TORR SEAL
(Loctite Corporation - Hysol 1C)

MATERIAL SAFETY DATA SHEET

VARIAN P/N 953-0001, 953-0002, 953-0004
Part A - RESIN
Part B - HARDENER

DISTRIBUTED BY:
VARIAN VACUUM TECHNOLOGIES
121 HARTWELL AVENUE
LEXINGTON, MA 02421-3133

www.varianinc.com/vacuum

TO ORDER CALL: 1-800-8 VARIAN (1-800-882-7426)
or
ORDER ONLINE AT: www.evarian.com
1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product name:** Hysol 1C Varian Epoxy Adhesive
**Product type:** Epoxy Resin
**Company address:** Henkel Corporation
1001 Trout Brook Crossing
Rocky Hill, Connecticut 06067

**Item No.:** 83187_RESIN
**Region:** United States
**Contact Information:**
- Telephone: 860.571.5100
- Emergency telephone: 860.571.5100
- Internet: www.loctite.com

**Revision Date:** 04/05/2005
**Issue date:** 04/06/2005

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous components</th>
<th>%</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epichlorohydrin-4,4'-isopropylidene diphenol resin 25068-38-6</td>
<td>30-60</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Tremolite 14567-73-8</td>
<td>10-30</td>
<td>1 mg/m³ TWA as Fe = 0.1 f/cc TWA 1910.1001 see</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Antigorite 12135-86-3</td>
<td>10-30</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Talc 14807-96-6</td>
<td>10-30</td>
<td>2 mg/m³ TWA respirable fraction, particulate matter containing no asbestos and &lt; 1% crystalline silica = 20 mppcf TWA 50 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anthophyllite 17068-78-9</td>
<td>1-5</td>
<td>None</td>
<td>0.1 fiber/cc TWA fibers longer than 5 µm 1.0 fiber/cc Excursion Limit 30 min. Cancer and lung disease hazard - see 29 CFR 1910.1001 - does not include non-asbestiform actinolite, tremolite or anthophyllite 15 mg/m³ TWA total dust</td>
<td></td>
</tr>
<tr>
<td>Titanium dioxide 13463-67-7</td>
<td>1-5</td>
<td>10 mg/m³ TWA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW**

**HMIS:**
- HEALTH: 2*
- FLAMMABILITY: 1
- PHYSICAL HAZARD: 1
- Personal Protection: See Section 8

**WARNING:** MAY CAUSE ALLERGIC SKIN REACTION. MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.

**Relevant routes of exposure:** Eye contact, Ingestion, Inhalation, Skin contact

**Potential Health Effects**

**Item No.:** 83187_RESIN

Product name: Hysol 1C Varian Epoxy Adhesive
Inhalation: May cause irritation to nose and throat. Mild respiratory tract irritation. Coughing.
Skin contact: Allergic skin reaction. Moderate skin irritation. Itching. Redness.
Eye contact: Moderate eye irritation. Redness.
Ingestion: Not expected under normal conditions of use.


See Section 11 for additional toxicological information.

4. FIRST AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Skin contact: Immediately flush skin with plenty of water (using soap, if available). Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Ingestion: DO NOT induce vomiting unless directed to do so by medical personnel. Keep individual calm. Get medical attention if symptoms develop and persist.

Notes to physician: None.

5. FIRE-FIGHTING MEASURES

Flash point: Greater than 93°C (200°F) Pensky Martens closed cup
Autoignition temperature: Not available
Flammable/Explosive limits-lower %: Not available
Flammable/Explosive limits-upper %: Not available
Extinguishing media: Foam, dry chemical or carbon dioxide.
Special fire fighting procedures: Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.
Unusual fire or explosion hazards: In the event of fire, cool tanks with water spray. Closed containers may rupture (due to build up of pressure) when exposed to extreme heat.

6. ACCIDENTAL RELEASE MEASURES

Environmental precautions: Prevent product from entering drains or open waters.
Clean-up methods: Remove all ignition sources. Immediately contact emergency personnel. Scrape up as much material as possible. Clean residue with soap and water. Store in a closed container until ready for disposal.
7. HANDLING AND STORAGE

Handling: Keep away from heat, spark and flame. Do not breathe mist or vapors. Keep container closed. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

Storage: Store in original container until ready to use. Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

Incompatible products: Refer to Section 10.

