SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Trade name : POLCOB®A12

1.2 Relevant identified uses of the substance or mixture and uses advised against
Use of the Substance/Mixture : Catalyst

1.3 Details of the supplier of the safety data sheet
Company : United Initiators GmbH
Dr.-Gustav-Adolph-Str. 3
82049 Pullach
Telephone : +49 / 89 / 74422 – 0
E-mail address of person responsible for the SDS : contact@united-in.com

1.4 Emergency telephone number
+49 / 89 / 74422 – 0 (24 h)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable liquids</td>
<td>3</td>
<td>H226: Flammable liquid and vapour.</td>
</tr>
<tr>
<td>Serious eye damage</td>
<td>1</td>
<td>H318: Causes serious eye damage.</td>
</tr>
<tr>
<td>Specific target organ toxicity - single exposure</td>
<td>3</td>
<td>H335: May cause respiratory irritation.</td>
</tr>
<tr>
<td>Long-term (chronic) aquatic hazard</td>
<td>3</td>
<td>H412: Harmful to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

POLCOB®A12

Hazard pictograms:

Signal word: Danger

Hazard statements:
H226 Flammable liquid and vapour.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements:
Prevention:
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P262 Do not get in eyes, on skin, or on clothing.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P315 Get immediate medical advice/ attention.
P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.
Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label:
ethyl-(S)-2-hydroxypropionate (CAS-No. 687-47-8)

2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures
Chemical nature: Mixture contains polymer bound cobalt
## Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Registration number</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethyl-(S)-2-hydroxypropionate</td>
<td>687-47-8</td>
<td>211-694-1</td>
<td>607-129-00-7</td>
<td>01-2119516234-49</td>
<td>Flam. Liq. 3; H226 Eye Dam. 1; H318 STOT SE 3; H335</td>
<td>&gt;= 70 - &lt; 75</td>
</tr>
<tr>
<td>2,6-di-tert-butyl-p-cresol</td>
<td>128-37-0</td>
<td>204-881-4</td>
<td>01-2119555270-46</td>
<td></td>
<td>Aquatic Acute 1; H400 Aquatic Chronic 1; H410</td>
<td>&gt;= 0,25 - &lt; 1</td>
</tr>
</tbody>
</table>

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General advice
- Move out of dangerous area.
- Show this safety data sheet to the doctor in attendance.
- Do not leave the victim unattended.
- Call a physician immediately.

#### Protection of first-aiders
- First Aid responders should pay attention to self-protection and use the recommended protective clothing.

#### If inhaled
- If unconscious, place in recovery position and seek medical advice.
- Keep respiratory tract clear.
- If symptoms persist, call a physician.
- If breathed in, move person into fresh air.

#### In case of skin contact
- In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Wash contaminated clothing before re-use.
- If on skin, rinse well with water.
- If on clothes, remove clothes.
- If symptoms persist, call a physician.

#### In case of eye contact
- Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
- In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- Continue rinsing eyes during transport to hospital.
- Remove contact lenses.
- Protect unharmed eye.
- Keep eye wide open while rinsing.
- If eye irritation persists, consult a specialist.
If swallowed:
Keep respiratory tract clear.
Do NOT induce vomiting.
Call a physician immediately.
Rinse mouth thoroughly with water.

4.2 Most important symptoms and effects, both acute and delayed
Risks:
Causes serious eye damage.
May cause respiratory irritation.

4.3 Indication of any immediate medical attention and special treatment needed
Treatment:
Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media:
Water spray jet
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media:
High volume water jet

5.2 Special hazards arising from the substance or mixture
Specific hazards during firefighting:
Vapours may form explosive mixtures with air.
The product will float on water and can be reignited on surface water.
Cool closed containers exposed to fire with water spray.

5.3 Advice for firefighters
Special protective equipment for firefighters:
Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

Specific extinguishing methods:
Do not use a solid water stream as it may scatter and spread fire.
Remove undamaged containers from fire area if it is safe to do so.
Use water spray to cool unopened containers.

