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

- **Product identifier**: Glutaraldehyde 50% aq. soln.-vacuum distilled
- **Trade name**: Glutaraldehyde 50% aq. soln.-vacuum distilled [10 x 10ml]
- **Article number**: AGR1314
- **Relevant identified uses of the substance or mixture and uses advised against**
  No further relevant information available.
- **Application of the substance / the preparation**: Universal fixative for electron microscopy.
- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier**: Agar Scientific
  - **Address**: Elektron Technology UK Ltd
  - **Parsonage Lane
  - **Stansted CM24 8GF
  - **United Kingdom sales@agarscientific.com
  - **Tel**: +44 (0)1279 813 519

2 Hazards identification

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

  ![GHS06 skull and crossbones](image)

  Acute Tox. 3 H301 Toxic if swallowed.
  Acute Tox. 3 H331 Toxic if inhaled.

  ![GHS08 health hazard](image)

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

  ![GHS05 corrosion](image)

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

  ![GHS09 environment](image)

  Aquatic Acute 1 H400 Very toxic to aquatic life.

(Contd. on page 2)
Trade name: Glutaraldehyde 50% aq. soln.-vacuum distilled [10 x 10ml]

GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

- R23/25: Toxic by inhalation and if swallowed.
- C; Corrosive
- R34: Causes burns.
- Xn; Sensitising
- R42/43: May cause sensitisation by inhalation and skin contact.
- Xi; Irritant
- N; Dangerous for the environment

R50: Very toxic to aquatic organisms.

Information concerning particular hazards for human and environment:
The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

Label elements

- Labelling according to EU guidelines:
The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.

Code letter and hazard designation of product:

T Toxic
N Dangerous for the environment

Hazard-determining components of labelling:
gluteral

Risk phrases:
23/25 Toxic by inhalation and if swallowed.
34 Causes burns.
37 Irritating to respiratory system.
42/43 May cause sensitisation by inhalation and skin contact.
50 Very toxic to aquatic organisms.

Safety phrases:
1/2 Keep locked up and out of the reach of children.
23 Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer).
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Trade name: Glutaraldehyde 50% aq. soln.-vacuum distilled [ 10 x 10ml ]

29/56 Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
63 In case of accident by inhalation: remove casualty to fresh air and keep at rest.

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

3 Composition/information on ingredients
- Chemical characterization: Mixtures
- Description: Mixture of substances listed below with nonhazardous additions.
- Dangerous components:
  - CAS: 111-30-8
  - EINECS: 203-856-5
  - glutaral
    - T R23/25;
    - C R34;
    - Xn R42/43;
    - N R50
  - Acute Tox. 3, H301; Acute Tox. 3, H331;
  - Resp. Sens. 1, H334;
  - Skin Corr. 1B, H314;
  - Aquatic Acute 1, H400;
  - Skin Sens. 1, H317
  - 50.0%
- Additional information: For the wording of the listed risk phrases refer to section 16.

4 First aid measures
- 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.
    - In case of unconsciousness place patient stably in side position for transportation.
  - After skin contact:
    - Immediately 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.
- Information for doctor:
  - Most important symptoms and effects, both acute and delayed
    - No further relevant information available.
  - Indication of any immediate medical attention and special treatment needed
    - No further relevant information available.

5 Firefighting measures
- Extinguishing media
- Suitable extinguishing agents:
  - CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Special hazards arising from the substance or mixture
  - No further relevant information available.
Trade name: **Glutaraldehyde 50% aq. soln.-vacuum distilled [ 10 x 10ml ]**

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**
  Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
  Do not allow product to reach sewage system or any water course.
  Inform respective authorities in case of seepage into water course or sewage system.
  Dilute with plenty of water.
  Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Use neutralizing agent.
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
- **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.

**7 Handling and storage**

- **Handling:**
  - **Precautions for safe handling**
    Ensure good ventilation/exhaustion at the workplace.
    Open and handle receptacle with care.
    Prevent formation of aerosols.
  - **Information about fire - and explosion protection:** Keep respiratory protective device available.
  - **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.
    - **Specific end use(s)** No further relevant information available.

**8 Exposure controls/personal protection**

- **Additional information controls about design of technical facilities:** No further data; see item 7.
- **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 |
  - **Additional information:** The lists valid during the making were used as basis.
  - **Exposure controls**
  - **Personal protective equipment:**
  - **General protective and hygienic measures:**
    Keep away from foodstuffs, beverages and feed.
    Immediately 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. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

