1. Product and Company Identification

Material name: Hyloseal 620

Version #: 01

Issue date: 24-July-2013

Revision date: -

Supersedes date: -

CAS #: Mixture

MSDS Number: 38

Product use: Semi-hardening gasketing/sealing compound.

Manufacturer information

Manufacturer: Hylomar Ltd.

Address: Hylo House, Cale Lane, New Springs, Wigan, Greater Manchester, UK, WN2 1JT

Telephone number: +44(0)1942 617000

E-mail address: info@hylomar.co.uk

Contact person: Technical Department

Emergency telephone: 1.866.519.4752 (USA, Canada, Mexico)

Access code: 333544

2. Hazards Identification

Physical state: Liquid.

Appearance: Viscous liquid.

Emergency overview: DANGER

Causes severe skin and eye burns. May cause respiratory tract irritation.

OSHA regulatory status: This product is hazardous according to OSHA 29 CFR 1910.1200.

Potential health effects

Routes of exposure

Eyes: Causes severe eye burns.

Skin: Causes severe skin burns.

Inhalation: May cause respiratory tract irritation.

Ingestion: May be harmful if swallowed.

Target organs: Eyes. Skin Digestive tract. Respiratory system.

Signs and symptoms: Causes burns. Extreme irritation of eyes and mucous membranes, including burning and tearing.

Potential environmental effects: Harmful to aquatic life with long lasting effects.

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2'-dimethyl-4,4'methylenebis(cyclohexylamine)</td>
<td>6864-37-5</td>
<td>10</td>
</tr>
<tr>
<td>Caprolactam</td>
<td>105-60-2</td>
<td>&lt; 5</td>
</tr>
<tr>
<td>3-Glycidoxypropyltrimethoxysilane</td>
<td>2530-83-8</td>
<td>1</td>
</tr>
</tbody>
</table>

Composition comments: All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
4. First Aid Measures

First aid procedures

Eye contact
Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids wide apart. If irritation persists: Continue flushing during transport to hospital. Take along these instructions.

Skin contact
Immediately take off all contaminated clothing. Wash off immediately with soap and plenty of water. Wash contaminated clothing before reuse. Get immediate medical attention.

Inhalation
If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.

Ingestion
Rinse mouth. Drink a few glasses of water or milk. Get immediate medical attention.

Notes to physician
Provide general supportive measures and treat symptomatically.

General advice
If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties
The product is not flammable.

Extinguishing media

Suitable extinguishing media
Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire.

Protection of firefighters

Specific hazards arising from the chemical
By heating and fire, toxic vapors/gases may be formed.

Protective equipment and precautions for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

Fire fighting equipment/instructions
Use standard firefighting procedures and consider the hazards of other involved materials. Cool containers exposed to heat with water spray and remove container, if no risk is involved. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental Release Measures

Personal precautions
Avoid contact with skin and eyes. Wear protective clothing as described in Section 8 of this MSDS. In case of spills, beware of slippery floors and surfaces.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not discharge into drains, water courses or onto the ground.

Methods for cleaning up
Scrape up the spilled material. Transfer to a container for disposal. Following product recovery, flush area with water. For waste disposal, see Section 13 of the MSDS.

Other information
Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling
Avoid contact with skin and eyes. Wear protective clothing as described in Section 8 of this safety data sheet. Wash thoroughly after handling. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

Storage
Keep away from heat, spark, open flames and other sources of ignition. Keep container tightly closed in a cool, well-ventilated place. Store away from incompatible materials.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caprolactam (CAS 105-60-2)</td>
<td>TWA</td>
<td>5 mg/m3</td>
<td>Inhalable fraction and vapor.</td>
</tr>
</tbody>
</table>
### Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caprolactam (CAS 105-60-2)</td>
<td>TWA</td>
<td>5 mg/m³</td>
</tr>
</tbody>
</table>

### Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caprolactam (CAS 105-60-2)</td>
<td>STEL</td>
<td>3 mg/m³</td>
<td>Dust.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Dust.</td>
</tr>
</tbody>
</table>

### Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caprolactam (CAS 105-60-2)</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Inhalable fraction and vapor.</td>
</tr>
</tbody>
</table>

### Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caprolactam (CAS 105-60-2)</td>
<td>STEL</td>
<td>46 mg/m³</td>
<td>Vapor.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 mg/m³</td>
<td>Dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 ppm</td>
<td>Vapor.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>23 mg/m³</td>
<td>Vapor.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 mg/m³</td>
<td>Dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 ppm</td>
<td>Vapor.</td>
</tr>
</tbody>
</table>

### Mexico. Occupational Exposure Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caprolactam (CAS 105-60-2)</td>
<td>STEL</td>
<td>40 mg/m³</td>
<td>Vapor.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 mg/m³</td>
<td>Dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 ppm</td>
<td>Vapor.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>20 mg/m³</td>
<td>Vapor.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 mg/m³</td>
<td>Dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 ppm</td>
<td>Vapor.</td>
</tr>
</tbody>
</table>

**Exposure guidelines**
Follow standard monitoring procedures.

**Engineering controls**
Provide adequate ventilation. Observe occupational exposure limits and minimize the risk of exposure.

**Personal protective equipment**

- **Eye / face protection**
  Wear approved safety glasses or goggles.

- **Skin protection**
  Wear protective gloves. Neoprene or nitrile gloves are recommended. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier. Normal work clothing (long sleeved shirts and long pants) is recommended.

- **Respiratory protection**
  Under normal conditions, respirator is not normally required. When engineering controls are not sufficient to lower exposure levels below the applicable exposure limit, use a NIOSH approved respirator.

- **General hygiene considerations**
  Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

### 9. Physical & Chemical Properties

- **Appearance**
  Viscous liquid.

- **Physical state**
  Liquid.

- **Form**
  Liquid.

- **Color**
  Light blue.

- **Odor**
  Mild.

- **Odor threshold**
  Not available.
pH Not available.
Vapor pressure Not available.
Vapor density Not available.
Boiling point Not available.
Melting point/Freezing point Not available.
Solubility (water) Insoluble in water.
Specific gravity 1.05 (20 °C)
Flash point Not available.
Flammability limits in air, upper, % by volume Not available.
Flammability limits in air, lower, % by volume Not available.
Auto-ignition temperature Not available.
Evaporation rate Not available.
Viscosity 20000 mPa·s (20 °C)

10. Chemical Stability & Reactivity Information

Chemical stability Material is stable under normal conditions.
Conditions to avoid Contact with incompatible materials.
Incompatible materials Strong oxidizing agents. Acids.
Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.

11. Toxicological Information

Toxicological data

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caprolactam (CAS 105-60-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>&gt; 2000 mg/kg</td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>Rat</td>
<td>8.16 mg/l, 4 hours</td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>1475 mg/kg</td>
</tr>
<tr>
<td>Sensitization</td>
<td></td>
<td>No sensitizing effects known.</td>
</tr>
<tr>
<td>Local effects</td>
<td></td>
<td>Causes skin and eye burns. May cause respiratory tract irritation.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td></td>
<td>Not classified.</td>
</tr>
</tbody>
</table>

ACGIH Carcinogens
Caprolactam (CAS 105-60-2) Not suspected as a human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity
Caprolactam (CAS 105-60-2) Probably not carcinogenic to humans.

Mutagenicity Not classified.
Reproductive effects Not classified.
Symptoms and target organs Causes severe skin burns and eye damage.
Further information No other specific acute or chronic health impact noted.
12. Ecological Information

<table>
<thead>
<tr>
<th>Ecotoxicological data Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caprolactam (CAS 105-60-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algae</td>
<td>EC50</td>
<td>&gt; 1000 mg/l, 72 hours</td>
</tr>
<tr>
<td>Green algae (Selenastrum capricornutum)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>&gt; 1000 mg/l, 48 hours</td>
</tr>
<tr>
<td>Daphnia magna</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>707.1 mg/l, 96 hours</td>
</tr>
<tr>
<td>Salmo gairdneri</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ecotoxicity: Harmful to aquatic life with long lasting effects.