Further information:
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions:
- Use personal protective equipment.
- Remove all sources of ignition.
- Evacuate personnel to safe areas.
- Follow safe handling advice and personal protective equipment recommendations.
- Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
- Treat recovered material as described in the section “Disposal considerations”.

6.2 Environmental precautions

Environmental precautions:
- Prevent product from entering drains.
- Prevent further leakage or spillage if safe to do so.
- If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up:
- Clear spills immediately.
- Suppress (knock down) gases/vapours/mists with a water spray jet.
- To clean the floor and all objects contaminated by this material, use plenty of water.
- Soak up with inert absorbent material.
- Isolate waste and do not reuse.
- Non-sparking tools should be used.
- Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures:
- See Engineering measures under EXPOSURE CONTROLS/PERSOAL PROTECTION section.

Advice on safe handling:
- Do not breathe vapours/dust.
- Avoid exposure - obtain special instructions before use.
- Avoid contact with skin and eyes.
Avoid formation of aerosol.  
Take precautionary measures against static discharges.  
Provide sufficient air exchange and/or exhaust in work rooms.  
Avoid confinement.  
Smoking, eating and drinking should be prohibited in the application area.  
Wash thoroughly after handling.  
For personal protection see section 8.

Advice on protection against fire and explosion: Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Keep away from heat and sources of ignition. Use only explosion-proof equipment.

Hygiene measures: Keep away from food and drink. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: Electrical installations / working materials must comply with the technological safety standards. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in accordance with the particular national regulations.

Storage class (TRGS 510): 3, Flammable liquids

Recommended storage temperature: 5 - 30 °C

7.3 Specific end use(s)

Specific use(s): For further information, refer to the product technical data sheet.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,6-di-tert-butyl-p-cresol</td>
<td>128-37-0</td>
<td>AGW (Vapour and aerosols, inhalable fraction)</td>
<td>10 mg/m³</td>
<td>DE TRGS 900</td>
</tr>
<tr>
<td>Peak-limit: excursion factor (category)</td>
<td>4;(II)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Further information
Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., Sum of vapor and aerosols., When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child.

8.2 Exposure controls

**Engineering measures**
Minimize workplace exposure concentrations.

**Personal protective equipment**

<table>
<thead>
<tr>
<th>Eye protection</th>
<th>Tightly fitting safety goggles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Please wear suitable protective goggles. Also wear face protection if there is a splash hazard.</td>
</tr>
<tr>
<td></td>
<td>Ensure that eyewash stations and safety showers are close to the workstation location.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hand protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material        : butyl-rubber</td>
</tr>
<tr>
<td>Break through time : &gt;= 480 min</td>
</tr>
<tr>
<td>Glove thickness : 0,5 mm</td>
</tr>
</tbody>
</table>

**Remarks**
Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

**Skin and body protection**
Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.

**Respiratory protection**
In the case of dust or aerosol formation use respirator with an approved filter.

| Filter type | ABEK-filter |

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Appearance</th>
<th>viscous liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>violet</td>
</tr>
<tr>
<td>Odour</td>
<td>characteristic</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>not determined</td>
</tr>
</tbody>
</table>
Boiling point/boiling range : 153 °C

Flash point : 54 °C
   Method: closed cup

Upper explosion limit / Upper flammability limit : 11,4 %(V)

Lower explosion limit / Lower flammability limit : 1,5 %(V)

Vapour pressure : ca. 1,8 hPa (20 °C)

Density : ca. 1 g/cm3 (20 °C)

Solubility(ies)
   Water solubility : insoluble

Explosive properties : Not explosive

9.2 Other information
   No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
   Stable under recommended storage conditions.