For information on product shelf life contact Henkel Customer Service at (800) 243-4874.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls: Use local exhaust ventilation to maintain airborne concentrations below established exposure limits.

Respiratory protection: Use a NIOSH approved air-purifying respirator if the potential to exceed established exposure limits exists.

Skin protection: Chemical resistant, impermeable gloves.

Eye/face protection: Chemical splash goggles or safety glasses with side shields.

See Section 2 for exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Viscous liquid
Color: White
Odor: None
Vapor pressure: Nil
pH: Not applicable
Boiling point/range: Greater than 260°C (500°F)
Melting point/range: Not available
Specific gravity: 1.57
Vapor density: Not available
Evaporation rate: Not available
Solubility in water: Insoluble
Partition coefficient (n-octanol/water): Not available
VOC content: < 0.05% (value for resin and hardener together) (estimated)

10. STABILITY AND REACTIVITY

Stability: Stable

Hazardous polymerization: Will not occur.

Hazardous decomposition products: None


Conditions to avoid: Excessive heat. Storage with incompatible materials.

11. TOXICOLOGICAL INFORMATION

Carcinogen Status

Item No.: 83187_RESIN

Product name: Hysol 1C Varian Epoxy Adhesive
### Hazardous components

<table>
<thead>
<tr>
<th>Substance</th>
<th>NTP Carcinogen</th>
<th>IARC Carcinogen</th>
<th>OSHA Carcinogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epichlorohydrin-4,4'-isopropylidene diphenol resin 25068-38-6</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Tremolite 14567-73-8</td>
<td>No</td>
<td>Group 1</td>
<td>Yes</td>
</tr>
<tr>
<td>Antigorite 12135-86-3</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Talc 14807-96-6</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Anthophyllite 17068-78-9</td>
<td>Known Carcinogen</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Titanium dioxide 13463-67-7</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

### Literature Referenced Target Organ & Other Health Effects

<table>
<thead>
<tr>
<th>Substance</th>
<th>Health Effects/Target Organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epichlorohydrin-4,4'-isopropylidene diphenol resin 25068-38-6</td>
<td>Allergen, Irritant</td>
</tr>
<tr>
<td>Tremolite 14567-73-8</td>
<td>Lung, Mutagen, Carcinogen</td>
</tr>
<tr>
<td>Antigorite 12135-86-3</td>
<td>Lung, Some evidence of carcinogenicity, Mutagen</td>
</tr>
<tr>
<td>Talc 14807-96-6</td>
<td>Some evidence of carcinogenicity, Lung, Irritant</td>
</tr>
<tr>
<td>Anthophyllite 17068-78-9</td>
<td>Carcinogen, Mutagen, Lung</td>
</tr>
<tr>
<td>Titanium dioxide 13463-67-7</td>
<td>Irritant, Respiratory</td>
</tr>
</tbody>
</table>

### 12. ECOLOGICAL INFORMATION

Ecological information: Not available

### 13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Dispose according to EPA and local governmental regulations.

EPA hazardous waste number: Not a RCRA hazardous waste.

### 14. TRANSPORT INFORMATION

The shipping classifications in this section are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

**U.S. Department of Transportation Ground (49 CFR):**

- **Proper shipping name:** Not regulated
- **Hazard class or division:** None
- **Identification number:** None
- **Packing group:** None

**International Air Transportation (ICAO/IATA):**

- **Proper shipping name:** Not regulated
- **Hazard class or division:** None
- **Identification number:** None
- **Packing group:** None

**WaterTransportation (IMO/IMDG):**

- **Proper shipping name:** Not regulated
- **Hazard class or division:** None
- **Identification number:** None
- **Packing group:** None
- **Marine pollutant:** None known

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Product name: Hysol 1C Varian Epoxy Adhesive
15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification: None.

