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

1.1 Product identifier.

Product Name: 3-Chloro-1,2-propanediol
Product Code: 103320
Chemical Name: 3-Chloro-1,2-propanediol
CAS No: 96-24-2
EC No: 202-492-4
Registration No: N/D

1.2 Relevant identified uses of the substance and uses advised against.

For manufacturing, processing, laboratory or repacking use only

Uses advised against:
Uses other than those recommended.

1.3 Details of the supplier of the safety data sheet.

Company: DC FINE CHEMICALS Ltd.
Address: Hill Top, 88
City: NW11 6DY London (United Kingdom)
Telephone: +44 (20) 7586 6800
Fax: +44 (20) 7504 1701
E-mail: info@dcfinechemicals.com
Web: www.dcfinechemicals.com

1.4 Emergency telephone number: (Only available during office hours)

SECTION 2: HAZARDS IDENTIFICATION.

2.1 Classification of the substance.

In accordance with Regulation (EU) No 1272/2008:
- Acute Tox. 2 : Fatal if inhaled.
- Acute Tox. 4 : Harmful in contact with skin.
- Eye Irrit. 2 : Causes serious eye irritation.
- Repr. 1A : May damage fertility.
- STOT RE 1 : Causes damage to organs.

2.2 Label elements.

Labelling in accordance with Regulation (EU) No 1272/2008:

Pictograms:

Signal Word: Danger
H statements:
- H312: Harmful in contact with skin.
- H319: Causes serious eye irritation.
- H330: Fatal if inhaled.
- H360F: May damage fertility.
- H372: Causes damage to organs.

P statements:
- P201: Obtain special instructions before use.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.

-Continued on next page.-
P310  Immediately call a POISON CENTER/doctor.
P314  Get medical advice/attention if you feel unwell.
P302+P352  IF ON SKIN: Wash with plenty of water.
P304+P340  IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313  IF exposed or concerned: Get medical advice/attention.

EUH statements:
Restricted to professional users.

Contains:
3-Chloro-1,2-propanediol

2.3 Other hazards.
In normal use conditions and in its original form, the product itself does not involve any other risk for health and the environment.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS.

3.1 Substances.
Chemical Name: 3-Chloro-1,2-propanediol
CAS No: 96-24-2
CE No: 202-492-4
Registration No: N/D

3.2 Mixtures.
Not Applicable.

SECTION 4: FIRST AID MEASURES.

4.1 Description of first aid measures.
In case of doubt or when symptoms of feeling unwell persist, get medical attention. Never administer anything orally to persons who are unconscious.

Inhalation.
If wearing contact lenses, remove them. If breathing is irregular or stops, perform artificial respiration. Do not administer anything orally. If unconscious, place them in a suitable position and seek medical assistance.

Eye contact.
If wearing contact lenses, remove them. Wash eyes with plenty of clean and cool water for at least 10 minutes while pulling eyelids up, and seek medical assistance.

Skin contact.
Remove contaminated clothing. Wash skin vigorously with water and soap or a suitable skin cleaner. NEVER use solvents or thinners.

Ingestion.
If accidentally ingested, seek immediate medical attention. Keep calm. NEVER induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed.
Very Toxic Product, accidental contact may result in serious respiratory difficulties, alteration of the central nervous system and in extreme cases, unconsciousness. Immediate medical assistance is required.

4.3 Indication of any immediate medical attention and special treatment needed.
In case of doubt or when symptoms of feeling unwell persist, get medical attention. Never administer anything orally to persons who are unconscious.

SECTION 5: FIREFIGHTING MEASURES.

The product does not present any particular risk in case of fire.
The product is NOT classified as flammable, in case of fire the following measures should be taken:

5.1 Extinguishing media.
Recommended extinguishing methods.
Extinguisher powder or CO₂. In case of more serious fires, also alcohol-resistant foam and water spray. Do not use a direct stream of water to extinguish.

5.2 Special hazards arising from the substance.
Special risks.
Fire can cause thick, black smoke. As a result of thermal decomposition, dangerous products can form: carbon monoxide, carbon dioxide. Exposure to combustion or decomposition products can be harmful to your health.