10.2 Chemical stability
   Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
   Hazardous reactions : None known.

10.4 Conditions to avoid
   Conditions to avoid : Heat, flames and sparks.

10.5 Incompatible materials
   Materials to avoid : No data available

10.6 Hazardous decomposition products
   Irritant, caustic, flammable, noxious/toxic gases and vapours can develop in the case of fire and decomposition
SECTION 11: Toxicological information

11.1 Information on toxicological effects

**Acute toxicity**
Not classified based on available information.

**Components:**

**ethyl-(S)-2-hydroxypropionate:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Acute oral toxicity</th>
<th>LD50 Oral (Rat): &gt; 2.000 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Assessment: The substance or mixture has no acute oral toxicity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Remarks: No mortality observed at this dose.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Acute inhalation toxicity</th>
<th>LC50 (Rat): &gt; 5.400 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exposure time: 4 h</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Test atmosphere: dust/mist</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assessment: The substance or mixture has no acute inhalation toxicity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Remarks: No mortality observed at this dose.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Acute dermal toxicity</th>
<th>Remarks: No data available</th>
</tr>
</thead>
</table>

2,6-di-tert-butyl-p-cresol:

<table>
<thead>
<tr>
<th>Component</th>
<th>Acute oral toxicity</th>
<th>LD50 (Rat, male and female): &gt; 2.930 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Method: OECD Test Guideline 401</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assessment: The substance or mixture has no acute oral toxicity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Remarks: No mortality observed at this dose.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Acute dermal toxicity</th>
<th>LD50 (Rat, male and female): &gt; 2.000 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Method: OECD Test Guideline 402</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assessment: The substance or mixture has no acute dermal toxicity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Remarks: No mortality observed at this dose.</td>
<td></td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**
Not classified based on available information.

**Components:**

**ethyl-(S)-2-hydroxypropionate:**

| Component   | Remarks: Based on available data, the classification criteria are not met. |

2,6-di-tert-butyl-p-cresol:

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>No skin irritation</td>
</tr>
</tbody>
</table>
**SAFETY DATA SHEET**
according to Regulation (EC) No. 1907/2006

**POLCOB® A12**

<table>
<thead>
<tr>
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<th>Revision Date</th>
<th>SDS Number</th>
<th>Date of last issue</th>
<th>Date of first issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>06.09.2019</td>
<td>600000000839</td>
<td>-</td>
<td>06.09.2019</td>
</tr>
</tbody>
</table>

**Serious eye damage/eye irritation**
Causes serious eye damage.

**Product:**
Remarks: May cause irreversible eye damage.

**Components:**

**ethyl-(S)-2-hydroxypropionate:**
Result: Corrosive
Remarks: May cause irreversible eye damage.

**2,6-di-tert-butyl-p-cresol:**
Species: Rabbit
Result: No eye irritation

**Respiratory or skin sensitisation**

**Skin sensitisation**
Not classified based on available information.

**Respiratory sensitisation**
Not classified based on available information.

**Components:**

**ethyl-(S)-2-hydroxypropionate:**
Remarks: Based on available data, the classification criteria are not met.

**2,6-di-tert-butyl-p-cresol:**
Exposure routes: Skin contact
Species: Humans
Remarks: No known sensitising effect.

**Germ cell mutagenicity**
Not classified based on available information.

**Components:**

**2,6-di-tert-butyl-p-cresol:**
Genotoxicity in vitro: Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: Metabolic activation
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: rat hepatocytes
Result: negative

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: Metabolic activation
Result: negative

Genotoxicity in vivo
Test Type: Cytogenetic assay
Species: Rat (male)
Cell type: Bone marrow
Application Route: Oral
Result: negative

Test Type: Micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Result: negative

Carcinogenicity
Not classified based on available information.

Components:

2,6-di-tert-butyl-p-cresol:
247 mg/kg bw/day

Reproductive toxicity
Not classified based on available information.

