SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier: Isobutanol
   CAS: 78-83-1
   EC: 201-148-0
   Index: 603-108-00-1
   REACH: 01-2119484609-23-XXXX
   Formula: \((\text{CH}_3)_2\text{CH}_2\text{OH}\)
   Molecular weight: 74.12

1.2 Relevant identified uses of the substance or mixture and uses advised against:
   Relevant uses: Chemical sample for use in laboratories. For professional user/industrial user only.
   Uses advised against: All uses not specified in this section or in section 7.3

1.3 Details of the supplier of the safety data sheet:
   Scientific & Chemical Supplies Limited
   Carlton House, Livingstone Road
   WV14 0QZ Bilston - England
   Phone.: +44 (0) 1902 402402 - Fax: +44 (0) 1902 402343
   customerservices@scichem.com
   www.scichem.com

1.4 Emergency telephone number: +44 (0) 7919 258 784

SECTION 2: HAZARDS IDENTIFICATION **

2.1 Classification of the substance or mixture:
   CLP Regulation (EC) No 1272/2008:
   Classification of this product has been carried out in accordance with CLP Regulation (EC) No 1272/2008.
   Eye Dam. 1: Serious eye damage, Category 1, H318
   Flam. Liq. 3: Flammable liquids, Category 3, H226
   Skin Irrit. 2: Skin irritation, Category 2, H315
   STOT SE 3: Respiratory tract toxicity, single exposure, Category 3, H335
   STOT SE 3: Specific toxicity causing drowsiness and dizziness, single exposure, Category 3, H336

2.2 Label elements:
   CLP Regulation (EC) No 1272/2008:
   Danger
   !
   !
   !
   Hazard statements:
   Eye Dam. 1: H318 - Causes serious eye damage
   Flam. Liq. 3: H226 - Flammable liquid and vapour
   Skin Irrit. 2: H315 - Causes skin irritation
   STOT SE 3: H335 - May cause respiratory irritation
   STOT SE 3: H336 - May cause drowsiness or dizziness
   Precautionary statements:
   P210: Keep away from heat/sparks/open flames/hot surfaces. — No smoking
   P280: Wear protective gloves/protective clothing/eye protection/face protection
   P304+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
   P370+P378: In case of fire: Use ABC powder extinguisher to extinguish
   P501: Dispose of contents/container in accordance with regulations on hazardous waste or packaging and packaging waste respectively

2.3 Other hazards:
   Product fails to meet PBT/vPvB criteria

** Changes with regards to the previous version
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance:
Chemical description: Alcohols
Components:
In accordance with Annex II of Regulation (EC) No 1907/2006 (point 3), the product contains:

<table>
<thead>
<tr>
<th>Identification</th>
<th>Chemical name/Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS: 78-83-1</td>
<td>Isobutanol</td>
<td>ATP CLP00</td>
</tr>
<tr>
<td>EC: 201-149-0</td>
<td>Regulation 1272/2008</td>
<td>80 - &lt;100 %</td>
</tr>
<tr>
<td>Index: 603-108-00-1</td>
<td>Eye Dam. 1: H318; Flam. Liq. 3: H226; Skin Irrit. 2: H315; STOT SE 3: H335; STOT SE 3: H336 - Danger</td>
<td></td>
</tr>
</tbody>
</table>

To obtain more information on the hazards of the substances consult sections 8, 11, 12, 15 and 16.

3.2 Mixture:
Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures:
The symptoms resulting from intoxication can appear after exposure, therefore, in case of doubt, seek medical attention for direct exposure to the chemical product or persistent discomfort, showing the SDS of this product.

By inhalation:
Remove the person affected from the area of exposure, provide with fresh air and keep at rest. In serious cases such as cardiorespiratory failure, artificial resuscitation techniques will be necessary (mouth to mouth resuscitation, cardiac massage, oxygen supply, etc.) requiring immediate medical assistance.

By skin contact:
Remove contaminated clothing and footwear, rinse skin or shower the person affected if appropriate with plenty of cold water and neutral soap. In serious cases see a doctor. If the product causes burns or freezing, clothing should not be removed as this could worsen the injury caused if it is stuck to the skin. If blisters form on the skin, these should never be burst as this will increase the risk of infection.

By eye contact:
Rinse eyes thoroughly with lukewarm water for at least 15 minutes. Do not allow the person affected to rub or close their eyes. If the injured person uses contact lenses, these should be removed unless they are stuck to the eyes, in which case this could cause further damage. In all cases, after cleaning, a doctor should be consulted as quickly as possible with the SDS of the product.

