Material Safety Data Sheet
Attached
Material Safety Data Sheet

EPON™ Resin 8111
Version 7.1
Revision Date 06/02/2007

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

Product information

<table>
<thead>
<tr>
<th>Trade name</th>
<th>EPON™ Resin 8111</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product code</td>
<td>K196N</td>
</tr>
<tr>
<td>MSDS Number</td>
<td>1425</td>
</tr>
<tr>
<td>Product Type</td>
<td>Epoxy resin.</td>
</tr>
<tr>
<td>Manufacturer, importer, supplier</td>
<td>Hexion Specialty Chemicals, Inc.</td>
</tr>
<tr>
<td></td>
<td>P. O. Box 4500</td>
</tr>
<tr>
<td></td>
<td>Houston TX 77210</td>
</tr>
<tr>
<td>Contact person</td>
<td><a href="mailto:hsebox@hexion.com">hsebox@hexion.com</a></td>
</tr>
<tr>
<td>Telephone</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Information:</td>
</tr>
<tr>
<td></td>
<td>(832) 486-6700(281)325-3391</td>
</tr>
<tr>
<td></td>
<td>Emergency telephone:</td>
</tr>
<tr>
<td></td>
<td>CHEMTREC US Domestic (800) 424-9300</td>
</tr>
<tr>
<td></td>
<td>CHEMTREC International (703) 527-3887</td>
</tr>
</tbody>
</table>

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Human health hazards: May cause severe eye irritation. May be irritating to the skin. May be slightly toxic and may be harmful if swallowed. May cause skin sensitization.

Safety hazards: Not classified as flammable but will burn.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Blend of liquid epoxy resin and a multifunctional acrylate monomer

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight &lt;= 700)</td>
<td>25068-38-6</td>
<td>&gt; 50 %</td>
</tr>
</tbody>
</table>
TRIMETHYLOLPROPANE TRIACRYLATE  15625-89-5  < 50 %

SECTION 4. FIRST AID MEASURES

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>Remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical attention.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin contact</td>
<td>Remove contaminated clothing/shoes and wipe excess from skin. Flush skin with water. Follow by washing with soap and water. In case of inflammation (redness, irritation, ...) obtain medical attention. Show this sheet to the doctor. Do not reuse clothing until cleaned. Contaminated leather articles, including shoes, cannot be decontaminated and should be destroyed to prevent reuse.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>Immediately flush eyes with plenty of water for 15 minutes while holding eyelids open. Get medical attention.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Do not induce vomiting. In general, no treatment is necessary unless large quantities of product are ingested. However, get medical advice.</td>
</tr>
</tbody>
</table>

Notes to physician

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Irritation as noted above. Skin sensitization (allergy) may be evidenced by rashes, especially hives.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>In general, emesis induction is unnecessary in high viscosity, low volatility products.</td>
</tr>
</tbody>
</table>

SECTION 5. FIRE-FIGHTING MEASURES

<table>
<thead>
<tr>
<th>Suitable extinguishing media</th>
<th>Use water fog, foam, dry chemical or carbon dioxide.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific hazards during fire fighting</td>
<td>Material will not burn unless preheated.</td>
</tr>
</tbody>
</table>

Cool fire exposed containers with water.

<table>
<thead>
<tr>
<th>Special protective equipment for fire-fighters</th>
<th>Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots). Including a positive pressure NIOSH approved self-contained breathing apparatus.</th>
</tr>
</thead>
</table>
SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions : May burn although not readily ignitable. Use cautious judgement when cleaning up large spills. Shut off leaks, if possible without personal risk.

Environmental precautions : Dike and contain. Prevent from entering into drains, ditches or rivers.

Clean-up methods - small spillage : Take up with an absorbent material and dispose of properly.

Clean-up methods - large spillage : Remove with vacuum trucks or pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand or other suitable material; place in non-leaking containers for proper disposal. Flush area with water to remove trace residue.

Additional advice : Notify authorities if any exposures to the general public or environment occurs or is likely to occur. See Section 13 for information on disposal.

SECTION 7. HANDLING AND STORAGE

Handling

Advice on safe handling : Heating this resin above 300 deg. F in the presence of air may cause slow oxidative decomposition, above 500 deg. F, polymerization may occur. Some curing agents, e.g., aliphatic polyamines, can produce exothermic reactions which in large masses can cause runaway polymerization and charring of the reactants. Fumes and vapors from the thermal and chemical decompositions vary widely in composition and toxicity. Do not breathe fumes. Use a NIOSH-approved respirator as required to prevent overexposure. In accord with 29 CFR.1910.134, use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors. Do not exceed 120 Deg. F for 24 hours - Hazardous polymerization may occur. Do not pressurize drum containers to empty them. WARNING. May cause severe eye irritation. May cause skin irritation. May cause respiratory tract irritation. May cause skin sensitization. Containers, even those that have been emptied, can contain hazardous product residues. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Wash with soap and water before eating, drinking, smoking, applying...
cosmetics, or using toilet facilities. Launder contaminated clothing before reuse. Contaminated leather articles, including shoes, cannot be decontaminated and should be destroyed to prevent reuse. To prevent thermal burns avoid contact with hot product.

