Safety Data Sheet
According to 1907/2006/EC, Article 31

Revision: 06/02/2020

1. Identification of the substance/mixture and of the company/undertaking
   - **Product Identifier** - Glutaraldehyde, 70% aqueous, EM Grade
   - **Article Number** - 20100 through 20150

Relevant identified uses of the substances or mixture and uses advised against.
No further relevant information available.

- **Application of the substance/preparation:** Universal fixative for electron microscopy.
- **Details of the supplier of the safety data sheet**
  
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2. Hazards identification
   - **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. 3   H331   Toxic 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

   ![GHS09 environment]
   Aquatic Acute 1   H400   Very toxic to aquatic life.
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.

3. Composition/information on ingredients
   Chemical characterization: Mixtures
   Description: Mixture of substances listed below with nonhazardous additions.
   Dangerous components:
   - CAS: 111-30-8 Glutaral 50%
   - EINECS: 203-856-5 Acute Tox. 3, H301; Acute Tox. 3, H331; Resp. Sens. 1, H334; Skin Corr. 1B, H314; Aquatic Acute 1, H400; Skin Sens. 1, H317
   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 information available.
   **Advice for firefighters**
   **Protective equipment:** Mouth respiratory protective device.

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 water.
   Do not allow to enter sewers and surface or ground waters.
   **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.
   **Special end use(s):** No further relevant information available.
8. **Exposure controls/personal protection**

   **Additional information 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: $0.2 \text{ mg/m}^3$, $0.05 \text{ ppm}$
   - Long-term value: $0.2 \text{ mg/m}^3$, $0.05 \text{ ppm}$

   **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**

   **Information on basic physical and chemical properties**

   **General information**

   **Appearance:**
   - **Form:** Fluid
   - **Color:** According to product specification
   - **Odor:** Characteristic
Odor threshold: Not determined
pH value: Not determined

Change in condition
Melting point/Melting range: Undetermined
Boiling point/Boiling range: 101°C
Flash point: Not applicable
Flammability: Not applicable

Ignition temperature:
Decomposition temperature: Not determined
Self-igniting: Product is not self-igniting
Danger of explosion: Product does not present an explosion hazard

Explosion limits:
Lower: Not determined
Upper: Not determined

Vapor pressure at 20°C: 23 hPa
Density at 20°C: 1.129 g/cm³
Relative density: Not determined
Vapor density: Not determined
Evaporation rate: Not determined

Solubility in/
Miscibility with water: Fully miscible
Partition coefficient: Not determined

Viscosity:
Dynamic: Not determined
Kinematic: Not determined

Solvent content:
Organic solvents: 0.0%
Water: 50.0%
VOC (EC): 0.00%

Other information: No further relevant information available

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:**

**LD/LC50 values relevant for classification:**

111-30-8 glutaral

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th>Value (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>LD50</td>
<td>134</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50</td>
<td>2560</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

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12. **Ecological information**

**Toxicity**

- **Aquatic toxicity:** No further relevant information available
- **Persistence and degradability:** No further relevant information available
- **Behavior in environmental systems:**
- **Bioaccumulative potential:** No further relevant information available
- **Mobility in soil:** No further relevant information available

**Ecotoxicological 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

**UN proper shipping name**

ADR  3265 Corrosive liquid, acidic, organic, n.o.s. (glutaral), Environmentally Hazardous

IMDG  Corrosive liquid, Acidic, organic, n.o.s. (glutaral)  Marine pollutant

IATA  Corrosive liquid, acidic, organic, n.o.s. (glutaral)

**Transport hazard class(es)**

ADR, IMDG  Class  8 Corrosive substances

IATA  Class  8 Corrosive substances

**Packing group**

ADR, IMDG, IATA  8 Corrosive substances

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

**Marine pollutant:** Yes

**Symbol (fish and tree):** Symbol (fish and tree)

**Special precautions for user:** Warning: Corrosive substances

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

**Transport/Additional information:**

ADR

Limited quantities (LQ)  1L
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

- **R23/25** Toxic by inhalation and if swallowed
- **R34** Causes burns
- **R42/43** May cause sensitization by inhalation and skin contact
- **R50** Very toxic to aquatic organisms

**Contact**

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**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

UN “Model Regulation”: UN3265, Corrosive liquid, acidic, organic, n.o.s. (glutaral)
Environmentally Hazardous, 8, II