Safety Data Sheet

Product Name: A-1100 Amino Silane mixture
MSDS Date: 1/12/2016

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: A-1100 Amino Silane epoxy pre-treatment mixture
Manufacturer: His Glassworks, Inc.
2000 Riverside Drive, Suite 19
Asheville, NC 28804
800-914-7463

Emergency Phone number: ChemTel, Inc.
Toll Free: 800-255-3924
International: +813-248-0585

2. HAZARDS IDENTIFICATION

Classification of the mixture: Flammable Liquids - Category 4
Skin Corrosion/Irritation - Category 1b
Eye Damage/Eye Irritation - Category 1
Skin sensitization - Category 1
Hazard Statements

Danger
H227 Combustible liquid
H302 Harmful if swallowed
H318 Causes serious eye damage
H317 May cause an allergic skin reaction

Precaution Statements

Wear protective gloves
Wear eye or face protection
Wear protective clothing
Keep away from flames and hot surfaces
Avoid breathing vapor
Do not eat, drink, or smoke when using this product
Wash hands thoroughly after handling
Contaminated work clothing should not be allowed out of the workplace

Response:

If Inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a Poison Center or physician.
If Swallowed: Immediately call a Poison Center or physician. Rinse mouth. Do NOT induce vomiting.
If on skin: Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Call a Poison Center or physician if you feel unwell. If eye irritation persists, get medical attention.

Storage:

Store locked up
P403 Store in a well ventilated place.
P235 Keep cool

Disposal:

P501 Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification:
None known.
2. COMPOSITION AND INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS#</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>&lt; 98%</td>
</tr>
<tr>
<td>Gamma-Aminopropyltriethoxysilane</td>
<td>919-30-2</td>
<td>&lt; 3%</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present. Call a physician.

**Skin Contact:** Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before reuse. Call a physician if irritation develops or persists.

**Eye Contact:** Rinse immediately with plenty of water, also under the eyelids for at least 15 minutes. Call a physician, preferably an ophthalmologist.

**Ingestion:** Do not induce vomiting without medical advice. Immediate medical attention is required. Never give anything by mouth to an unconscious person. Call a physician.

**Notes to Physician**

**Treatment:** Treat symptomatically.

5. FIRE-FIGHTING MEASURES

**Flash Point:** 12º C (54º F), closed cup

**Ignition temperature:** 399º C (750º F)

**Lower explosion limit:** 2.0% (V)

**Upper explosion limit:** 12.0% (V)

**Suitable extinguishing media:** Alcohol resistant foam, Carbon dioxide (CO₂)
Dry Chemical

Cool closed containers exposed to fire with water spray.

Extinguishing media which shall not be used for safety reasons:

Do not use a solid water stream as it may scatter and spread fire.

Specific hazards during fire fighting:

Flammable.

Vapors may form explosive mixtures with air.

Specific hazards during fire fighting:

Vapors are heavier than air and may spread along floors.

Vapors may travel to areas away from work site before igniting back to vapor source.

In case of fire, hazardous decomposition products may be produced such as:

- carbon monoxide
- carbon dioxide (CO₂)

Special protective equipment for fire-fighters:

Wear self-contained breathing apparatus and protective suit.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions:**

Wear personal protective equipment

Immediately evacuate personnel to safe areas.

Keep people away from and upwind of spill.

Ensure adequate ventilation.

Remove all sources of ignition.

Do not swallow.

Avoid breathing vapors, mist or gas.

Avoid contact with skin, eyes and clothing.

**Environmental precautions:**

Prevent further leakage or spillage if safe to do so.

Discharge into the environment must be avoided.
Environmental precautions: Do not flush into surface water or sanitary sewer system.

Prevent product from entering drains.

Collect contaminated fire extinguishing water separately. This must not discharge into drains.

Methods for clean-up: Ventilate the area.

No sparking tools should be used.

Use explosion proof equipment.

Methods for clean-up: Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Handling:

Handling: Wear personal protective equipment.

Use only in well ventilated areas.

Keep container tightly closed.

Do not smoke.

Do not swallow.

Avoid breathing vapors, mist or gas.

Avoid contact with skin, eyes and clothing.

Advice on protection against fire and explosion:

Keep away from fire, sparks and heated surfaces.

Take precautionary measures against static discharges.

Ensure all equipment is electrically grounded before beginning transfer operations.

Use explosion proof equipment.

Keep product and empty container away from heat and sources of ignition.

No sparkling tools should be used.
No smoking.

Storage

Requirements for storage areas and containers:
- Store in area designed for storage of flammable liquids.
- Protect from physical damage.
- Keep containers tightly closed in dry, cool and well ventilated place.
- Containers which are opened must be carefully resealed and kept upright to prevent leakage.
- Keep away from heat and sources of ignition.

Requirements for storage areas and containers:
- Keep away from direct sunlight.
- Store away from incompatible substances.
- Container hazardous when empty.
- Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Protective Measures: Ensure that eyewash stations and safety showers are close to the workstation location.

Engineering measures: Use with local exhaust ventilation.
- Prevent vapor buildup by providing adequate ventilation during and after use.

Eye protection: Do not wear contact lenses.
- Wear safety glasses with side shields.