By ingestion/aspiration:
Do not induce vomiting, but if it does happen keep the head down to avoid aspiration. Keep the person affected at rest. Rinse out the mouth and throat, as they may have been affected during ingestion.

4.2 Most important symptoms and effects, both acute and delayed:
Acute and delayed effects are indicated in sections 2 and 11.

4.3 Indication of any immediate medical attention and special treatment needed:
Non-applicable

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media:
If possible use polyvalent powder fire extinguishers (ABC powder), alternatively use foam or carbon dioxide extinguishers (CO₂). IT IS RECOMMENDED NOT to use tap water as an extinguishing agent.

5.2 Special hazards arising from the substance or mixture:
As a result of combustion or thermal decomposition reactive sub-products are created that can become highly toxic and, consequently, can present a serious health risk.

5.3 Advice for firefighters:
Depending on the magnitude of the fire it may be necessary to use full protective clothing and self-contained breathing apparatus (SCBA). Minimum emergency facilities and equipment should be available (fire blankets, portable first aid kit, ...) in accordance with Directive 89/654/EC.

Additional provisions:
SECTION 5: FIREFIGHTING MEASURES (continued)

Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies. Eliminate all sources of ignition. In case of fire, cool the storage containers and tanks for products susceptible to combustion, explosion or BLEVE as a result of high temperatures. Avoid spillage of the products used to extinguish the fire into an aqueous medium.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:
Isolate leaks provided that there is no additional risk for the people performing this task. Evacuate the area and keep out those without protection. Personal protection equipment must be used against potential contact with the spilt product (See section 8). Above all prevent the formation of any vapour-air flammable mixtures, through either ventilation or the use of an inert medium. Destroy any source of ignition. Eliminate electrostatic charges by interconnecting all the conductive surfaces on which static electricity could form, and also ensuring that all surfaces are connected to the ground.

6.2 Environmental precautions:
This product is not classified as hazardous to the environment. Keep product away from drains, surface and underground water.

6.3 Methods and material for containment and cleaning up:
It is recommended:
Absorb the spillage using sand or inert absorbent and move it to a safe place. Do not absorb in sawdust or other combustible absorbents. For any concern related to disposal consult section 13.

6.4 Reference to other sections:
See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:
A.- Precautions for safe manipulation
Comply with the current legislation concerning the prevention of industrial risks. Keep containers hermetically sealed. Control spills and residues, destroying them with safe methods (section 6). Avoid leakages from the container. Maintain order and cleanliness where dangerous products are used.
B.- Technical recommendations for the prevention of fires and explosions
Transfer in well ventilated areas, preferably through localized extraction. Fully control sources of ignition (mobile phones, sparks,…) and ventilate during cleaning operations. Avoid the existence of dangerous atmospheres inside containers, applying inertization systems where possible. Transfer at a slow speed to avoid the creation of electrostatic charges. Against the possibility of electrostatic charges: ensure a perfect equipotential connection, always use groundings, do not wear work clothes made of acrylic fibres, preferably wearing cotton clothing and conductive footwear. Comply with the essential security requirements for equipment and systems defined in Directive 94/9/EC (ATEX 100) and with the minimum requirements for protecting the security and health of workers under the selection criteria of Directive 1999/92/EC (ATEX 137 / The Dangerous Substances and Explosive Atmospheres Regulations 2002, 2002 No. 2776). Consult section 10 for conditions and materials that should be avoided.
C.- Technical recommendations to prevent ergonomic and toxicological risks
Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.
D.- Technical recommendations to prevent environmental risks
It is recommended to have absorbent material available at close proximity to the product (See subsection 6.3)

7.2 Conditions for safe storage, including any incompatibilities:
A.- Technical measures for storage
Store in a cool, dry, well-ventilated location
B.- General conditions for storage
Avoid sources of heat, radiation, static electricity and contact with food. For additional information see subsection 10.5

7.3 Specific end use(s):
Except for the instructions already specified it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION
8.1 Control parameters:

Substances whose occupational exposure limits have to be monitored in the workplace (EH40/2005 Workplace exposure limits):

<table>
<thead>
<tr>
<th>Identification</th>
<th>Environmental limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WEL (8h)</td>
</tr>
<tr>
<td>Isobutanol</td>
<td>50 ppm</td>
</tr>
<tr>
<td>CAS: 78-83-1</td>
<td>154 mg/m³</td>
</tr>
</tbody>
</table>

