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

1.1 Product identifier
1.2 Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available.
1.3 Details of the supplier of the safety data sheet
1.4 Emergency telephone number: 24 hours: +44 (0)1856 407333

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

GHS06 skull and crossbones
Acute Tox. 3 H301 Toxic if swallowed.
Acute Tox. 2 H330 Fatal if inhaled.

GHS08 health hazard
Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

GHS05 corrosion
Skin Corr. 1B H314 Causes severe skin burns and eye damage.

GHS07
Skin Sens. 1A H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008
The substance is classified and labelled according to the CLP regulation.
Trade name: glutaral

- Hazard pictograms

GHS05  GHS06  GHS08

- Signal word Danger

- Hazard statements
H301 Toxic if swallowed.
H330 Fatal if inhaled.
H314 Causes severe skin burns and eye damage.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.

- Precautionary statements
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P320 Specific treatment is urgent (see on this label).
P362+P364 Take off contaminated clothing and wash it before reuse.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- 2.3 Other hazards
- Results of PBT and vPvB assessment
- PBT: Not applicable.
- vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

- 3.1 Chemical characterisation: Substances
- CAS No. Description
111-30-8 glutaral
- Identification number(s)
- EC number: 203-856-5
- Index number: 605-022-00-X

SECTION 4: First aid measures

- 4.1 Description of first aid measures
- General information:
Immediately remove any clothing soiled by the product.
Remove breathing equipment only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
- After inhalation:
Supply fresh air or oxygen; call for doctor.
No adverse effects are anticipated from inhalation.
- After skin contact:
Wash with water and soap and rinse thoroughly.
- After eye contact:
Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing:
Do not induce vomiting; call for medical help immediately.
Drink plenty of water and provide fresh air. Call for a doctor immediately.
Trade name: glutaral

· 4.2 Most important symptoms and effects, both acute and delayed
  No further relevant information available.

· 4.3 Indication of any immediate medical attention and special treatment needed
  No further relevant information available.

SECTION 5: Firefighting measures

· 5.1 Extinguishing media
  · Suitable extinguishing agents: Water fog - dried resin only.

· 5.2 Special hazards arising from the substance or mixture
  No further relevant information available.

· 5.3 Advice for firefighters
  · Protective equipment: Positive pressure self-contained breathing apparatus.

SECTION 6: Accidental release measures

· 6.1 Personal precautions, protective equipment and emergency procedures
  Wear protective gloves and glasses.
  Dilute with plenty of water.
  Do not allow to enter sewers/surface or ground water.

· 6.2 Environmental precautions:
  Dilute with plenty of water.
  Do not allow to enter sewers/surface or ground water.

· 6.3 Methods and material for containment and cleaning up:
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Use neutralising agent.
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.

· 6.4 Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

SECTION 7: Handling and storage

· 7.1 Precautions for safe handling
  Ensure good ventilation/exhaustion at the workplace.
  Open and handle receptacle with care.
  · Information about fire - and explosion protection:
    Extinguishing media: Water fog - dried resin only.

· 7.2 Conditions for safe storage, including any incompatibilities
  · Storage:
    · Requirements to be met by storerooms and receptacles: No special requirements.
    · Information about storage in one common storage facility: Not required.
    · Further information about storage conditions: Keep container tightly sealed.

· 7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

· Additional information about design of technical facilities: No further data; see item 7.

· 8.1 Control parameters
  · Ingredients with limit values that require monitoring at the workplace:
    111-30-8 glutaral
    · WEL
      Short-term value: 0.2 mg/m³, 0.05 ppm
      Long-term value: 0.2 mg/m³, 0.05 ppm
      Sen

(Contd. of page 2)
Trade name: glutaral

- Additional information: The lists valid during the making were used as basis.

- 8.2 Exposure controls
- Personal protective equipment:
- General protective and hygienic measures:
  Keep away from foodstuffs, beverages and feed.
  Remove all soiled and contaminated clothing
  Wash hands before breaks and at the end of work.
  Store protective clothing separately.
  Avoid contact with the eyes and skin.
- Respiratory protection:
  In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- Protection of hands:

  Protective gloves

  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
  Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- Material of gloves
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- Penetration time of glove material
  The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- Eye protection:

  Tightly sealed goggles

SECTION 9: Physical and chemical properties

- 9.1 Information on basic physical and chemical properties
- General Information
- Appearance:
  Form: Fluid
  Colour: Colourless
  Odour: Unpleasant
  Odour threshold: Not determined.
- pH-value: Not determined.
- Change in condition
  Melting point/freezing point: -6 °C
  Initial boiling point and boiling range: 187-189 °C
- Flash point: 71 °C
- Flammability (solid, gas): Not applicable.
- Decomposition temperature: Not determined.
**Trade name:** glutaral

