

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

- 1.1 Product identifier:** 2106 – Glycerol 99.5% – Analytical Grade
Glycerol
CAS: 56-81-5
EC: 200-289-5
Index: Non-applicable
REACH: 01-2119471987-18-XXXX
Other means of identification:
Non-applicable
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**
Relevant uses: Research use. For professional 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:**
GERBU Biotechnik GmbH
69123 Heidelberg – Germany
Phone.: +49 6221 7264167
safety@gerbu.de
www.gerbu.de
- 1.4 Emergency telephone number:** Toxicological Information Freiburg
+49 (0) 761 19240

SECTION 2: HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture:**
CLP Regulation (EC) No 1272/2008:
The product is not classified as hazardous according to CLP Regulation (EC) No 1272/2008.
- 2.2 Label elements:**
CLP Regulation (EC) No 1272/2008:
None
- 2.3 Other hazards:**
Product fails to meet PBT/vPvB criteria

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

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

| Identification | Chemical name/Classification | Concentration |
|--|---|-------------------------------|
| CAS: 56-81-5 EC: 200-289-5 Index: Non-applicable REACH: 01-2119471987-18-XXXX | Glycerol Regulation 1272/2008 | Not classified 75 - <100 % |

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

- 3.2 Mixture:**
Non-applicable

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SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures:

Consult a doctor in case of discomfort showing the SDS for the product.

By inhalation:

In case of symptoms, move the person affected into fresh air.

By skin contact:

In case of contact it is recommended to clean the affected area thoroughly with water and neutral soap. In case of changes to the skin (stinging, redness, rashes, blisters,...), seek medical advice with this Safety data Sheet

By eye contact:

Rinse with water until the product has been eliminated. In case of problems, consult a doctor showing the SDS for the product.

By ingestion/aspiration:

In case of consumption in large quantities, it is recommended to seek medical assistance.

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:

Suitable extinguishing media:

Product is non-flammable, with a low risk of fire due to the flammability characteristics of the product in normal conditions of storage, handling and use. In the case of the existence of sustained combustion as a result of improper handling, storage or use any type of extinguishing agent can be used (ABC Powder, water,...)

Unsuitable extinguishing media:

Non-applicable

5.2 Special hazards arising from the substance or mixture:

Due to its inflammable nature, the product does not present a fire risk under normal conditions of storage, handling and use.

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:

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.

6.2 Environmental precautions:

This product is not classified as hazardous to the environment. Keep product away from drains, surface and ground water.

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SECTION 6: ACCIDENTAL RELEASE MEASURES (continued)

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

It is recommended to transfer at a slow speed to avoid the creation of electrostatic charges that could affect flammable products. 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 not necessary to take special measures to prevent environmental risks. For more information see subsection 6.2

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, fourth edition, published 2020:

| Identification | | Occupational exposure limits | |
|----------------|---------------|------------------------------|----------------------|
| Glycerol | | WEL (8h) | 10 mg/m ³ |
| CAS: 56-81-5 | EC: 200-289-5 | WEL (15 min) | |

DNEL (Workers):

| Identification | | Short exposure | | Long exposure | |
|----------------|------------|----------------|----------------|----------------|----------------------|
| | | Systemic | Local | Systemic | Local |
| Glycerol | Oral | Non-applicable | Non-applicable | Non-applicable | Non-applicable |
| CAS: 56-81-5 | Dermal | Non-applicable | Non-applicable | Non-applicable | Non-applicable |
| EC: 200-289-5 | Inhalation | Non-applicable | Non-applicable | Non-applicable | 56 mg/m ³ |

DNEL (General population):

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

| Identification | | Short exposure | | Long exposure | |
|----------------|------------|----------------|----------------|----------------|----------------------|
| | | Systemic | Local | Systemic | Local |
| Glycerol | Oral | Non-applicable | Non-applicable | 229 mg/kg | Non-applicable |
| CAS: 56-81-5 | Dermal | Non-applicable | Non-applicable | Non-applicable | Non-applicable |
| EC: 200-289-5 | Inhalation | Non-applicable | Non-applicable | Non-applicable | 33 mg/m ³ |