Components:

2,6-di-tert-butyl-p-cresol:

Effects on fertility
Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Fertility: NOAEL: 500 mg/kg body weight

Effects on foetal development
Test Type: Two-generation study
Species: Rat, male and female
General Toxicity Maternal: NOAEL: 100 mg/kg body weight
Developmental Toxicity: NOAEL: 100 mg/kg body weight

STOT - single exposure
May cause respiratory irritation.
Components:

ethyl-(S)-2-hydroxypropionate:
Assessment: May cause respiratory irritation.

STOT - repeated exposure
Not classified based on available information.

Repeated dose toxicity

Components:

2,6-di-tert-butyl-p-cresol:
Species: Rat, male
NOAEL: 25 mg/kg
Application Route: Oral
Exposure time: 35 - 56 d
Target Organs: Liver
Symptoms: alteration in liver enzymes

Aspiration toxicity
Not classified based on available information.

Components:

ethyl-(S)-2-hydroxypropionate:
No aspiration toxicity classification

Further information

Product:
Remarks: Solvents may degrease the skin.

Components:

ethyl-(S)-2-hydroxypropionate:
Remarks: Solvents may degrease the skin.

SECTION 12: Ecological information

12.1 Toxicity

Components:

ethyl-(S)-2-hydroxypropionate:
Toxicity to fish: LC50 (Fish): 320 mg/l
Exposure time: 96 h
2,6-di-tert-butyl-p-cresol:

Toxicity to fish:
- NOEC (Oryzias latipes (Orange-red killifish)): 0,053 mg/l
  Exposure time: 42 d
- LC50 (Danio rerio (zebra fish)): > 0,57 mg/l
  Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
- EC50 (Daphnia magna (Water flea)): 0,48 mg/l
  Exposure time: 48 h
  Method: OECD Test Guideline 202

Toxicity to algae:
- EC50 (Desmodesmus subspicatus (green algae)): > 0,4 mg/l
  Exposure time: 72 h
  Test Type: Growth inhibition
- NOEC (Desmodesmus subspicatus (green algae)): 0,4 mg/l
  Exposure time: 72 h
  Test Type: Growth inhibition

M-Factor (Acute aquatic toxicity):
- 1

Toxicity to microorganisms:
- EC50: > 10.000 mg/l
  Exposure time: 3 h
  Test Type: Respiration inhibition of activated sludge
  Method: OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- NOEC: 0,023 mg/l
  Exposure time: 21 d
  Species: Daphnia magna (Water flea)

M-Factor (Chronic aquatic toxicity):
- 1

12.2 Persistence and degradability

Components:

2,6-di-tert-butyl-p-cresol:

Biodegradability:
- Result: Not readily biodegradable.
  Biodegradation: 4,5 %
  Exposure time: 28 d
  Method: OECD Test Guideline 301
12.3 Bioaccumulative potential

Components:

2,6-di-tert-butyl-p-cresol:

Bioaccumulation: Bioconcentration factor (BCF): > 2.000
Partition coefficient: n-octanol/water: log Pow: 5.1

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:
Assessment: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Product:
Additional ecological information: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life with long lasting effects.

Components:

ethyl-(S)-2-hydroxypropionate:
Additional ecological information: No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product:
The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Dispose of wastes in an approved waste disposal facility.

Contaminated packaging: Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.
Dispose of in accordance with local regulations.
**SAFETY DATA SHEET**
according to Regulation (EC) No. 1907/2006

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<thead>
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</tr>
</tbody>
</table>

SECTION 14: Transport information

14.1 UN number

<table>
<thead>
<tr>
<th></th>
<th>ADR</th>
<th>RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN</td>
<td>1993</td>
<td>1993</td>
<td>1993</td>
<td>1993</td>
</tr>
</tbody>
</table>