5.3 Advice for firefighters.
Use water to cool tanks, cisterns, or containers close to the heat source or fire. Take wind direction into account. Prevent the products used to fight the fire from going into drains, sewers, or waterways.
Fire protection equipment.
According to the size of the fire, it may be necessary to use protective suits against the heat, individual breathing equipment, gloves, protective goggles or facemasks, and gloves.

SECTION 6: ACCIDENTAL RELEASE MEASURES.

6.1 Personal precautions, protective equipment and emergency procedures.
For exposure control and individual protection measures, see section 8.

6.2 Environmental precautions.
Prevent the contamination of drains, surface or subterranean waters, and the ground.

6.3 Methods and material for containment and cleaning up.
Pick up the spill with non-combustible absorbent materials (soil, sand, vermiculite, diatomite, etc.). Pour the product and the absorbent in an appropriate container. The contaminated area should be immediately cleaned with an appropriate decontaminator. Pour the decontaminator on the remains in an opened container and let it act various days until no further reaction is produced.

6.4 Reference to other sections.
For exposure control and individual protection measures, see section 8. For later elimination of waste, follow the recommendations under section 13.

SECTION 7: HANDLING AND STORAGE.

7.1 Precautions for safe handling.
For personal protection, see section 8. Never use pressure to empty the containers. They are not pressure-resistant containers. In the application area, smoking, eating, and drinking must be prohibited. Follow legislation on occupational health and safety. Keep the product in containers made of a material identical to the original.

7.2 Conditions for safe storage, including any incompatibilities.
Store according to local legislation. Observe indications on the label. Keep far away from ignition points. Keep away from oxidising agents and from highly acidic or alkaline materials. Do not smoke. Prevent the entry of non-authorised persons. Once the containers are open, they must be carefully closed and placed vertically to prevent spills. Classification and threshold amount of storage in accordance with Annex I to Directive 2012/18/EU (SEVESO III):

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Lower-tier requirements</th>
<th>Upper-tier requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2</td>
<td>ACUTE TOXIC</td>
<td>50</td>
<td>200</td>
</tr>
</tbody>
</table>

7.3 Specific end use(s).

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

The product does NOT contain substances with Professional Exposure Environmental Limit Values. The product does NOT contain substances with Biological Limit Values.

8.2 Exposure controls.

**Measures of a technical nature:**
Provide adequate ventilation, which can be achieved by using good local exhaust-ventilation and a good general exhaust system.