DNEL (Workers):

<table>
<thead>
<tr>
<th>Identification</th>
<th>Short exposure</th>
<th>Long exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Systemic</td>
<td>Local</td>
</tr>
<tr>
<td>Isobutanol</td>
<td>Oral</td>
<td>Non-applicable</td>
</tr>
<tr>
<td>CAS: 78-83-1</td>
<td>Dermal</td>
<td>Non-applicable</td>
</tr>
<tr>
<td>EC: 201-148-0</td>
<td>Inhalation</td>
<td>Non-applicable</td>
</tr>
</tbody>
</table>

DNEL (General population):

<table>
<thead>
<tr>
<th>Identification</th>
<th>Short exposure</th>
<th>Long exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Systemic</td>
<td>Local</td>
</tr>
<tr>
<td>Isobutanol</td>
<td>Oral</td>
<td>Non-applicable</td>
</tr>
<tr>
<td>CAS: 78-83-1</td>
<td>Dermal</td>
<td>Non-applicable</td>
</tr>
<tr>
<td>EC: 201-148-0</td>
<td>Inhalation</td>
<td>Non-applicable</td>
</tr>
</tbody>
</table>

PNEC:

<table>
<thead>
<tr>
<th>Identification</th>
<th>Identification</th>
<th>STP</th>
<th>Fresh water</th>
<th>Marine water</th>
<th>Sediment (Fresh water)</th>
<th>Sediment (Marine water)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isobutanol</td>
<td></td>
<td>10 mg/L</td>
<td>0.4 mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS: 78-83-1</td>
<td></td>
<td>0.0699 mg/kg</td>
<td>0.04 mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC: 201-148-0</td>
<td></td>
<td>11 mg/L</td>
<td>1.52 mg/kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.2 Exposure controls:

A.- General security and hygiene measures in the work place

As a preventative measure it is recommended to use basic Personal Protective Equipment, with the corresponding <<CE marking>> in accordance with Directive 89/686/EC. For more information on Personal Protective Equipment (storage, use, cleaning, maintenance, class of protection,…) consult the information leaflet provided by the manufacturer. For more information see subsection 7.1.

All information contained herein is a recommendation which needs some specification from the labour risk prevention services as it is not known whether the company has additional measures at its disposal.

B. - Respiratory protection

<table>
<thead>
<tr>
<th>Pictogram</th>
<th>PPE</th>
<th>Labelling</th>
<th>CEN Standard</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter mask for gases and vapours</td>
<td>CAT III</td>
<td>EN 405:2001+A1:2009</td>
<td>Replace when there is a taste or smell of the contaminant inside the face mask. If the contaminant comes with warnings it is recommended to use isolation equipment.</td>
<td></td>
</tr>
</tbody>
</table>

C.- Specific protection for the hands

<table>
<thead>
<tr>
<th>Pictogram</th>
<th>PPE</th>
<th>Labelling</th>
<th>CEN Standard</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>NON-disposable chemical protective gloves (NBR), Breakthrough Time 480 min, thickness 0.12 mm</td>
<td>CAT III</td>
<td>EN 374-1:2003</td>
<td>The Breakthrough Time indicated by the manufacturer must exceed the period during which the product is being used. Do not use protective creams after the product has come into contact with skin.</td>
<td></td>
</tr>
</tbody>
</table>

D.- Ocular and facial protection

<table>
<thead>
<tr>
<th>Pictogram</th>
<th>PPE</th>
<th>Labelling</th>
<th>CEN Standard</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panoramic glasses against splash/projections.</td>
<td>CAT II</td>
<td>EN 166:2001</td>
<td>Clean daily and disinfect periodically according to the manufacturer’s instructions. Use if there is a risk of splashing.</td>
<td></td>
</tr>
<tr>
<td>EN ISO 4007:2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

E.- Body protection
SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

<table>
<thead>
<tr>
<th>Pictogram</th>
<th>PPE</th>
<th>Labelling</th>
<th>CEN Standard</th>
<th>Remarks</th>
</tr>
</thead>
</table>

F. Additional emergency measures

<table>
<thead>
<tr>
<th>Emergency measure</th>
<th>Standards</th>
<th>Emergency measure</th>
<th>Standards</th>
</tr>
</thead>
</table>

Environmental exposure controls:
In accordance with the community legislation for the protection of the environment it is recommended to avoid environmental spillage of both the product and its container. For additional information see subsection 7.1.D

Volatil organic compounds:
With regard to Directive 2010/75/EU, this product has the following characteristics:

V.O.C. (Supply): 100 % weight
V.O.C. density at 20 ºC: 800.55 kg/m³ (800.55 g/L)
Average carbon number: 4
Average molecular weight: 74.1 g/mol

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:
For complete information see the product datasheet.