CERCLA/SARA Section 302 EHS: None above reporting de minimus.
CERCLA/SARA Section 311/312: Immediate Health Hazard, Delayed Health Hazard
CERCLA/SARA 313: None above reporting de minimus.

California Proposition 65: This product contains a chemical known to the State of California to cause cancer.

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Domestic Substances List.
WHMIS hazard class: D.2.B

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: First issue.

Prepared by: Gary Pierson, Sr. Product Safety and Regulatory Affairs Specialist

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### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product name:** Hysol 1C Varian  
**Product type:** Epoxy Hardener  
**Company address:** Henkel Corporation  
1001 Trout Brook Crossing  
Rocky Hill, Connecticut 06067  
**Item No.:** 83187_HARDENER  
**Region:** United States  
**Contact Information:**  
Telephone: 860.571.5100  
Emergency telephone: 860.571.5100  
Internet: www.loctite.com

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

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<thead>
<tr>
<th>Hazardous components</th>
<th>%</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epoxy resin/Curing agent</td>
<td>10-30</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Tremolite</td>
<td>10-30</td>
<td>1 mg/m³ TWA as Fe = 0.1 f/cc TWA see 1910.1001</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Silica, quartz</td>
<td>10-30</td>
<td>0.05 mg/m³ TWA respirable fraction 0.1 mg/m³ TWA (respirable)</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Antigorite</td>
<td>10-30</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Talc</td>
<td>10-30</td>
<td>2 mg/m³ TWA respirable fraction, particulate matter containing no asbestos and &lt; 1% crystalline silica = 20 mppcf TWA 50 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diethylene triamine</td>
<td>10-30</td>
<td>1 ppm TWA (skin)</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Anthophyllite</td>
<td>1-5</td>
<td>None</td>
<td>0.1 fiber/cc TWA fibers longer than 5 μm 1.0 fiber/cc Excursion Limit 30 min. Cancer and lung disease hazard - see 29 CFR 1910.1001 - does not include non-asbestiform actinolite, tremolite or anthophyllite</td>
<td></td>
</tr>
<tr>
<td>4,4'-Isopropylidenediphenol</td>
<td>1-5</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

### 3. HAZARDS IDENTIFICATION
Relevant routes of exposure:

Eye contact, Ingestion, Inhalation, Skin contact

Potential Health Effects

Inhalation: Allergic respiratory reaction. May cause respiratory tract irritation. May cause irritation to nose and throat.

Skin contact: May cause skin burns. Allergic skin reaction. Rash. Redness.

Eye contact: Burns. Severe eye irritation. Redness. Tissue damage.

Ingestion: May be harmful if swallowed. May cause burns of mouth and throat if swallowed.

Existing conditions aggravated by exposure:

See Section 11 for additional toxicological information.

4. FIRST AID MEASURES

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Skin contact: Immediately flush skin with plenty of water (using soap, if available). Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if symptoms occur.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Ingestion: DO NOT induce vomiting unless directed to do so by medical personnel. Keep individual calm. Get medical attention immediately.

Notes to physician: None.

5. FIRE-FIGHTING MEASURES

Flash point: Greater than 101.6°C (215°F) (estimated)

Autoignition temperature: Not available

Flammable/Explosive limits-lower %: Not available

Flammable/Explosive limits-upper %: Not available

Extinguishing media: Water spray (fog), foam, dry chemical or carbon dioxide.

Special fire fighting procedures: Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

Unusual fire or explosion hazards: In the event of fire, cool tanks with water spray.


Product name: Hysol 1C Varian
6. ACCIDENTAL RELEASE MEASURES

Environmental precautions: Prevent product from entering drains or open waters.

Clean-up methods: Remove all ignition sources. Immediately contact emergency personnel. Scrape up as much material as possible. Clean residue with soap and water. Store in a closed container until ready for disposal.

7. HANDLING AND STORAGE

Handling: Keep away from heat, spark and flame. Do not breathe mist or vapors. Keep container closed. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

Storage: Store in original container until ready to use. Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

Incompatible products: Refer to Section 10.