14.2 UN proper shipping name

<table>
<thead>
<tr>
<th></th>
<th>ADR</th>
<th>RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>FLAMMABLE LIQUID, N.O.S.</td>
<td>FLAMMABLE LIQUID, N.O.S.</td>
<td>FLAMMABLE LIQUID, N.O.S.</td>
<td>Flammable liquid, n.o.s.</td>
</tr>
<tr>
<td></td>
<td>(ethyl (S)-2-hydroxypropionate)</td>
<td>(ethyl (S)-2-hydroxypropionate)</td>
<td>(ethyl (S)-2-hydroxypropionate)</td>
<td>(ethyl (S)-2-hydroxypropionate)</td>
</tr>
</tbody>
</table>

14.3 Transport hazard class(es)

<table>
<thead>
<tr>
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<th>ADR</th>
<th>RID</th>
<th>IMDG</th>
<th>IATA</th>
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<tbody>
<tr>
<td>Class</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

14.4 Packing group

<table>
<thead>
<tr>
<th></th>
<th>ADR</th>
<th>RID</th>
<th>IMDG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>III</td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td>Code</td>
<td>F1</td>
<td>F1</td>
<td>F1</td>
</tr>
<tr>
<td>Number</td>
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<td>33</td>
<td>3</td>
</tr>
<tr>
<td>Labels</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Tunnel Restriction</td>
<td>(E)</td>
<td>(E)</td>
<td>(E)</td>
</tr>
</tbody>
</table>

**EmS Code**: F-E, S-E
14.5 Environmental hazards

**ADR**
Environmentally hazardous : no

**RID**
Environmentally hazardous : no

**IMDG**
Marine pollutant : no

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable for product as supplied.

**SECTION 15: Regulatory information**

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

**REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).**
: Not applicable

**REACH - List of substances subject to authorisation (Annex XIV)**
: Not applicable

**Regulation (EC) No 1005/2009 on substances that deplete the ozone layer**
: Not applicable

**Regulation (EC) No 850/2004 on persistent organic pollutants**
: Not applicable

**Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals**
: ethyl-(S)-2-hydroxypropionate

**REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)**
: Conditions of restriction for the following entries should be considered: Number on list 3
SAFETY DATA SHEET
generated according to Regulation (EC) No. 1907/2006

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ethyl-(S)-2-hydroxypropionate
(Number on list 3)


P5c  FLAMMABLE LIQUIDS  Quantity 1  Quantity 2
5.000 t  50.000 t

The components of this product are reported in the following inventories:
ENCS (JP): On the inventory, or in compliance with the inventory
ISHL (JP): On the inventory, or in compliance with the inventory
PICCS (PH): On the inventory, or in compliance with the inventory
TCSI (TW): On the inventory, or in compliance with the inventory
TSCA (US): On TSCA Inventory

15.2 Chemical safety assessment
This information is not available.

SECTION 16: Other information

Full text of H-Statements
H226: Flammable liquid and vapour.
H318: Causes serious eye damage.
H335: May cause respiratory irritation.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.

Full text of other abbreviations
Aquatic Acute: Short-term (acute) aquatic hazard
Aquatic Chronic: Long-term (chronic) aquatic hazard
Eye Dam.: Serious eye damage
Flam. Liq.: Flammable liquids
STOT SE: Specific target organ toxicity - single exposure
DE TRGS 900: Germany, TRGS 900 - Occupational exposure limit values.
DE TRGS 900 / AGW: Time Weighted Average

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx -
Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECl - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Other information: This safety datasheet only contains information relating to safety and does not replace any product information or product specification. These safety instructions also apply to empty packaging which may still contain product residues.


Classification of the mixture:

<table>
<thead>
<tr>
<th>Classification procedure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq. 3 H226 Based on product data or assessment</td>
</tr>
<tr>
<td>Eye Dam. 1 H318 Calculation method</td>
</tr>
<tr>
<td>STOT SE 3 H335 Calculation method</td>
</tr>
<tr>
<td>Aquatic Chronic 3 H412 Calculation method</td>
</tr>
</tbody>
</table>

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.