Appearance:
Physical state at 20 ºC: Liquid
Appearance: Not available
Colour: Colourless
Odour: Pleasant
Odour threshold: Non-applicable *

Volatility:
Boiling point at atmospheric pressure: 108 ºC
Vapour pressure at 20 ºC: 1379 Pa
Vapour pressure at 50 ºC: 63.63 (8.48 kPa)
Evaporation rate at 20 ºC: Non-applicable *

Product description:
Density at 20 ºC: 800.6 kg/m³
Relative density at 20 ºC: 0.801
Dynamic viscosity at 20 ºC: 3.92 cP
Kinematic viscosity at 20 ºC: 4.89 cSt
Kinematic viscosity at 40 ºC: Non-applicable *
Concentration: Non-applicable *

*Not relevant due to the nature of the product, not providing information property of its hazards.
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continued)

- pH: 7
- Vapour density at 20 ºC: Non-applicable *
- Partition coefficient n-octanol/water 20 ºC: Non-applicable *
- Solubility in water at 20 ºC: Non-applicable *
- Solubility properties: Soluble
- Decomposition temperature: Non-applicable *
- Melting point/freezing point: -108 ºC
- Explosive properties: Non-applicable *
- Oxidising properties: Non-applicable *

**Flammability:**
- Flash Point: 24 ºC
- Flammability (solid, gas): Non-applicable *
- Autoignition temperature: 427 ºC
- Lower flammability limit: 1.7 % Volume
- Upper flammability limit: 10.9 % Volume

**Explosive:**
- Lower explosive limit: Non-applicable *
- Upper explosive limit: Non-applicable *

9.2 Other information:
- Surface tension at 20 ºC: Non-applicable *
- Refraction index: Non-applicable *

*Not relevant due to the nature of the product, not providing information property of its hazards.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:
No hazardous reactions are expected because the product is stable under recommended storage conditions. See section 7.

10.2 Chemical stability:
Chemically stable under the conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:
Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

10.4 Conditions to avoid:
Applicable for handling and storage at room temperature:

<table>
<thead>
<tr>
<th>Shock and friction</th>
<th>Contact with air</th>
<th>Increase in temperature</th>
<th>Sunlight</th>
<th>Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Risk of combustion</td>
<td>Avoid direct impact</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

10.5 Incompatible materials:

<table>
<thead>
<tr>
<th>Acids</th>
<th>Water</th>
<th>Oxidising materials</th>
<th>Combustible materials</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid strong acids</td>
<td>Not applicable</td>
<td>Avoid direct impact</td>
<td>Not applicable</td>
<td>Avoid alkalis or strong bases</td>
</tr>
</tbody>
</table>

10.6 Hazardous decomposition products:
See subsection 10.3, 10.4 and 10.5 to find out the specific decomposition products.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:
The experimental information related to the toxicological properties of the product itself is not available

Dangerous health implications:
SECTION 11: TOXICOLOGICAL INFORMATION (continued)

In case of exposure that is repetitive, prolonged or at concentrations higher than the recommended occupational exposure limits, adverse effects on health may result, depending on the means of exposure:

A- Ingestion (acute effect):
- Acute toxicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for consumption. For more information see section 3.
- Corrosivity/Irritability: The consumption of a considerable dose can cause irritation in the throat, abdominal pain, nausea and vomiting.

B- Inhalation (acute effect):
- Acute toxicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for inhalation. For more information see section 3.
- Corrosivity/Irritability: Causes irritation in respiratory passages, which is normally reversible and limited to the upper respiratory passages.

C- Contact with the skin and the eyes (acute effect):
- Contact with the skin: Produces skin inflammation.
- Contact with the eyes: Produces serious eye damage after contact.

D- CMR effects (carcinogenicity, mutagenicity and toxicity to reproduction):
- Carcinogenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for the effects mentioned. For more information see section 3.
  IARC: Non-applicable
- Mutagenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- Reproductive toxicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

E- Sensitizing effects:
- Respiratory: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous with sensitising effects. For more information see section 3.
- Cutaneous: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

F- Specific target organ toxicity (STOT) - single exposure:
Causes irritation in respiratory passages, which is normally reversible and limited to the upper respiratory passages.

G- Specific target organ toxicity (STOT)-repeated exposure:
- Specific target organ toxicity (STOT)-repeated exposure: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.
- Skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

H- Aspiration hazard:
Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous for this effect. For more information see section 3.

Other information:
Non-applicable

Specific toxicology information on the substances:

<table>
<thead>
<tr>
<th>Identification</th>
<th>Acute toxicity</th>
<th>Genus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isobutanol</td>
<td>LD50 oral 3350 mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td>CAS: 78-83-1</td>
<td>LD50 dermal 2460 mg/kg</td>
<td>Rabbit</td>
</tr>
<tr>
<td>EC: 201-148-0</td>
<td>LC50 inhalation 24.6 mg/L (4 h)</td>
<td>Rat</td>
</tr>
</tbody>
</table>

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity:

<table>
<thead>
<tr>
<th>Identification</th>
<th>Acute toxicity</th>
<th>Species</th>
<th>Genus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isobutanol</td>
<td>LC50 2030 mg/L (96 h)</td>
<td>Carassius auratus</td>
<td>Fish</td>
</tr>
<tr>
<td>CAS: 78-83-1</td>
<td>EC50 1439 mg/L (48 h)</td>
<td>Daphnia magna</td>
<td>Crustacean</td>
</tr>
<tr>
<td>EC: 201-148-0</td>
<td>EC50 1250 mg/L (48 h)</td>
<td>Scenedesmus subspicatus</td>
<td>Algae</td>
</tr>
</tbody>
</table>
SECTION 12: ECOLOGICAL INFORMATION (continued)

12.2 Persistence and degradability:

<table>
<thead>
<tr>
<th>Identification</th>
<th>BOD5</th>
<th>Concentration</th>
<th>COD</th>
<th>Period</th>
<th>BOD5/COD</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isobutanol</td>
<td>0.4 g O2/g</td>
<td>100 mg/L</td>
<td>2.41 g O2/g</td>
<td>14 days</td>
<td>0.17</td>
<td>90 %</td>
</tr>
</tbody>
</table>

12.3 Bioaccumulative potential:

<table>
<thead>
<tr>
<th>Identification</th>
<th>BCF</th>
<th>Bioaccumulation potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isobutanol</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

12.4 Mobility in soil:

<table>
<thead>
<tr>
<th>Identification</th>
<th>Absorption/desorption</th>
<th>Volatility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koc</td>
<td>Non-applicable</td>
<td>Henry</td>
</tr>
<tr>
<td>Non-applicable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12.5 Results of PBT and vPvB assessment:

Product fails to meet PBT/vPvB criteria

12.6 Other adverse effects:

Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Waste class (Regulation (EU) No 1357/2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 05 06*</td>
<td>laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals</td>
<td>Dangerous</td>
</tr>
</tbody>
</table>

Type of waste (Regulation (EU) No 1357/2014):
HP3 Flammable, HP4 Irritant — skin irritation and eye damage, HP5 Specific Target Organ Toxicity (STOT)/Aspiration Toxicity

Waste management (disposal and evaluation):
Consult the authorized waste service manager on the assessment and disposal operations in accordance with Annex 1 and Annex 2 (Directive 2008/98/EC, The Waste Regulations 2011, 2011 No. 988). As under 15 01 (2014/955/EU) of the code and in case the container has been in direct contact with the product, it will be processed the same way as the actual product. Otherwise, it will be processed as non-dangerous residue. We do not recommended disposal down the drain. See paragraph 6.2.

Regulations related to waste management:
In accordance with Annex II of Regulation (EC) No 1907/2006 (REACH) the community or state provisions related to waste management are stated

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land:
With regard to ADR 2017 and RID 2017:
SECTION 14: TRANSPORT INFORMATION (continued)

14.1 UN number: UN1212
14.2 UN proper shipping name: ISOBUTANOL (ISOBUTYL ALCOHOL)
14.3 Transport hazard class(es): 3
   Labels: 3
14.4 Packing group: III
14.5 Environmental hazards: No
14.6 Special precautions for user
   Special regulations: Non-applicable
   Tunnel restriction code: D/E
   Physico-Chemical properties: see section 9
   Limited quantities: 5 L
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code: Non-applicable

Transport of dangerous goods by sea:
With regard to IMDG 38-16:

