same manner as unused product.</td>
</tr>
</tbody>
</table>

### 14. Transport information

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DOT</strong></td>
<td>Not regulated as a dangerous good.</td>
</tr>
<tr>
<td><strong>IATA</strong></td>
<td>Not regulated as a dangerous good.</td>
</tr>
<tr>
<td><strong>IMDG</strong></td>
<td>Not regulated as a dangerous good.</td>
</tr>
<tr>
<td><strong>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</strong></td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

### 15. Regulatory information

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>US federal regulations</strong></td>
<td>This product is hazardous according to OSHA 29 CFR 1910.1200.</td>
</tr>
<tr>
<td></td>
<td>All components are on the U.S. EPA TSCA Inventory List.</td>
</tr>
<tr>
<td><strong>TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)</strong></td>
<td>Not regulated.</td>
</tr>
<tr>
<td><strong>CERCLA Hazardous Substance List (40 CFR 302.4)</strong></td>
<td>Not listed.</td>
</tr>
<tr>
<td><strong>Superfund Amendments and Reauthorization Act of 1986 (SARA)</strong></td>
<td></td>
</tr>
</tbody>
</table>

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**Anti-IDH1 mAb**

Revised: 09/30/2016, 4/5
Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance
SARA 311/312 Hazardous chemical

Country(s) or region
Australia
Canada
Canada
China
Europe
Japan
Korea
New Zealand
Philippines
United States & Puerto Rico

Yes
Yes
No
Yes
Yes
Yes
Yes
Yes
Yes
Yes

Inventory name
Australian Inventory of Chemical Substances (AICS)
Domestic Substances List (DSL)
Non-Domestic Substances List (NDSL)
Inventory of Existing Chemical Substances in China (IECSC)
EC Inventory
Inventory of Existing and New Chemical Substances (ENCS)
Existing Chemicals List (ECL)
New Zealand Inventory
Philippine Inventory of Chemicals and Chemical Substances (PICCS)
Toxic Substances Control Act (TSCA) Inventory

On inventory (yes/no)*
Yes
Yes
No
Yes
Yes
Yes
Yes
Yes
Yes
Yes

Other federal regulations
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.
Safe Drinking Water Act (SDWA)
Not regulated.
Drug Enforcement Administration (DEA), List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number
Not listed.
Drug Enforcement Administration (DEA), List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))
Not regulated.
DEA Exempt Chemical Mixtures Code Number
Not regulated.
Food and Drug Administration (FDA)
Not regulated.

US state regulations
This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

Massachusetts RTK - Substance List
Glycerol (CAS 56-81-5)
Not regulated.
New Jersey Worker and Community Right-to-Know Act
Glycerol (CAS 56-81-5)
Not regulated.
Pennsylvania RTK - Hazardous Substances
Glycerol (CAS 56-81-5)
Not regulated.
Rhode Island RTK
Glycerol (CAS 56-81-5)
Not regulated.
California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT)
Not listed.

International Inventories

Country(s) or region
Australia
Canada
Canada
China
Europe
Japan
Korea
New Zealand
Philippines
United States & Puerto Rico

Inventory name
Australian Inventory of Chemical Substances (AICS)
Domestic Substances List (DSL)
Non-Domestic Substances List (NDSL)
Inventory of Existing Chemical Substances in China (IECSC)
EC Inventory
Inventory of Existing and New Chemical Substances (ENCS)
Existing Chemicals List (ECL)
New Zealand Inventory
Philippine Inventory of Chemicals and Chemical Substances (PICCS)
Toxic Substances Control Act (TSCA) Inventory

On inventory (yes/no)*
Yes
Yes
No
Yes
Yes
Yes
Yes
Yes
Yes
Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date
04/22/2013
Revision date
09/30/2016
Version
10
Further information
Not available.
References
IUCLID
Disclaimer
This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.