**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]

### 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information</strong></td>
</tr>
<tr>
<td><strong>Appearance:</strong></td>
</tr>
<tr>
<td>Form: Fluid</td>
</tr>
<tr>
<td>Colour: According to product specification</td>
</tr>
<tr>
<td>Odour: Characteristic</td>
</tr>
<tr>
<td>Odour threshold: Not determined.</td>
</tr>
<tr>
<td>pH-value: Not determined.</td>
</tr>
<tr>
<td>Change in condition</td>
</tr>
<tr>
<td>Melting point/Melting range: Undetermined.</td>
</tr>
<tr>
<td>Boiling point/Boiling range: 101 °C</td>
</tr>
<tr>
<td>Flash point: Not applicable.</td>
</tr>
<tr>
<td>Flammability (solid, gaseous): Not applicable.</td>
</tr>
<tr>
<td>Ignition temperature:</td>
</tr>
<tr>
<td>Decomposition temperature: Not determined.</td>
</tr>
<tr>
<td>Self-igniting: Product is not selfigniting.</td>
</tr>
<tr>
<td>Danger of explosion: Product does not present an explosion hazard.</td>
</tr>
<tr>
<td>Explosion limits: Lower: Not determined.</td>
</tr>
</tbody>
</table>
### Trade name: Glutaraldehyde 50% aq. soln.-vacuum distilled [ 10 x 10ml ]

<table>
<thead>
<tr>
<th>Upper:</th>
<th>Not determined.</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Vapour pressure at 20 °C:</td>
<td>23 hPa</td>
</tr>
<tr>
<td>· Density at 20 °C:</td>
<td>1.129 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>Dynamic: Not determined.</td>
</tr>
<tr>
<td></td>
<td>Kinematic: Not determined.</td>
</tr>
<tr>
<td>· Solvent content:</td>
<td>Organic solvents: 0.0 %</td>
</tr>
<tr>
<td></td>
<td>Water: 50.0 %</td>
</tr>
<tr>
<td></td>
<td>VOC (EC) 0.00 %</td>
</tr>
<tr>
<td>· Other information</td>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

### 10 Stability and reactivity

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

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

<table>
<thead>
<tr>
<th>LD/LC50 values relevant for classification:</th>
</tr>
</thead>
<tbody>
<tr>
<td>111-30-8 glutaral</td>
</tr>
<tr>
<td>Oral</td>
</tr>
<tr>
<td>Dermal</td>
</tr>
</tbody>
</table>

- **Primary irritant effect:**
  - on the skin: Caustic effect on skin and mucous membranes.
  - on the eye: Strong caustic effect.
- **Sensitization:**
  - Sensitization possible through inhalation.
  - Sensitization possible through skin contact.
- **Additional toxicological information:**
  - The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
  - Toxic
  - Harmful
  - Corrosive
  - Irritant

(Contd. on page 7)
12 Ecological information

- **Toxicity**
  - *Aquatic toxicity:* No further relevant information available.
  - *Persistence and degradability:* No further relevant information available.
  - *Behaviour in environmental systems:*
  - *Bioaccumulative potential:* No further relevant information available.
  - *Mobility in soil:* No further relevant information available.
- **Ecotoxic effects:**
  - *Remark:* Very toxic for fish
  - *Additional ecological information:*
  - *General notes:*
    Water hazard class 3 (German Regulation) (Self-assessment): 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 unneutralized.
    Danger to drinking water if even extremely small quantities leak into the ground.
    Also poisonous for fish and plankton in water bodies.
    Very toxic for aquatic organisms
- **Results of PBT and vPvB assessment**
  - *PBT:* Not applicable.
  - *vPvB:* Not applicable.
  - *Other adverse effects:* No further relevant information available.

13 Disposal considerations

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

14 Transport information

- **UN-Number**
- **ADR, IMDG, IATA**
  - UN3265
  - 3265 CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (glutaral), ENVIRONMENTALLY HAZARDOUS
  - CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (glutaral), MARINE POLLUTANT
  - CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (glutaral)

(Contd. on page 8)
Trade name: Glutaraldehyde 50% aq. soln.-vacuum distilled [ 10 x 10ml ]

- Transport hazard class(es)
  - ADR, IMDG

  - Class 8 Corrosive substances.
  - Label 8+6.1

- IATA

  - Class 8 Corrosive substances.
  - Label 8+6.1

- Packing group
  - ADR, IMDG, IATA II

- Environmental hazards:
  - Product contains environmentally hazardous substances: glutaral

- Marine pollutant:
  - Yes
  - Symbol (fish and tree)

- Special marking (ADR):
  - Symbol (fish and tree)

- Special precautions for user
  - Warning: Corrosive substances.
  - Danger code (Kemler): 86
  - EMS Number: F-A,S-B

- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
  - Not applicable.

- Transport/Additional information:
  - ADR
    - Limited quantities (LQ) 1L
    - Transport category 2
    - Tunnel restriction code E
  - UN "Model Regulation": UN3265, CORROSIVE LIQUID, ACIDIC, ORGANIC, N. O. S. (glutaral), ENVIRONMENTALLY HAZARDOUS, 8 (6.1), II

15 Regulatory information

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

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.

- Relevant phrases
  - H301 Toxic if swallowed.
  - H314 Causes severe skin burns and eye damage.
  - H317 May cause an allergic skin reaction.
H331 Toxic if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H400 Very toxic to aquatic life.
R23/25 Toxic by inhalation and if swallowed.
R34 Causes burns.
R42/43 May cause sensitisation by inhalation and skin contact.
R50 Very toxic to aquatic organisms.

**Department issuing MSDS:** 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 Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent