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

1.1. Product identifier
Product form : Mixture
Trade name : GLYCERYL TRINITRATE SOLUTION CRS
Product code : G0400100

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

1.2.1. Relevant identified uses
Main use category : The product is intended for research, analysis and scientific education.
Use of the substance/mixture : For professional use only
Function or use category : Laboratory chemicals

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet
European Directorate for the Quality of Medicines & Healthcare
EDQM, Council of Europe
67081 Strasbourg - France
T +33(0)388412035 - F +33(0)388412771
www.edqm.eu

1.4. Emergency telephone number
Emergency number : +44(0)1235239670

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
F; R11
Full text of R-phrases: see section 16
Adverse physicochemical, human health and environmental effects
No additional information available

2.2. Label elements
Labelling according to Directive 67/548/EEC or 1999/45/EC
Hazard symbols : Flammable
R-phrases : R11 - Highly flammable

2.3. Other hazards
Other hazards not contributing to the classification : Exposure may produce an allergic reaction.

SECTION 3: Composition/information on ingredients

3.1. Substance
Not applicable

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Directive 67/548/EEC</th>
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</thead>
<tbody>
<tr>
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<td>(CAS No) 64-17-5</td>
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<td></td>
<td>(EC no) 200-578-6</td>
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<td></td>
<td>(EC index no) 603-002-00-5</td>
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GLYCERYL TRINITRATE SOLUTION CRS
Safety Data Sheet

<table>
<thead>
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<th>Name</th>
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<th>%</th>
<th>Classification according to Directive 67/548/EEC</th>
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<tr>
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<td>(EC no) 200-240-8</td>
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<td>(EC index no) 603-034-01-7</td>
<td>E; R2</td>
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<td>E; R3</td>
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<td>T+; R26</td>
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<td>T+; R28</td>
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<td>N; R51/53</td>
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<td>R48</td>
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<table>
<thead>
<tr>
<th>Name</th>
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<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
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<tbody>
<tr>
<td>Ethanol</td>
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<td>(EC index no) 603-002-00-5</td>
<td>Flam. Liq. 2, H225</td>
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<tr>
<td>Glyceryl trinitrate</td>
<td>(CAS No) 55-63-0</td>
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<td>(EC index no) 603-034-01-7</td>
<td>Expl. 1.1, H201</td>
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<tr>
<td>Acute Tox. 2 (Inhalation), H330</td>
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<td>Acute Tox. 1 (Dermal), H310</td>
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<td>Acute Tox. 2 (Oral)), H300</td>
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<td>STOT RE 2, H373</td>
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</tr>
<tr>
<td>Aquatic Chronic 2, H411</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Full text of R- and H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

- **First-aid measures general**: If you feel unwell, seek medical advice (show the label where possible).
- **First-aid measures after inhalation**: Move to fresh air in case of accidental inhalation. Assure fresh air breathing. Obtain medical attention if breathing difficulty persists.
- **First-aid measures after skin contact**: Rinse skin with water/shower. Wash with plenty of soap and water.
- **First-aid measures after eye contact**: Rinse with water while holding the eyes wide open. Contact lenses should be removed. Obtain medical attention if pain, blinking or redness persist.
- **First-aid measures after ingestion**: Rinse mouth out with water. The following symptoms may occur: (see section(s) : 2, 4.2). If you feel unwell, seek medical advice.

4.2. Most important symptoms and effects, both acute and delayed

**Symptoms/injuries**: See Heading 2.

4.3. Indication of any immediate medical attention and special treatment needed

In all cases of doubt, or when symptoms persist, seek medical attention. If possible show this sheet, if not available show packaging or label. Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

**Suitable extinguishing media**: Small amounts: Use extinguishing media appropriate for surrounding fire. Large amounts: Not applicable.

5.2. Special hazards arising from the substance or mixture

- **Fire hazard**: Heating may cause a fire.
- **Explosion hazard**: Risk of explosion if heated under confinement.
- **Reactivity in case of fire**: See Heading 10.1.

5.3. Advice for firefighters

**Precautionary measures fire**: Small amounts: Use normal individual fire protective equipment. Large amounts: Not applicable.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- **General measures**: Wear suitable protective clothing, gloves and eye or face protection. Avoid any direct contact with the product. Eliminate every possible source of ignition. Use special care to avoid static electric charges. Large amounts: Not applicable.

