GLUTARALDEHYDE, 25%
MATERIAL SAFETY DATA SHEET

INTEGRA Chemical Company
1216 6th Ave N
Kent WA 98032
Phone: 253-479-7000
24 Hour Emergency Response: CHEMTREC 800-424-9300 (Outside USA 703-527-3887)

Product Identification

Product Name: GLUTARALDEHYDE, 25%
Synonyms: 1,5-Pentandial
Chemical Formula: OHC(CH2)3CHO
Formula Weight: 100.12
Chemical Family: Aldehyde
Integra Product Numbers: G532.10

Physical Data

Boiling Point: dec. 100 °C
Melting Point: -7 °C
Vapor Pressure: 22 mm Hg @20°C
Specific Gravity: 1.062
Evaporation Rate: 0.88
Vapor Density: > 1

Solubility: Miscible with water.

Appearance and Odor: Clear, colorless liquid. Unpleasant odor.

Fire and Explosion Data

Flash Point: NA
Auto-ignition Temperature: NA
Flammable Limits (% by volume in air): Upper: NA Lower: NA

Fire Extinguishing Media:
Use extinguishing media appropriate for surrounding fire.

Special Firefighting Procedures:
Use water to cool nearby containers and structures. Wear full protective equipment, including suitable respiratory protection.

Unusual Fire and Explosion Hazards:
Fire conditions may liberate toxic and noxious fumes.

Health Hazard Information

Effects of Overexposure

Skin Contact:
Contact may cause severe irritation or burns.
Health Hazard Information

Eye Contact:
Contact is irritating to the eyes and may cause temporary corneal damage.

Ingestion:
Harmful if swallowed. Ingestion may cause nausea, vomiting and gastrointestinal irritation and burns to the mouth and throat. May damage the central nervous system, liver and kidneys.

Inhalation:
Inhalation may irritate the nose, throat and upper respiratory tract.

Chronic Effects of Overexposure:
Kidney damage, liver damage. Central nervous system damage.

Exposure Limits:

<table>
<thead>
<tr>
<th>Component</th>
<th>TWA</th>
<th>STEL</th>
<th>Ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td>Glutaraldehyde</td>
<td>NE</td>
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</table>

ACGIH TLV

<table>
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<tr>
<td>Glutaraldehyde</td>
<td>NE</td>
<td>NE</td>
<td>0.2 ppm</td>
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Toxicity Data:

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 (intraperitoneal, rat)</th>
<th>LD50 (subcutaneous, rat)</th>
<th>LD50 (skin, rabbit)</th>
<th>LD50 (oral, rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glutaraldehyde</td>
<td>17.9 mg/kg</td>
<td>2390 mg/kg</td>
<td>2560 mg/kg</td>
<td>134 mg/kg</td>
</tr>
</tbody>
</table>

Medical Conditions Generally Aggravated by Exposure:

Kidney disorders  Liver or central nervous system disorders.

Target Organs:
CNS, liver, kidneys, skin, eyes.

Reproductive Effects:
None Identified

Carcinogenicity:
None Identified

<table>
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<tr>
<th>Component</th>
<th>NTP Listing</th>
<th>IARC Listing</th>
<th>OSHA Regulated</th>
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<tr>
<td>Water</td>
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</tr>
<tr>
<td>Glutaraldehyde</td>
<td>No listing</td>
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</tr>
</tbody>
</table>

Emergency First Aid Procedures

Skin Contact:
Flush skin with plenty of water. Seek medical attention.

Eye Contact:
Flush with water for at least 15 minutes. Seek immediate medical attention.

Inhalation:
Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult administer oxygen. Seek
Emergency First Aid Procedures

Inhalation:
   medical attention.
Ingestion:
   Do not induce vomiting. If victim is conscious, give water. Never give anything by mouth to an unconscious person. Seek immediate medical attention.
Additional First aid and Treatment Notes:
   No information available

Reactivity Data

Stability: Stable
Hazardous Polymerization: Will Not Occur
Incompatibles:
   Incompatible with strong acids, strong bases, strong oxidizers.
Decomposition Products:
   Oxides of carbon (CO, CO2)
Conditions to Avoid:
   Heat.

Spill and Disposal Procedures

Spill and Leak Procedures:
   Prevent spread of spill. Absorb with sand or inert material. Sweep or scoop into a disposal container. Flush spill area with water.
Disposal Procedures:
   Dispose in accordance with all Local, State and Federal regulations.

Protective Equipment

Ventilation:
   Use general or local exhaust ventilation to meet TLV and PEL requirements.
Respiratory Protection:
   If ventilation controls do not limit airborne concentrations below PEL or TLV values, an approved respirator must be worn. Use a chemical cartridge respirator with an organic vapor cartridge.
Skin and Eye Protective Equipment:
   Safety goggles, protective clothing and gloves. Maintain an eyewash station and safety shower nearby.

Storage and Handling Precautions

Storage Area: GENERAL
   Store in a cool, dry area. Keep away from incompatible substances. Protect from direct light and minimize contact with air. Protect containers from physical damage. Store in a refrigerator for maximum shelf life.

Transportation Information

☐ Regulated Material domestic ground transportation
   (reference: CFR Title 49, Transportation)
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Transportation Information

Proper Shipping Name:
UN or NA Identification number: Hazard Class and Label:
Packing Group: Subsidiary Risk and Label:

☐ Regulated Material via Air Transportation
(reference: ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air)

Proper Shipping Name:
UN Identification Number: Hazard Class and Label:
Packing Group: Subsidiary Risk and Label:

Packing Instruction Max net qty per package

Regulatory Information

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA Inventory</th>
<th>CERCLA RQ</th>
<th>SARA EHS TPQ</th>
<th>SARA 313 Toxic Release de minimus</th>
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<tbody>
<tr>
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<tr>
<td>Glutaraldehyde</td>
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<tr>
<td>SARA Hazard Categories:</td>
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MSDS Revision History:
002 - Changed header phone number
003 - Format revisions; updated header phone number
004 - Updated Header Information

NE = Not established, NA = Not applicable or Not available

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***** END OF MSDS *****