Material Safety Data Sheet
MSDS 007
Rev: D
Product: CIDEX Plus 28 Day Solution
Issue date: 12/05/03

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Supplier:
Advanced Sterilization Products
33 Technology Drive
Irvine, CA 92618

Customer service telephone: 1-800-755-5900
Emergency telephone number: (800) 451-8346 or (760) 602-8700 - 24 hrs
Product name: CIDEXPLUS 28 Day Solution

2. COMPOSITION/INFORMATION ON INGREDIENTS

The ingredients at their given percentages in this product are not considered hazardous to your health.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Glutaraldehyde</td>
<td>111-30-8</td>
<td>&lt;5</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Polyethylene Glycol</td>
<td>25322-68-3</td>
<td>&lt;20</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Poloxamer 188</td>
<td>9003-11-6</td>
<td>&lt;5</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td>Not Determined</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

Emergency overview: None
Properties affecting health: None

Principle routes of exposure:
Oral: Can irritate the tissues of mouth, esophagus, and other tissues of the digestive system. Symptoms of over exposure can include vomiting, diarrhea and nausea.
Eye contact: Severe irritant / corrosive to the eye.
Skin contact: May cause skin irritation. May aggravate pre-existing dermatitis.
Ingestion: Ingestion of this material may cause oral thrush, nausea, vomiting, epigastric distress, diarrhea, headache, fatigue, dizziness, insomnia, mental confusion, and impairment.
Inhalation: Inhalation of mist or vapors may be severely irritating to the nose, throat and lungs.

Physico-chemical properties: This product may cause eye, skin or respiratory irritation.

Hazard information:
Target organ effects: None.
Reproductive effects: This material is not reported to cause reproductive effects in humans.
Mutagenic effects: This product is not known to produce mutagenic effects in humans.
Sensitization: May cause sensitization by inhalation and skin contact. Glutaraldehyde has been reported to cause occupational asthma and may aggravate pre-existing asthma, inflammatory or fibrotic pulmonary disease.
Carcinogenicity rating:

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS Number</th>
<th>J&amp;J:</th>
<th>NTP:</th>
<th>IARC:</th>
<th>California Proposition 65 List:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glutaraldehyde</td>
<td>111-30-8</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td>Not Determined</td>
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<td>Polyethylene Glycol</td>
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<td>9003-11-6</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td>Not Determined</td>
<td>Not Determined</td>
</tr>
</tbody>
</table>

Signs and symptoms: None.

Medical conditions aggravated by exposure: Inhalation of vapor may cause asthma-like symptoms (chest discomfort and tightness, difficulty with breathing) as well as aggravate pre-existing asthma and inflammatory or fibrotic pulmonary disease.

4. FIRST AID MEASURES

Eye contact: In the case of contact with eyes, rinse immediately with plenty of water for 15 minutes and seek medical attention.

Ingestion: Call a physician or Poison Control Center immediately.

Inhalation: Move to fresh air immediately. If experiencing difficulty breathing, seek medical attention.

Skin contact: Rinse with plenty of water. After contact with skin wash immediately with plenty of water. Immediately remove contaminated clothing and shoes. Wash contaminated clothing before reuse. Seek medical attention if symptoms appear.

Protection of first-aiders: None.

Notes to physician: Probable damage to the mucosa from oral exposure may contraindicate the use of gastric lavage.

5. FIRE-FIGHTING MEASURES

Flash point (°F): Unknown on product.
Flash point (°C): Unknown on product.
Autoignition temperature: Unknown on product.
Flammable limits in air - lower (%): Unknown on product.
NFPA rating: Health: 2 Flammability: 0 Reactivity: 0
HMIS/ NFPA rating and classification: 2 0 0

Fire fighting information:

Suitable extinguishing media: Use water, dry chemical, carbon dioxide or chemical foam.

Extinguishing media which must not be used for safety reasons: None.

Specific methods: None.
6. ACCIDENTAL RELEASE MEASURES

**Personal precautions:**
Wear eye and skin protection while handling material for clean-up.
(Wear nitrile or latex gloves.)
Responders should wear gloves, goggles and suitable body protection. Where there is a risk of product contact with shoes, chemical resistant shoe coverings are recommended.