Hand protection: Solvent resistant gloves.

Skin and body protection: Solvent resistant apron.
- Flame retardant antistatic protective clothing.

Respiratory protection: In case of sufficient ventilation wear suitable respiratory equipment.

Hygiene measures: When using, do not eat or drink or smoke.
Hygiene measures:

- Wash hands before breaks and immediately after handling the product.
- Keep work clothes separate.
- Remove and wash contaminated clothing before re-use.
- Do not swallow.
- Avoid breathing vapors, mist or gas.
- Avoid contact with skin, eyes and clothing.

### Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropanol</td>
<td>TWA</td>
<td>200ppm</td>
</tr>
<tr>
<td></td>
<td>STEL</td>
<td>400ppm</td>
</tr>
</tbody>
</table>

### 9. PHYSICAL AND CHEMICAL PROPERTIES

- **Form:** Liquid, clear
- **Color:** Colorless
- **Odor:** Slight alcoholic
- **Molecular Weight:** 60.11 g/mol
- **pH:** not applicable
- **Melting point/range:** -88° C (-126° F)
- **Boiling point/range:** 82.3° C (180.1° F)
- **Vapor pressure:** 44hPa @ 20° C (68° F)
- **Relative vapor density:** 2.1 (Air = 1.0)
- **Density:** 0.785g/cm³ @ 20° C (68° F)
- **Water solubility:** completely soluble
- **Viscosity, dynamic:** 2.1mPas @ 25° C (77° F)
# 10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Conditions to avoid:</th>
<th>Heat, flames and sparks.</th>
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<tbody>
<tr>
<td></td>
<td>Keep away from direct sunlight.</td>
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</table>

<table>
<thead>
<tr>
<th>Materials to avoid:</th>
<th>Strong acids.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Strong oxidizing agents.</td>
</tr>
<tr>
<td></td>
<td>Keep away from metals.</td>
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<tr>
<td></td>
<td>Acetaldehyde.</td>
</tr>
<tr>
<td></td>
<td>Aluminum.</td>
</tr>
<tr>
<td></td>
<td>Chlorine</td>
</tr>
<tr>
<td></td>
<td>Ethylene oxide</td>
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</table>

<table>
<thead>
<tr>
<th>Materials to avoid:</th>
<th>Isocyanates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Oxygen</td>
</tr>
<tr>
<td></td>
<td>May attack plastics, rubbers and coatings.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazardous decomposition products:</th>
<th>In case of fire hazardous decomposition products may be produced such as:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Carbon monoxide</td>
</tr>
<tr>
<td></td>
<td>Carbon dioxide (CO₂)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazardous reactions:</th>
<th>Hazardous polymerisation does not occur.</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Stable under recommended storage conditions.</td>
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</tbody>
</table>

# 11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Acute oral toxicity:</th>
<th>LD50 rat</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dose: 5045 mg/kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acute dermal toxicity:</th>
<th>LD50 rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dose: 12800 mg/kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acute inhalation toxicity:</th>
<th>LC50 rat</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dose: 16000 ppm</td>
</tr>
</tbody>
</table>
Skin irritation: rabbit
Mild skin irritation

Eye irritation: rabbit
Severe eye irritation

12. ECOLOGICAL INFORMATION

Biodegradability: Biochemical Oxygen Demand (EOD) Biochemical oxygen demand within 5 days.
Biodegradisation: 58%

Toxicity to fish: LC50
Species: Goldfish
Dose: 5g/l
Exposure time: 24h

Additional ecological information: Should not be released into the environment. Accumulation in aquatic organisms is unlikely.

13. DISPOSAL CONSIDERATIONS

Observe all Federal, State and Local Environmental regulations.

14. TRANSPORT INFORMATION

DOT Classification:
Proper shipping name: Flammable liquids, corrosive, n.o.s.
Class: 3(8)
UN ID#: UN2924
Packing Group: II
His Glassworks, Inc. - A-1100 Amino Silane Mixture MSDS Sheets
Revision Date 01/12/2016

IATA Classification:

Proper shipping name: Flammable liquids, corrosive, n.o.s. (Isopropanol)
Class: 3(8)
UN ID#: UN2924
Packing Group: II

15. REGULATORY INFORMATION

EU. EINECS: on the inventory or in compliance with the inventory
US Toxic Substances Control Act: On TSCA Inventory
Australia (Industrial Chemical Notification and Assessment Act): On the inventory or in compliance with the inventory
Canada: All components of this product are on the Canadian DSL list.
Japan: On the inventory or in compliance with the inventory
Korea: On the inventory or in compliance with the inventory
Phillipines: On the inventory or in compliance with the inventory
China: On the inventory or in compliance with the inventory
Switzerland: On the inventory or in compliance with the inventory
New Zealand: On the inventory or in compliance with the inventory

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>HMIS III</th>
<th>NFPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health:</td>
<td>2</td>
</tr>
<tr>
<td>Flammability</td>
<td>3</td>
</tr>
<tr>
<td>Reactivity:</td>
<td>0</td>
</tr>
<tr>
<td>Personal Protection</td>
<td>0</td>
</tr>
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</table>