Environmental effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Aquatic toxicity: Not classified.

Persistence and degradability: No data is available on the degradability of this product.

Bioaccumulation / Accumulation: Not available.

Partition coefficient: Caprolactam (CAS 105-60-2) 0.12

Mobility in environmental media: The product is insoluble in water.

13. Disposal Considerations

Waste codes: The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Disposal instructions: Do not discharge into drains, water courses or onto the ground. Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Waste from residues / unused products: Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport Information

DOT

Basic shipping requirements:
- UN number: UN1760
- Proper shipping name: Corrosive liquids, n.o.s. (2,2'-dimethyl-4,4'methylenebis (cyclohexylamine))
- Hazard class: 8
- Packing group: II
- Environmental hazard: No

Additional information:
- Marine pollutant: No
- Special provisions: B2, IB2, T11, TP2, TP27
- Packaging exceptions: 154
- Packaging non bulk: 202
- Packaging bulk: 242

IATA

UN number: UN1760
- UN proper shipping name: Corrosive liquid, n.o.s. (2,2'-dimethyl-4,4'methylenebis (cyclohexylamine))
- Transport hazard class(es): 8
- Packing group: II
- Environmental hazards: No
- Labels required: 8
- ERG code: 8L

IMDG

UN number: UN1760
- UN proper shipping name: CORROSIVE LIQUID, N.O.S. (2,2'-dimethyl-4,4'methylenebis (cyclohexylamine))
- Transport hazard class(es): 8
Packing group II
Environmental hazards
Marine pollutant No
Labels required 8
EmS F-A, S-B

TDG
UN number UN1760
Proper shipping name CORROSIVE LIQUID, N.O.S. (2,2'-dimethyl-4,4'methylenebis (cyclohexylamine))
Hazard class 8
Packing group II
Marine pollutant D
Special provisions 16
Labels required 8

15. Regulatory Information

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)
None

Supersfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance (40 CFR 355, Appendix A)
No

SARA 311/312 Hazardous chemical Yes

Drug Enforcement Administration (DEA) (21 CFR 1308.11-15)
Not controlled

Canadian regulations
This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS status Controlled

WHMIS classification D1A - Immediate/Serious-VERY TOXIC
D2B - Other Toxic Effects-TOXIC
E - Corrosive

WHMIS labeling

Inventory status

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Country(s) or region</td>
<td>Inventory name</td>
<td>On inventory (yes/no)*</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**State regulations**

This product does not contain a chemical known to the State of California to cause cancer birth defects or other reproductive harm.

**US - California Hazardous Substances (Director's): Listed substance**

Caprolactam (CAS 105-60-2) Listed.

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Not listed.

**US - New Jersey RTK - Substances: Listed substance**

Caprolactam (CAS 105-60-2) Listed.

**US. Massachusetts RTK - Substance List**

Caprolactam (CAS 105-60-2) Listed.

**US. New Jersey Worker and Community Right-to-Know Act**

Not regulated.

**US. Pennsylvania RTK - Hazardous Substances**

Caprolactam (CAS 105-60-2) Listed.

**Mexico regulations**

This safety data sheet was prepared in accordance with the Official Mexican Standard (NOM-018-STPS-2000).

**16. Other Information**

**Recommended restrictions**

Use in accordance with supplier's recommendations.

**Further information**

HMIS® is a registered trade and service mark of the NPCA.

**HMIS® ratings**

- Health: 3
- Flammability: 0
- Physical hazard: 0

**NFPA Ratings**

![NFPA Rating](image)

**Disclaimer**

The information in the sheet was written based on the best knowledge and experience currently available.