**Environmental precautions:**
No special environmental precautions required.

**Methods for cleaning up:**
Clean-up methods - small spillage
Neutralize with a mixture of equal amounts of household ammonia and water.
Flush with water.
Clean-up methods - large spillage
Contain spill by placing suitable absorbent material around the edges of the spill and work inward. Carefully scoop up into waste container for disposal.
For each estimated gallon of spill disperse about 228g of sodium bisulfite powder on spill. Thoroughly blend sodium bisulfite into CIDEX Solution. Allow 5 minutes for deactivation.

7. HANDLING AND STORAGE

**Handling:**

**Technical measures/precautions:**
No special technical protective measures required.

**Safe handling advice:**
Use only in well-ventilated areas. Avoid contact with skin and eyes. Eye and skin protection recommended. Wear chemical resistant gloves.

**Storage:**

**Technical measures/storage conditions:**
This product should be stored between 59°F (15°C) and 86°F (30°C)

**Incompatible products:**
Avoid contact with strong acids and bases.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering controls:**
Ensure adequate ventilation.
Rooms where CIDEX Solution is used should have a minimum of 10 air exchanges per hour.

**Eye protection:**
Eye protection recommended during production of product. For routine use, wear approved chemical splash goggles. Where there is risk of product splashing into eyes, an independent faceshield must be worn.

**Hand protection:**
Protective gloves recommended when manufacturing product. Wear chemical resistant gloves. Gloves should be changed frequently during use of product. Do not use neoprene or polyvinyl chloride (vinyl) gloves as glutaraldehyde may be rapidly absorbed by these materials.
Skin and body protection  Wear suitable protective clothing. Wear chemical resistant lab coat.
Respiratory protection: None required.
Other/general protection: None required.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>colorless</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>pH</td>
<td>3.2-4.3 (unactivated) 7.5-8.1 (activated)</td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic aldehyde odor</td>
</tr>
<tr>
<td>Boiling temperature (°F)</td>
<td>212</td>
</tr>
<tr>
<td>Boiling temperature (°C)</td>
<td>100</td>
</tr>
<tr>
<td>Freezing point/range (°C)</td>
<td>0</td>
</tr>
<tr>
<td>Freezing point/range (°F)</td>
<td>32</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.029g/cc</td>
</tr>
<tr>
<td>Vapor density</td>
<td>1.1</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>1.0</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Completely soluble</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical stability</td>
<td>Stable under recommended storage conditions.</td>
</tr>
<tr>
<td>Hazardous polymerization</td>
<td>Hazardous polymerization does not occur.</td>
</tr>
<tr>
<td>Hazardous decomposition products:</td>
<td>None.</td>
</tr>
<tr>
<td>Materials to avoid</td>
<td>Strong acids and bases.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Temperatures above 40°C for an extended period of time.</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td></td>
</tr>
<tr>
<td>LD50 Oral Rat (mg/kg)</td>
<td>4250mg/kg</td>
</tr>
<tr>
<td>LD50 Dermal Rabbit (mg/kg)</td>
<td>&gt;2000mg/kg</td>
</tr>
<tr>
<td>Local effects</td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>Unknown on product.</td>
</tr>
<tr>
<td>Eye irritation</td>
<td>Severe irritant and corrosive to the eye when tested in animals.</td>
</tr>
<tr>
<td>Skin irritation</td>
<td>Skin contact may aggravate pre-existing dermatitis.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Inhalation of vapor may cause asthma-like symptoms as well as aggravate pre-existing asthma and inflammatory or fibrotic pulmonary disease</td>
</tr>
<tr>
<td>Chronic toxicity</td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>Unknown on product.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Unknown on product.</td>
</tr>
<tr>
<td>Dermal</td>
<td>Unknown on product.</td>
</tr>
<tr>
<td>Subchronic toxicity</td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>Subchronic drinking water studies in rats, mice and dogs using glutaraldehyde concentrations of up to 1000ppm showed no evidence for any target organ toxicity.</td>
</tr>
<tr>
<td>Dermal</td>
<td>Unknown on product.</td>
</tr>
</tbody>
</table>
Specific effects

Corrosive effects: Unknown on product.
Sensitization: When administered to the skin of guinea pigs using the maximization method the compound was found to be a mild sensitizer.
Target organ effects: None.
Mutagenic effects: In vitro studies have given results varying from no genotoxicity to equivocal or weakly positive activity; however, all in vivo studies have been uniformly negative.
Reproductive effects: Was not a reproductive effector in animals.
Developmental effects: At maternally non-toxic doses, glutaraldehyde does not produce fetotoxic, embryotoxic nor teratogenic effects.
Carcinogenic effects: No carcinogenic effects were observed in mice or rats.