PNEC:

| Identification | | | | |
|----------------|--------------|----------------|-------------------------|------------|
| Glycerol | STP | 1000 mg/L | Fresh water | 0.885 mg/L |
| CAS: 56-81-5 | Soil | 0.141 mg/kg | Marine water | 0.088 mg/L |
| EC: 200-289-5 | Intermittent | 8.85 mg/L | Sediment (Fresh water) | 3.3 mg/kg |
| | Oral | Non-applicable | Sediment (Marine water) | 0.33 mg/kg |

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 Regulation (EU) 2016/425. 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

The use of protection equipment will be necessary if a mist forms or if the occupational exposure limits are exceeded.

C.- Specific protection for the hands

Non-applicable

D.- Ocular and facial protection

Non-applicable

E.- Body protection

Non-applicable

F.- Additional emergency measures

It is not necessary to take additional emergency measures.

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

Volatile organic compounds:

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

| | |
|---------------------------|-----------------------------|
| V.O.C. (Supply): | 0 % weight |
| V.O.C. density at 20 °C: | 0 kg/m ³ (0 g/L) |
| Average carbon number: | Non-applicable |
| Average molecular weight: | Non-applicable |

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

For complete information see the product datasheet.

Appearance:

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

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continued)

| | |
|--|------------------------|
| Physical state at 20 °C: | Liquid |
| Appearance: | Not available |
| Colour: | Not available |
| Odour: | Not available |
| Odour threshold: | Non-applicable * |
| Volatility: | |
| Boiling point at atmospheric pressure: | Non-applicable * |
| Vapour pressure at 20 °C: | Non-applicable * |
| Vapour pressure at 50 °C: | <300000 Pa (300 kPa) |
| Evaporation rate at 20 °C: | Non-applicable * |
| Product description: | |
| Density at 20 °C: | 1261 kg/m ³ |
| Relative density at 20 °C: | 1.261 |
| Dynamic viscosity at 20 °C: | Non-applicable * |
| Kinematic viscosity at 20 °C: | Non-applicable * |
| Kinematic viscosity at 40 °C: | Non-applicable * |
| Concentration: | Non-applicable * |
| pH: | Non-applicable * |
| Vapour density at 20 °C: | Non-applicable * |
| Partition coefficient n-octanol/water 20 °C: | Non-applicable * |
| Solubility in water at 20 °C: | |
| Solubility properties: | Non-applicable * |
| Decomposition temperature: | Non-applicable * |
| Melting point/freezing point: | 18 °C |
| Explosive properties: | Non-applicable * |
| Oxidising properties: | Non-applicable * |
| Flammability: | |
| Flash Point: | 160 °C |
| Heat of combustion: | 16.27 kJ/g |
| Flammability (solid, gas): | Non-applicable * |
| Autoignition temperature: | Non-applicable * |
| Lower flammability limit: | 2.7 % Volume |
| Upper flammability limit: | 19 % Volume |
| Explosive: | |
| Lower explosive limit: | Non-applicable * |
| Upper explosive limit: | Non-applicable * |
| 9.2 Other information: | |
| Surface tension at 20 °C: | 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:

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SECTION 10: STABILITY AND REACTIVITY (continued)

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:

| Shock and friction | Contact with air | Increase in temperature | Sunlight | Humidity |
|--------------------|------------------|-------------------------|----------------|----------------|
| Not applicable | Not applicable | Not applicable | Not applicable | Not applicable |

10.5 Incompatible materials:

| Acids | Water | Oxidising materials | Combustible materials | Others |
|--------------------|----------------|---------------------|-----------------------|-------------------------------|
| Avoid strong acids | Not applicable | Not applicable | Not applicable | Avoid alkalis or strong bases |