<table>
<thead>
<tr>
<th>Concentration:</th>
<th>100 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses:</td>
<td>For manufacturing, processing, laboratory or repacking use only</td>
</tr>
<tr>
<td>Breathing protection:</td>
<td></td>
</tr>
<tr>
<td>If the recommended technical measures are observed, no individual protection equipment is necessary.</td>
<td></td>
</tr>
<tr>
<td>Hand protection:</td>
<td></td>
</tr>
<tr>
<td>PPE:</td>
<td>Protective gloves.</td>
</tr>
<tr>
<td>Characteristics:</td>
<td>«CE» marking, category II.</td>
</tr>
<tr>
<td>CEN standards:</td>
<td>EN 374-1, En 374-2, EN 374-3, EN 420</td>
</tr>
<tr>
<td>Maintenance:</td>
<td>Keep in a dry place, away from any sources of heat, and avoid exposure to sunlight as much as possible. Do not make any changes to the gloves that may alter their resistance, or apply paints, solvents or adhesives.</td>
</tr>
<tr>
<td>Observations:</td>
<td>Gloves should be of the appropriate size and fit the user's hand well, not being too loose or too tight. Always use with clean, dry hands.</td>
</tr>
<tr>
<td>Material:</td>
<td>PVC (polyvinyl chloride)</td>
</tr>
<tr>
<td>Breakthrough time (min.):</td>
<td>&gt; 480</td>
</tr>
<tr>
<td>Material thickness (mm):</td>
<td>0.35</td>
</tr>
<tr>
<td>Eye protection:</td>
<td></td>
</tr>
<tr>
<td>PPE:</td>
<td>Face shield.</td>
</tr>
<tr>
<td>Characteristics:</td>
<td>«CE» marking, category II. Face and eye protector against splashing liquid.</td>
</tr>
<tr>
<td>CEN standards:</td>
<td>EN 165, EN 166, EN 167, EN 168</td>
</tr>
<tr>
<td>Maintenance:</td>
<td>Visibility through lenses should be ideal. Therefore, these parts should be cleaned daily. Protectors should be disinfected periodically following the manufacturer's instructions. Make sure that mobile parts move smoothly.</td>
</tr>
<tr>
<td>Observations:</td>
<td>Face shields should offer a field of vision with a dimension in the central line of, at least, 150 mm vertically once attached to the frame.</td>
</tr>
<tr>
<td>Skin protection:</td>
<td></td>
</tr>
<tr>
<td>PPE:</td>
<td>Protective clothing.</td>
</tr>
<tr>
<td>Characteristics:</td>
<td>«CE» marking, category II. Protective clothing should not be too tight or loose in order not to obstruct the user's movements.</td>
</tr>
<tr>
<td>CEN standards:</td>
<td>EN 340</td>
</tr>
<tr>
<td>Maintenance:</td>
<td>In order to guarantee uniform protection, follow the washing and maintenance instructions provided by the manufacturer. The protective clothing should offer a level of comfort in line with the level of protection provided in terms of the hazard against which it protects, bearing in mind environmental conditions, the user's level of activity and the expected time of use.</td>
</tr>
<tr>
<td>Observations:</td>
<td></td>
</tr>
<tr>
<td>PPE:</td>
<td>Work footwear.</td>
</tr>
<tr>
<td>Characteristics:</td>
<td>«CE» marking, category II.</td>
</tr>
<tr>
<td>CEN standards:</td>
<td>EN ISO 13287, EN 20347</td>
</tr>
<tr>
<td>Maintenance:</td>
<td>This product adapts to the first user's foot shape. That is why, as well as for hygienic reasons, it should not be used by other people.</td>
</tr>
<tr>
<td>Observations:</td>
<td>Work footwear for professional use includes protection elements aimed at protecting users against any injury resulting from an accident.</td>
</tr>
</tbody>
</table>

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES.**

9.1 Information on basic physical and chemical properties.

Appearance: Liquid
Colour: N.A./N.A.
Odour: N.A./N.A.
Odour threshold: N.A./N.A.
PH: 3-6 (5%, 20°C)
Melting point: -40°C
Boiling Point: 213°C

"Continued on next page."
Flash point: 135 °C
Evaporation rate: N.A./N.A.
Inflammability (solid, gas): N.A./N.A.
Lower Explosive Limit: N.A./N.A.
Upper Explosive Limit: N.A./N.A.
Vapour pressure: N.A./N.A.
Vapour density: N.A./N.A.
Relative density: 1.32 g/cm³
Solubility: N.A./N.A.
Liposolubility: N.A./N.A.
Hydrosolubility: N.A./N.A.
Partition coefficient (n-octanol/water): -0.53 (log Pow)
Auto-ignition temperature: N.A./N.A.
Decomposition temperature: >213°C
Viscosity: N.A./N.A.
Explosive properties: N.A./N.A.
Oxidizing properties: N.A./N.A.
N.A./N.A. = Not Available/Not Applicable due to the nature of the product

 SECTION 10: STABILITY AND REACTIVITY.

10.1 Reactivity.
The product does not present hazards by their reactivity.

10.2 Chemical stability.
Unstable in contact with:
- Bases.

10.3 Possibility of hazardous reactions.
Neutralization can occur on contact with bases.

10.4 Conditions to avoid.
- Avoid contact with bases.

10.5 Incompatible materials.
Avoid the following materials:
- Bases.

10.6 Hazardous decomposition products.
Depending on conditions of use, can be generated the following products:
- Corrosive vapors or gases.

 SECTION 11: TOXICOLOGICAL INFORMATION.

IRRITANT PREPARATION. Splatters in the eyes can cause irritation.

11.1 Information on toxicological effects.
Repeated or prolonged contact with the product can cause the elimination of oil from the skin, giving rise to non-allergic contact dermatitis and absorption of the product through the skin. Splatters in the eyes can cause irritation and reversible damage.