14.1 UN number: UN1212
14.2 UN proper shipping name: ISOBUTANOL (ISOBUTYL ALCOHOL)
14.3 Transport hazard class(es): 3
   Labels: 3
14.4 Packing group: III
14.5 Environmental hazards: No
14.6 Special precautions for user
   Special regulations: Non-applicable
   EmS Codes: F-E, S-D
   Physico-Chemical properties: see section 9
   Limited quantities: 5 L
   Segregation group: Non-applicable
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code: Non-applicable

Transport of dangerous goods by air:
With regard to IATA/ICAO 2018:

14.1 UN number: UN1212
14.2 UN proper shipping name: ISOBUTANOL (ISOBUTYL ALCOHOL)
14.3 Transport hazard class(es): 3
   Labels: 3
14.4 Packing group: III
14.5 Environmental hazards: No
14.6 Special precautions for user
   Physico-Chemical properties: see section 9
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code: Non-applicable

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:
   Candidate substances for authorisation under the Regulation (EC) No 1907/2006 (REACH): Non-applicable
   Substances included in Annex XIV of REACH ("Authorisation List") and sunset date: Non-applicable
   Regulation (EC) No 1005/2009, about substances that deplete the ozone layer: Non-applicable
   Article 95, REGULATION (EU) No 528/2012: Non-applicable
   REGULATION (EU) No 649/2012, in relation to the import and export of hazardous chemical products: Non-applicable
   Seveso III:

- CONTINUED ON NEXT PAGE -
SECTION 15: REGULATORY INFORMATION (continued)

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Lower-tier requirements</th>
<th>Upper-tier requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>P5c</td>
<td>FLAMMABLE LIQUIDS</td>
<td>5000</td>
<td>50000</td>
</tr>
</tbody>
</table>

Limitations to commercialisation and the use of certain dangerous substances and mixtures (Annex XVII REACH, etc ....):  
Non-applicable

Specific provisions in terms of protecting people or the environment:

It is recommended to use the information included in this safety data sheet as a basis for conducting workplace-specific risk assessments in order to establish the necessary risk prevention measures for the handling, use, storage and disposal of this product.

Relevant instructions for use:
(iso Butyl Alcohol)

Other legislation:
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (CDG 2009), SI 2009 No 1348  
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment (Amendment) Regulations 2011, 2011 No. 1885  
Control of Substances Hazardous to Health Regulations 2002 (as amended)  
EH40/2005 Workplace exposure limits  
The Waste Regulations 2011, 2011 No. 988

15.2 Chemical safety assessment:
The supplier has not carried out evaluation of chemical safety.

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:
This safety data sheet has been designed in accordance with ANNEX II-Guide to the compilation of safety data sheets of Regulation (EC) No 1907/2006 (Regulation (EC) No 2015/830)

Modifications related to the previous Safety Data Sheet which concerns the ways of managing risks.:
CLP Regulation (EC) No 1272/2008 (SECTION 2, SECTION 16):
- Precautionary statements

Texts of the legislative phrases mentioned in section 2:
H226: Flammable liquid and vapour
H315: Causes skin irritation
H318: Causes serious eye damage
H335: May cause respiratory irritation
H336: May cause drowsiness or dizziness

Texts of the legislative phrases mentioned in section 3:
The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3

CLP Regulation (EC) No 1272/2008:
Eye Dam. 1: H318 - Causes serious eye damage
Flam. Liq. 3: H226 - Flammable liquid and vapour
Skin Irrit. 2: H315 - Causes skin irritation
STOT SE 3: H335 - May cause respiratory irritation
STOT SE 3: H336 - May cause drowsiness or dizziness

Advice related to training:
Minimal training is recommended in order to prevent industrial risks for staff using this product and to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:
http://echa.europa.eu
http://eur-lex.europa.eu

Abbreviations and acronyms:
### SECTION 16: OTHER INFORMATION (continued)

- **ADR**: European agreement concerning the international carriage of dangerous goods by road
- **IMDG**: International maritime dangerous goods code
- **IATA**: International Air Transport Association
- **ICAO**: International Civil Aviation Organisation
- **COD**: Chemical Oxygen Demand
- **BOD5**: 5-day biochemical oxygen demand
- **BCF**: Bioconcentration factor
- **LD50**: Lethal Dose 50
- **LC50**: Lethal Concentration 50
- **EC50**: Effective concentration 50
- **Log-POW**: Octanol-water partition coefficient
- **Koc**: Partition coefficient of organic carbon

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation at European and state level, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product, it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within our awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.