10.6 Hazardous decomposition products:

See subsection 10.3, 10.4 and 10.5 to find out the specific decomposition products. Depending on the decomposition conditions, complex mixtures of chemical substances can be released: carbon dioxide (CO₂), carbon monoxide and other organic compounds.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

LD50 oral > 2000 mg/kg (rat)

Dangerous health implications:

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
- Corrosivity/Irritability: Based on available data, the classification criteria are not met

B- Inhalation (acute effect):

- Acute toxicity : Based on available data, the classification criteria are not met
- Corrosivity/Irritability: Based on available data, the classification criteria are not met

C- Contact with the skin and the eyes (acute effect):

- Contact with the skin: Based on available data, the classification criteria are not met
- Contact with the eyes: Based on available data, the classification criteria are not met

D- CMR effects (carcinogenicity, mutagenicity and toxicity to reproduction):

- Carcinogenicity: Based on available data, the classification criteria are not met
IARC: Non-applicable
- Mutagenicity: Based on available data, the classification criteria are not met
- Reproductive toxicity: Based on available data, the classification criteria are not met

E- Sensitizing effects:

- Respiratory: Based on available data, the classification criteria are not met
- Cutaneous: Based on available data, the classification criteria are not met

F- Specific target organ toxicity (STOT) – single exposure:

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SECTION 11: TOXICOLOGICAL INFORMATION (continued)

Based on available data, the classification criteria are not met

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
- Skin: Based on available data, the classification criteria are not met

H- Aspiration hazard:

Based on available data, the classification criteria are not met

Other information:

Non-applicable

Specific toxicology information on the substances:

| Identification | Acute toxicity | | Genus |
|----------------|-----------------|----------------|-------|
| Glycerol | LD50 oral | 12600 mg/kg | Rat |
| CAS: 56-81-5 | LD50 dermal | Non-applicable | |
| EC: 200-289-5 | LC50 inhalation | Non-applicable | |

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity:

Not available

12.2 Persistence and degradability:

| Identification | Degradability | | Biodegradability | |
|----------------|---------------|----------------|------------------|----------|
| Glycerol | BOD5 | Non-applicable | Concentration | 100 mg/L |
| CAS: 56-81-5 | COD | Non-applicable | Period | 14 days |
| EC: 200-289-5 | BOD5/COD | Non-applicable | % Biodegradable | 63 % |

12.3 Bioaccumulative potential:

| Identification | Bioaccumulation potential | |
|----------------|---------------------------|-------|
| Glycerol | BCF | 3 |
| CAS: 56-81-5 | Pow Log | -1.76 |
| EC: 200-289-5 | Potential | Low |

12.4 Mobility in soil:

| Identification | Absorption/desorption | | Volatility | |
|----------------|-----------------------|----------------------|------------|----------------|
| Glycerol | Koc | Non-applicable | Henry | Non-applicable |
| CAS: 56-81-5 | Conclusion | Non-applicable | Dry soil | Non-applicable |
| EC: 200-289-5 | Surface tension | 6.516E-2 N/m (25 °C) | Moist soil | Non-applicable |

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:

| Code | Description | Waste class (Regulation (EU) No 1357/2014) |
|----------|--|--|
| 16 05 09 | discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08 | Non dangerous |

Type of waste (Regulation (EU) No 1357/2014):

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SECTION 13: DISPOSAL CONSIDERATIONS (continued)

Non-applicable

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

Community legislation: Directive 2008/98/EC, 2014/955/EU, Regulation (EU) No 1357/2014

SECTION 14: TRANSPORT INFORMATION

This product is not regulated for transport (ADR/RID,IMDG,IATA)

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:

Non-applicable

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.

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:

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SECTION 16: OTHER INFORMATION (continued)

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.:

Non-applicable

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:

Non-applicable

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:

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

Product safety information sheet prepared in accordance with Article 32 of Regulation (EC) 1907/2006 (REACH); this document does not constitute a Safety Data Sheet under Article 31 of Regulation (EC) No. 1907/2006, as a Safety Data Sheet is not mandatory for this product

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.

- END OF SAFETY DATA SHEET -