Toxicological information.

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Test</th>
<th>Kind</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Chloro-1,2-propanediol</td>
<td>Oral</td>
<td>DL50</td>
<td>Rat</td>
<td>26 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Dermal</td>
<td>DL50</td>
<td>Rat</td>
<td>1 g/kg</td>
</tr>
<tr>
<td></td>
<td>Inhalation</td>
<td>LC50</td>
<td>Rat</td>
<td>0.4 mg/l (4 h)</td>
</tr>
</tbody>
</table>
103320-3-Chloro-1,2-propanediol

SAFETY DATA SHEET
(in accordance with Regulation (EU) 2015/830)

CAS No: 96-24-2
EC No: 202-492-4

12.1 Toxicity.

<table>
<thead>
<tr>
<th>Name</th>
<th>Ecotoxicity</th>
<th>Type</th>
<th>Test</th>
<th>Kind</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Chloro-1,2-propanediol</td>
<td>Fish</td>
<td>LC50</td>
<td>Carassius auratus</td>
<td>5 g/l (24 h)</td>
<td></td>
</tr>
<tr>
<td>CAS No: 96-24-2  EC No: 202-492-4</td>
<td>Aquatic</td>
<td></td>
<td>invertebrates</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aquatic plants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability.
No information is available about persistence and degradability of the product.

12.3 Bioaccumulative potencial.
Information about the bioaccumulation.

<table>
<thead>
<tr>
<th>Name</th>
<th>Bioaccumulation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Log Pow</td>
</tr>
<tr>
<td>3-Chloro-1,2-propanediol</td>
<td>-0.53</td>
</tr>
</tbody>
</table>

-Continued on next page.-
12.4 Mobility in soil.
No information is available about the mobility in soil. The product must not be allowed to go into sewers or waterways. Prevent penetration into the ground.

12.5 Results of PBT and vPvB assessment.
No information is available about the results of PBT and vPvB assessment of the product.

12.6 Other adverse effects.
No information is available about other adverse effects for the environment.

SECTION 13 DISPOSAL CONSIDERATIONS.

13.1 Waste treatment methods.
Do not dump into sewers or waterways. Waste and empty containers must be handled and eliminated according to current, local/national legislation. Follow the provisions of Directive 2008/98/EC regarding waste management.

SECTION 14: TRANSPORT INFORMATION.

Transport following ADR rules for road transport, RID rules for railway, ADN for inner waterways, IMDG for sea, and ICAO/IATA for air transport.

Land: Transport by road: ADR, Transport by rail: RID.
Transport documentation: Consignment note and written instructions

Sea: Transport by ship: IMDG.
Transport documentation: Bill of lading

Air: Transport by plane: ICAO/IATA.
Transport document: Airway bill.

14.1 UN number.
UN No: UN2689

14.2 UN proper shipping name.
Description: UN 2689, GLYCEROL alpha-MONOCHLOROHYDRIN, 6.1, PG III, (E)

14.3 Transport hazard class(es).
Class(es): 6.1

14.4 Packing group.
Packing group: III

14.5 Environmental hazards.
Marine pollutant: No

14.6 Special precautions for user.
Labels: 6.1

Hazard number: 60
ADR LQ: 5 L

-Continued on next page.-
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code.
The product is not transported in bulk.

SECTION 15: REGULATORY INFORMATION.

15.1 Safety, health and environmental regulations/legislation specific for the substance.
Product classification according to Annex I of Directive 2012/18/EU (SEVESO III): H2
The product is not affected by Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products.
The product is not affected by the procedure established Regulation (EU) No 649/2012, concerning the export and import of dangerous chemicals.
Restrictions on the manufacturing, placing on the market and use of certain dangerous substances, mixtures and articles:

<table>
<thead>
<tr>
<th>Designation of the substance, of the group of substances or of the mixture</th>
<th>Conditions of restriction</th>
</tr>
</thead>
<tbody>
<tr>
<td>30. Substances which appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 classified as toxic to reproduction category 1A or 1B (Table 3.1) or toxic to reproduction category 1 or 2 (Table 3.2) and listed as follows:</td>
<td>1. Shall not be placed on the market, or used,</td>
</tr>
<tr>
<td>- Reproductive toxicant category 1A adverse effects on sexual function and fertility or on development (Table 3.1) or reproductive toxicant category 1 with R60 (May impair fertility) or R61 (May cause harm to the unborn child) (Table 3.2) listed in Appendix 5</td>
<td>- as substances,</td>
</tr>
<tr>
<td>- Reproductive toxicant category 1B adverse effects on sexual function and fertility or on development (Table 3.1) or reproductive toxicant category 2 with R60 (May impair fertility) or R61 (May cause harm to the unborn child) (Table 3.2) listed in Appendix 6</td>
<td>- in mixtures, for supply to the general public when the individual concentration in the substance or mixture is equal to or greater than:</td>
</tr>
</tbody>
</table>

Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows: ‘Restricted to professional users’.
2. By way of derogation, paragraph 1 shall not apply to:
(a) medicinal or veterinary products as defined by Directive 2001/82/EC and Directive 2001/83/EC;
(b) cosmetic products as defined by Directive 76/768/EEC;
(c) the following fuels and oil products: motor fuels which are covered by Directive 98/70/EC, mineral oil products intended for use as fuel in mobile or fixed combustion plants, fuels sold in closed systems (e.g. liquid gas bottles);
(d) artists' paints covered by Directive 1999/45/EC;
(e) the substances listed in Appendix 11, column 1, for the applications or uses listed in Appendix 11, column 2. Where a date is specified in column 2 of Appendix 11, the derogation shall apply until the said date.

15.2 Chemical safety assessment.
There has been no evaluation a chemical safety assessment of the product.

SECTION 16: OTHER INFORMATION.

Classification codes:
Acute Tox. 2 [Inhalation] : Acute toxicity (Inhalation), Category 2
Acute Tox. 4 [Dermal] : Acute toxicity (Dermal), Category 4  
Eye Irrit. 2 : Eye irritation, Category 2  
Repr. 1A : Reproductive toxicant, Category 1A  
STOT RE 1 : Specific target organ toxicity following a repeated exposure, Category 1

Sections changed compared with the previous version:
1,2,14,16

It is advisable to carry out basic training with regard to health and safety at work in order to handle this product correctly.

**Labelling in accordance with Directive 67/548/EEC:**

**Symbols:**

![Symbol T+](image)

**R Phrases:**
- R21  Harmful in contact with skin.
- R26  Very toxic by inhalation.
- R36  Irritating to eyes.
- R60  May impair fertility.
- R48/25  Toxic: danger of serious damage to health by prolonged exposure if swallowed.

**S Phrases:**
- S28  After contact with skin, wash immediately with plenty of ... (to be specified by the manufacturer).
- S45  In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S53  Avoid exposure - obtain special instructions before use.
- S36/37  Wear suitable protective clothing and gloves.

**Other Phrases:**
Restricted to professional users.

**Contains:**
3-Chloro-1,2-propanediol

**Abbreviations and acronyms used:**
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
- BCF: Bioconcentration factor.
- CEN: European Committee for Standardization.
- EC50: Half maximal effective concentration.
- PPE: Personal protection equipment.
- IATA: International Air Transport Association.
- LC50: Lethal concentration, 50%.
- LD50: Lethal dose, 50%.
- Log Pow: Logarithm of the partition octanol-water.
- NOEC: No observed effect concentration.
- RID: Regulations Concerning the International Transport of Dangerous Goods by Rail.

**Key literature references and sources for data:**
http://eur-lex.europa.eu/homepage.html
http://echa.europa.eu/

**Regulation (EU) 2015/830.**


The information in this Safety Data Sheet on the Preparation is based on current knowledge and on current EC and national laws, as far as the working conditions of the users is beyond our knowledge and control. The product must not be used for purposes other than those that are specified without first having written instructions on how to handle. It is always the responsibility of the user to take the appropriate measures in order to comply with the requirements established by current legislation. The information contained in this Safety Sheet only states a description of the safety requirements for the preparation, and it must not be considered as a guarantee of its properties.