Storage
Requirements for storage areas and containers: Store in a cool, dry place with adequate ventilation. Keep away from open flames and high temperatures.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Protective measures: Wear appropriate respirator and protective clothing.

Engineering measures: Use ventilation as required to control vapor concentrations. Eye wash fountains and safety showers should be available for emergency use.

Eye protection: Avoid contact with eyes. Wear safety glasses or goggles as appropriate.

Hand protection: Material of gloves for long term application (BTT>480min):
- Butyl rubber
- Ethyl Vinyl Alcohol Laminate (EVAL)
- Nitrile rubber
- Neoprene rubber
- Polyvinyl Chloride (PVC) gauntlet type

Material of gloves for short term/splash application (10min<BTT<480min):
- Butyl rubber
- Ethyl Vinyl Alcohol Laminate (EVAL)
- Nitrile rubber
- Neoprene rubber
- Polyvinyl Chloride (PVC) gauntlet type

Use gloves approved to relevant standards e.g. EN 374 (Europe), ASTM F739 (US). Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material and dexterity. Always seek advice from glove suppliers.

Skin and body protection: Avoid prolonged or repeated contact with skin. Wear chemical-resistant gloves and other clothing as required to minimize contact.
Respiratory protection: Avoid breathing vapors which may be produced under some conditions such as heating or applications of uncured material in large surface areas (e.g., flooring and painting). Avoid breathing aerosols and mists which may be formed by various methods of application. Use a NIOSH-approved respirator as required to prevent overexposure. In accord with 29 CFR 1910.134, use either an atmosphere-supplying respirator or air-purifying respirator for organic vapors.

Exposure Guidelines

<table>
<thead>
<tr>
<th>Components with workplace control parameters</th>
<th>Regulation</th>
<th>Exposure time</th>
<th>Value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight &lt;= 700)</td>
<td>ACGIH</td>
<td></td>
<td></td>
<td>None established.</td>
</tr>
<tr>
<td>TRIMETHYLOLPROPANE TRIACRYLATE</td>
<td>WEEL</td>
<td>Time Weighted Average (TWA):</td>
<td>1 mg/m3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WEEL</td>
<td>Skin designation:</td>
<td></td>
<td>Can be absorbed through the skin.</td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td></td>
<td></td>
<td>None established.</td>
</tr>
</tbody>
</table>

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Liquid
Colour: Clear
Odour: Characteristic
Boiling point: > 200 °C (> 392 °F)
Flash point: > 110 °C (> 230 °F)
Vapour pressure: < 1.3 Pa at 20 °C (68 °F)
Density: 1,100 kg/m3 at 25 °C (77 °F)
Solubility in water: Partially soluble.
Viscosity, dynamic : 950 mPas at 25 °C (77 °F)

Other physico-chemical properties : The above properties are typical values only and do not constitute a specification (refer to supplier for supply specification).

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid : Storage above 120 F. Exposure to light Loss of dissolved air. Do not heat with band heaters or other methods that could produce "hot spots" and do not exceed recommended heating temperatures/times to prevent hazardous polymerization.

Materials to avoid : Can react vigorously with strong oxidizing agents, strong lewis or mineral acid, and strong mineral and organic bases, especially primary and secondary aliphatic amines.

Hazardous decomposition products : Carbon monoxide, aldehydes, acids, and other organic substances may be formed during combustion or elevated (>500 Deg. F) temperature degradation.

Hazardous reactions : Stable. Hazardous polymerization may occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity : LD50 - > 2,000 mg/kg (Rat) Expected to be of low toxicity, LD50 > 2000 mg/kg.

Acute dermal toxicity : LD50 - Expected to be of low toxicity, LD50 > 2000 mg/kg.

Chronic Health Hazard

<table>
<thead>
<tr>
<th>Components</th>
<th>Concentration</th>
<th>Regulation</th>
<th>Value</th>
<th>Remarks</th>
</tr>
</thead>
</table>

6/11
**EPON™ Resin 8111**

<table>
<thead>
<tr>
<th>Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight &lt;= 700)</th>
<th>US. IARC Monographs on Occupational Exposures to Chemical Agents</th>
<th>This component has not been classified by the International Agency for Research on Cancer (IARC).</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 50 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRIMETHYLOLPROPANE TRIACRYLATE</td>
<td>&lt; 50 %</td>
<td>US. IARC Monographs on Occupational Exposures to Chemical Agents</td>
</tr>
<tr>
<td></td>
<td></td>
<td>This component has not been classified by the International Agency for Research on Cancer (IARC).</td>
</tr>
</tbody>
</table>

**Eye irritation**: Expected to be irritant.

**Skin irritation**: Expected to be irritant.

**Sensitisation**: Expected to be a skin sensitiser.

**Basis for assessment**: Information given is based on a knowledge of the components and the toxicology of similar products.