[12. ECOLOGICAL INFORMATION]

Ecotoxicity:
Ecotoxicity effects: This product has no known eco-toxicological effects.
Aquatic toxicity effects: This product has no known aquatic toxicological effects.
Mobility: Unknown on product.
Persistence / degradability: Unknown on product.
Bioaccumulation: Unknown on product.
Degradation: Unknown on product.

[13. DISPOSAL CONSIDERATIONS]

Waste from residues / unused products: Waste disposal must be in accordance with appropriate US, Federal, State and International regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

Contaminated packaging: None.

Methods for cleaning up:
Clean-up methods - small spillage
Neutralize with a mixture of equal amounts of household ammonia and water.
Flush with water.
Clean-up methods - large spillage
Contain spill by placing suitable absorbent material around the edges of the spill and work inward. Carefully scoop up into waste container for disposal.
For each estimated gallon of spill disperse about 228g of sodium bisulfite powder on spill. Thoroughly blend sodium bisulfite into CIDEX Solution. Allow 5 minutes for deactivation.

[14. TRANSPORT INFORMATION]

DOT:
DOT UN-No: Not applicable
DOT shipping name: Not regulated
Hazard class: Not applicable
Subsidiary risk (hazard class): Not applicable
Packing group: Not applicable
DOT reportable quantity (lbs): Not applicable
IMDG:
- Hazard class: Not applicable
- IMDG page: Not applicable
- IMDG-labels: Not applicable
- Packing group: Not applicable
- MFAG table No.: Not applicable
- Proper shipping name: Not regulated
- UN/Id No.: Not applicable

ADR/RID:
- Hazard class/packing group: Not applicable
- Item: Not applicable.
- ADR/RID-labels: Not applicable
- UN/Id No.: Not applicable
- Proper shipping name: Not regulated
- TREM-card: Not applicable

IATA/ICAO:
- Hazard class: Not applicable
- Packing group: Not applicable
- Proper shipping name: Not regulated
- ID/UN No.: Not applicable
- IATA - label: Not applicable
- ERG #: Not applicable

TDG (Canada):
- Status: Not applicable
- Packing group: Not applicable

15. REGULATORY INFORMATION

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS Number</th>
<th>Weight %</th>
<th>ACGIH TLV (TWA - 8hr)</th>
<th>ACGIH TLV (STEL)</th>
<th>ACGIH TLV (Ceiling Limits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glutaraldehyde</td>
<td>111-30-8</td>
<td>&lt;5</td>
<td></td>
<td></td>
<td>0.2 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS Number</th>
<th>Weight %</th>
<th>OSHA (TWA - 8hr)</th>
<th>OSHA (STEL)</th>
<th>OSHA (Ceiling Limits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glutaraldehyde</td>
<td>111-30-8</td>
<td>&lt;5</td>
<td></td>
<td></td>
<td>0.8 mg/m³</td>
</tr>
</tbody>
</table>

SARA (311, 312) hazard class:
- Immediate health: None
- Delayed health: None
- Fire: None
- Sudden Release of Pressure Hazard: None
- Reactivity: None

|---------------|------------|----------|----------------------|------------------------|-------------------------|-------------------------------------|------------------------|

TSCA inventory list: Listed under TSCA: Yes

WHMIS:
- WHMIS trade secret: None
- WHMIS hazard class: None

Canada DSL inventory list: Listed on DSL: Yes

Company: ADVANCED STERILIZATION PRODUCTS
Product code: ASPCIDEXPLUS
Product name: CIDEXPLUS 28 Day Solution
Product code: CO-29503-3
Notes:
1. SARA = Superfund Amendments and the Reauthorization Act.
2. CERCLA = Comprehensive Environmental Response, Compensations and Liability Act.
3. FIFRA = Federal Insecticide, Fungicide and Rodenticide Act
4. TSCA = Toxic Substance Control Act
5. WHMIS = Canadian Workplace Hazardous Materials Information System
6. This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

6. OTHER INFORMATION

This data sheet contains changes from the previous version in section(s):
None

Additional advice
None

Literary Reference:
None

MSDS format:
North American Format - U.S. and Canada
This Material Safety Data Sheet was prepared in accordance with OSHA 29 CFR 1910.1200.

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End of Safety Data Sheet