6.1.1. For non-emergency personnel

- **Protective equipment**: See Headings 7 and 8.
- **Emergency procedures**: Spill should be handled by trained cleaning personnel properly equipped with respiratory and eye protection. Wear suitable protective clothing and gloves.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

No additional information available
6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Take up liquid spill into inert absorbent material. Ensure waste is collected and contained. Clean thoroughly. Collect all waste in suitable and labelled containers and dispose according to local legislation.

6.4. Reference to other sections

(see section(s) : 8, 13).

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed: Small amounts: See Heading 1. When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us. The attention of the user is drawn to the risks possibly incurred by using the product for any other purpose than that for which it was intended. Handle and open the container with care. Can become flammable in use.

Precautions for safe handling: Handle and open container with care. See Heading 8. Do not handle until all safety precautions have been read and understood. Avoid any direct contact with the product.

Hygiene measures: Handle in accordance with good industrial hygiene and safety procedures. Small amounts: Material should be handled in a laboratory hood whenever possible.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Local exhaust is needed at source of vapours. Comply with applicable regulations.

Storage conditions: To guarantee the quality and properties of the product, keep : dry, Keep in a cool, well-ventilated place away from heat. Store in original container. Store according to local legislation. Keep away from ignition sources (including static discharges). Keep container closed when not in use.

Incompatible products: Strong oxidizing agents.


7.3. Specific end use(s)

See Heading 1.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls: Use adequate ventilation to keep vapour concentrations below applicable standard. Material should be handled in a laboratory hood whenever possible.


Hand protection: Gloves. Chemical resistant PVC gloves (to European standard EN 374 or equivalent).

Eye protection: Wear eye protection. DIN EN 166.

Skin and body protection: Lab coat. Wear suitable protective clothing. DIN EN 13034.

Respiratory protection: Quarter mask (DIN EN 140). Wear appropriate breathing apparatus if air renewal not sufficient to maintain dust/vapour under TLV.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
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<td>Colour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour</td>
<td>Not applicable. See Heading 2, 4.2, 8.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
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<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>-114 °C (ethanol)</td>
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<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>78 °C (ethanol)</td>
</tr>
<tr>
<td>Flash point</td>
<td>12 °C</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
</tbody>
</table>
GLYCERYL TRINITRATE SOLUTION CRS

Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available
Relative density : No data available
Solubility : No data available
Log Pow : 1,62 at 20°C
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Explosive limits : No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
Stable under normal conditions. Flammable.

10.2. Chemical stability
No additional information available

10.3. Possibility of hazardous reactions
Small amounts: When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us. Large amounts: Not applicable.

10.4. Conditions to avoid

10.5. Incompatible materials
Small amounts: None under normal use. Large amounts: Not applicable.

10.6. Hazardous decomposition products
When heated to decomposition, emits dangerous fumes. Large amounts: Not applicable.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity : Not classified

<table>
<thead>
<tr>
<th>GLYCERYL TRINITRATE SOLUTION CRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>Irritation</td>
</tr>
<tr>
<td>Corrosivity</td>
</tr>
<tr>
<td>Sensitisation</td>
</tr>
<tr>
<td>Repeated dose toxicity</td>
</tr>
<tr>
<td>Carcinogenicity</td>
</tr>
<tr>
<td>Mutagenicity</td>
</tr>
<tr>
<td>Toxicity for reproduction</td>
</tr>
</tbody>
</table>

Potential adverse human health effects and symptoms : Avoid any direct contact with the product. Small amounts: When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us. See first aid section of this material safety data sheet. Large amounts: Not applicable.