**Human effects**: See Section 4 for information regarding acute effects to humans.

**Potential Health Effects**

**Inhalation**: Not expected to be a relevant route of exposure, however, under conditions where exposure to vapors or mists is possible, could cause respiratory tract irritation.

**Skin**: May be moderately irritating to the skin. May cause blistering. May cause skin sensitization.

**Eyes**: May be severely irritating to the eyes.

**Ingestion**: Not expected to be a relevant route of exposure, however, product may be slightly toxic.

**Aggravated Medical**: Preexisting eye, skin and respiratory disorders may be
Condition: aggravated by exposure to this product.

SECTION 12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

Biodegradability: This section will be updated as ecological reviews are completed.

Ecotoxicity effects

Toxicity to fish: This section will be updated as ecological reviews are completed.

SECTION 13. DISPOSAL CONSIDERATIONS

Product disposal: If this material becomes a waste, it would not be a hazardous waste by RCRA criteria (40 CFR 261). Place in an appropriate disposal facility in compliance with local and federal regulations.

SECTION 14. TRANSPORT INFORMATION

CFR_ROAD: NOT REGULATED FOR TRANSPORT
IATA_C: NOT REGULATED FOR TRANSPORT
IMDG: NOT REGULATED FOR TRANSPORT
CFR_RAIL: NOT REGULATED FOR TRANSPORT

SECTION 15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Notification status

EINECS: All components listed or polymer exempt.
TSCA: All components listed.
DSL : All components listed.
AICS : All components listed.
MITI : All components listed.
TCCL : All components listed.
PICCS (PH) : All components listed.
INV (CN) : All components listed.

US. EPA CERCLA Hazardous Substances (40 CFR 302)

Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700)

No RQ

TRIMETHYLOLPROPANE TRIACRYLATE

SARA 311/312 Hazards

Acute Health Hazard
Chronic Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals(40 CFR 372. 65) - Supplier Notification Required

Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700)

No De minimis Concentration

TRIMETHYLOLPROPANE TRIACRYLATE

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)

Threshold Planning Quantity: No TPQ

TRIMETHYLOLPROPANE TRIACRYLATE

Threshold Planning Quantity: No TPQ
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700)

TRIMETHYLOLPROPANE
TRIACRYLATE

**New Jersey Right-To-Know Chemical List**

Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700)

TRIMETHYLOLPROPANE
TRIACRYLATE

**Additional Components Not Found In Section 2:**

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Concentration</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenyl Glycidyl Ether</td>
<td>122-60-1</td>
<td>&lt; 6 PPM</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Diglycidyl ether</td>
<td>2238-07-5</td>
<td>&lt; 2 PPM</td>
<td>Listed.</td>
</tr>
</tbody>
</table>

**Pennsylvania Right-To-Know Chemical List**

Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700)

TRIMETHYLOLPROPANE
TRIACRYLATE

**Additional Components Not Found In Section 2:**

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Concentration</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenyl Glycidyl Ether</td>
<td>122-60-1</td>
<td>&lt; 6 PPM</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Diglycidyl ether</td>
<td>2238-07-5</td>
<td>&lt; 2 PPM</td>
<td>Environmental hazard.</td>
</tr>
</tbody>
</table>

**Massachusetts Right-To-Know Chemical List**

Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700)

TRIMETHYLOLPROPANE
TRIACRYLATE

**Additional Components Not Found In Section 2:**
Components CAS-No. Concentration Remarks
Phenyl Glycidyl Ether 122-60-1 < 6 PPM Not Listed
Diglycidyl ether 2238-07-5 < 2 PPM Extraordinarily hazardous.

US. California Safe Drinking Water & Toxic Enforce ment Act (Proposition 65)
Additional Components Not Found In Section 2:

Components Concentration Regulation Value Remarks
Phenyl Glycidyl Ether < 6 PPM US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65) Listed: October 1, 1990 Carcinogenic.

HMIS Rating : Health: 2
Fire: 1
Reactivity: 0

SECTION 16. OTHER INFORMATION


The information provided herein was believed by Hexion Specialty Chemicals ("Hexion") to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information, to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. All products supplied by Hexion are subject to Hexion's terms and conditions of sale. HEXION MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY HEXION, except that the product shall conform to Hexion's specifications. Nothing contained herein constitutes an offer for the sale of any product.

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