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto-ignition temperature</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td>Explosion limits</td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Upper</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapour pressure at 70 °C</td>
<td>13 hPa</td>
</tr>
<tr>
<td>Density at 20 °C</td>
<td>1.05 g/cm³</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Solubility in / Miscibility with water</td>
<td>Fully miscible.</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
<tr>
<td>Dynamic</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Kinematic</td>
<td>Not determined.</td>
</tr>
<tr>
<td>9.2 Other information</td>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

**SECTION 10: Stability and reactivity**

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
  No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

**SECTION 11: Toxicological information**

- **11.1 Information on toxicological effects**
- **Acute toxicity**
  Toxic if swallowed.
  Fatal if inhaled.
- **LD/LC50 values relevant for classification:**
<table>
<thead>
<tr>
<th>Route</th>
<th>LD/LC50</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>LD50</td>
<td>134 mg/kg (rat)</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50</td>
<td>2,560 mg/kg (rabbit)</td>
</tr>
</tbody>
</table>
- **Skin corrosion/irritation**
  Causes severe skin burns and eye damage.
- **Serious eye damage/irritation**
  Causes severe skin burns and eye damage.
- **Respiratory or skin sensitisation**
  May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  May cause an allergic skin reaction.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
  - **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
  - **Carcinogenicity** Based on available data, the classification criteria are not met.
  - **Reproductive toxicity** Based on available data, the classification criteria are not met.
Trade name: glutaral

- STOT-single exposure
  May cause respiratory irritation.
- STOT-repeated exposure Based on available data, the classification criteria are not met.
- Aspiration hazard Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- 12.1 Toxicity
  - Aquatic toxicity: No further relevant information available.
- 12.2 Persistence and degradability No further relevant information available.
- 12.3 Bioaccumulative potential No further relevant information available.
- 12.4 Mobility in soil No further relevant information available.
- Additional ecological information:
  - General notes:
    Water hazard class 3 (German Regulation) (Assessment by list): extremely hazardous for water
    Do not allow product to reach ground water, water course or sewage system, even in small quantities.
    Must not reach sewage water or drainage ditch undiluted or unneutralised.
    Danger to drinking water if even extremely small quantities leak into the ground.
- 12.5 Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
- 12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

- 13.1 Waste treatment methods
  - Recommendation
    Must not be disposed together with household garbage. Do not allow product to reach sewage system.
  - Recommendation: Disposal must be made according to official regulations.
  - Recommended cleansing agents: Water, if necessary together with cleansing agents.

SECTION 14: Transport information

- 14.1 UN-Number
  ADR, IMDG, IATA UN2927

- 14.2 UN proper shipping name
  - ADR 2927 TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (glutaral)
  - IMDG TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (glutaral), MARINE POLLUTANT
  - IATA TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (glutaral)

- 14.3 Transport hazard class(es)
  - ADR
    - Class 6.1 Toxic substances.
Trade name: glutaral

6.1+8

6.1 Toxic substances.

6.1/8

6.1 Toxic substances.

6.1 (8)

14.4 Packing group

ADR, IMDG, IATA

I

14.5 Environmental hazards:

Marine pollutant:

Symbol (fish and tree)

Warning: Toxic substances.

668

F-A,S-B

B

SW2 Clear of living quarters.

14.6 Special precautions for user

Danger code (Kemler): 668

EMS Number: F-A,S-B

Stowage Category B

Stowage Code SW2 Clear of living quarters.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.

Transport/Additional information:

ADR

Limited quantities (LQ) 0

Excepted quantities (EQ) Code: E5

Maximum net quantity per inner packaging: 1 ml

Maximum net quantity per outer packaging: 300 ml

Transport category 1

Tunnel restriction code C/E

IMDG

Limited quantities (LQ) 0

Excepted quantities (EQ) Code: E5

Maximum net quantity per inner packaging: 1 ml

Maximum net quantity per outer packaging: 300 ml

UN "Model Regulation": UN 2927 TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (GLUTARAL), 6.1 (8), I

SECTION 15: Regulatory information

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

Directive 2012/18/EU

Named dangerous substances - ANNEX I Substance is not listed.

Seveso category H2 ACUTE TOXIC

(Contd. on page 8)
Qualifying quantity (tonnes) for the application of lower-tier requirements  50 t
Qualifying quantity (tonnes) for the application of upper-tier requirements  200 t
REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge and should assist the user with the safe handling of this material when properly applied. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Department issuing SDS: Sales department
Contact:
sales@agarscientific.com
Tel: +44 (0) 1279 813 519

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 2: Acute toxicity – Category 2
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Resp. Sens. 1: Respiratory sensitisation – Category 1
Skin Sens. 1A: Skin sensitisation – Category 1A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
* Data compared to the previous version altered.