SECTION 12: Ecological information

12.1. Toxicity

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>GLYCERYL TRINITRATE SOLUTION CRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
</tr>
</tbody>
</table>
12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment
No additional information available

12.6. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Regional legislation (waste) : Dispose in a safe manner in accordance with local/national regulations.
Waste treatment methods : Do not dispose of the packaging without first carrying out the necessary cleaning.
Waste disposal recommendations : Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

<table>
<thead>
<tr>
<th>ADR</th>
<th>IMGD</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1. UN number</td>
<td>1204</td>
<td>1204</td>
</tr>
<tr>
<td>14.2. UN proper shipping name</td>
<td>NITROGLYCERIN SOLUTION IN ALCOHOL</td>
<td>NITROGLYCERIN SOLUTION IN ALCOHOL</td>
</tr>
<tr>
<td>14.3. Transport hazard class(es)</td>
<td>3</td>
<td>3</td>
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<tr>
<td>14.4. Packing group</td>
<td>II</td>
<td>II</td>
</tr>
<tr>
<td>14.5. Environmental hazards</td>
<td>Dangerous for the environment : No</td>
<td>Dangerous for the environment : No</td>
</tr>
<tr>
<td>14.6. Special precautions for user</td>
<td>Dangerous for the environment : No</td>
<td>Dangerous for the environment : No</td>
</tr>
<tr>
<td>Properties and observations (IMDG)</td>
<td>Immiscible with water. Ignotes readily. When involved in a fire, evolves toxic nitrous fumes. Not explosive in this state but damage to, or leakage from, a package may allow solvent to evaporate and thus leave the nitroglycerin in an explosive state.</td>
<td></td>
</tr>
</tbody>
</table>

14.6.1. Overland transport
Classification code (ADR) : D
Special provisions (ADR) : 601
Limited quantities (ADR) : 1L
Excepted quantities (ADR) : E0
Packing instructions (ADR) : P001, IBC02
Special packing provisions (ADR) : PP5
Mixed packing provisions (ADR) : MP2
Transport category (ADR) : 2
Special provisions for carriage - Operation (ADR) : S2, S14
Tunnel restriction code (ADR) : B
EAC code : •2YE

14.6.2. Transport by sea
Limited quantities (IMDG) : 1L
Excepted quantities (IMDG) : E0
Packing instructions (IMDG) : P001
Special packing provisions (IMDG) : PP5
IBC packing instructions (IMDG) : IBC02
Stowage category (IMDG) : B
14.6.3. Air transport

PCA Excepted quantities (IATA) : E0
PCA Limited quantities (IATA) : Y341
PCA limited quantity max net quantity (IATA) : 1L
PCA packing instructions (IATA) : 371
PCA max net quantity (IATA) : 5L
CAO packing instructions (IATA) : 371
CAO max net quantity (IATA) : 60L
ERG code (IATA) : 3L

14.6.4. Inland waterway transport
Not applicable

14.6.5. Rail transport
Not applicable

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations
No REACH Annex XVII restrictions
Contains no substance on the REACH candidate list

15.1.2. National regulations
No additional information available

15.2. Chemical safety assessment
No additional information available

SECTION 16: Other information

Indication of changes:

<table>
<thead>
<tr>
<th>1.1</th>
<th>Composition/information on ingredients</th>
<th>Modified</th>
</tr>
</thead>
</table>

Full text of R-, H- and EUH-phrases:

Acute Tox. 1 (Dermal) Acute toxicity (dermal), Category 1
Acute Tox. 2 (Inhalation) Acute toxicity (inhal.), Category 2
Acute Tox. 2 (Oral) Acute toxicity (oral), Category 2
Aquatic Chronic 2 Hazardous to the aquatic environment — Chronic Hazard, Category 2
Expl. 1.1 Explosives, Division 1.1
Flam. Liq. 2 Flammable liquids, Category 2
STOT RE 2 Specific target organ toxicity — Repeated exposure, Category 2
H201 Explosive; mass explosion hazard
H225 Highly flammable liquid and vapour
H300 Fatal if swallowed
H310 Fatal in contact with skin
H330 Fatal if inhaled
H373 May cause damage to organs through prolonged or repeated exposure
H411 Toxic to aquatic life with long lasting effects
R11 Highly flammable
R2 Risk of explosion by shock, friction, fire or other sources of ignition
R26 Very toxic by inhalation
R28 Very toxic if swallowed
R3 Extreme risk of explosion by shock, friction, fire or other sources of ignition
R48 Danger of serious damage to health by prolonged exposure
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
E Explosive
F Highly flammable
N Highly flammable
T+ Very toxic
This information is based on our current knowledge and is intended to describe the product for the purposes of health and safety requirements only. It should not therefore be construed as guaranteeing any specific property of the product.