For information on product shelf life contact Henkel Customer Service at (800) 243-4874.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls: Use local exhaust ventilation to maintain airborne concentrations below established exposure limits.

Respiratory protection: Use a NIOSH approved air-purifying respirator if the potential to exceed established exposure limits exists.

Skin protection: Chemical resistant, impermeable gloves. Use chemical resistant, impermeable clothing including gloves and either an apron or body suit to prevent skin contact.

Eye/face protection: Chemical splash goggles or safety glasses with side shields.

See Section 2 for exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Viscous liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
<td>Tan</td>
</tr>
<tr>
<td>Odor:</td>
<td>Strong, Ammoniacal</td>
</tr>
<tr>
<td>Vapor pressure:</td>
<td>&lt;1 mmHg @ 20°C (68°F)</td>
</tr>
<tr>
<td>pH:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point/range:</td>
<td>207°C (404°F)</td>
</tr>
<tr>
<td>Melting point/range:</td>
<td>Not available</td>
</tr>
<tr>
<td>Specific gravity:</td>
<td>1.65</td>
</tr>
<tr>
<td>Vapor density:</td>
<td>3.5</td>
</tr>
<tr>
<td>Evaporation rate:</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility in water:</td>
<td>Slightly soluble</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water):</td>
<td>Not available</td>
</tr>
<tr>
<td>VOC content:</td>
<td>&lt;0.1% (value for resin and hardener together)</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Stability: Stable

Hazardous polymerization: Polymerization is a highly exothermic reaction and may generate sufficient heat to cause thermal decomposition and/or rupture containers.

Hazardous decomposition products: None


Conditions to avoid: Temperatures above 37.8°C (100°F). Excessive heat. Storage with incompatible materials. Avoid mixing resin (Part A) and curing agent (Part B) in batches greater than 2 pound (.9 kg) unless you plan to use immediately. Failure to observe these precautions may result in excessive heat build-up causing an exotherm.

Item No.: 83187_HARDENER

Product name: Hysol 1C Varian
11. TOXICOLOGICAL INFORMATION

Carcinogen Status

<table>
<thead>
<tr>
<th>Hazardous components</th>
<th>NTP Carcinogen</th>
<th>IARC Carcinogen</th>
<th>OSHA Carcinogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epoxy resin/Curing agent 68610-56-0</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Tremolite 14567-73-8</td>
<td>No</td>
<td>Group 1</td>
<td>Yes</td>
</tr>
<tr>
<td>Silica, quartz 14808-60-7</td>
<td>Known Carcinogen</td>
<td>Group 1</td>
<td>Yes</td>
</tr>
<tr>
<td>Antigorite 12135-86-3</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Talc 14807-96-6</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Diethylene triamine 111-40-0</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Anthophyllite 17068-78-9</td>
<td>Known Carcinogen</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>4,4’-Isopropylidenediphenol 80-05-7</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Literature Referenced Target Organ & Other Health Effects

<table>
<thead>
<tr>
<th>Hazardous components</th>
<th>Health Effects/Target Organs</th>
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</thead>
<tbody>
<tr>
<td>Epoxy resin/Curing agent 68610-56-0</td>
<td>No data</td>
</tr>
<tr>
<td>Tremolite 14567-73-8</td>
<td>Lung, Mutagen, Carcinogen</td>
</tr>
<tr>
<td>Silica, quartz 14808-60-7</td>
<td>Some evidence of carcinogenicity, Lung, Immune system</td>
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<tr>
<td>Antigorite 12135-86-3</td>
<td>Lung, Some evidence of carcinogenicity, Mutagen</td>
</tr>
<tr>
<td>Talc 14807-96-6</td>
<td>Some evidence of carcinogenicity, Lung, Irritant</td>
</tr>
<tr>
<td>Diethylene triamine 111-40-0</td>
<td>Allergen, Eyes, Irritant</td>
</tr>
<tr>
<td>Anthophyllite 17068-78-9</td>
<td>Carcinogen, Mutagen, Lung</td>
</tr>
<tr>
<td>4,4’-Isopropylidenediphenol 80-05-7</td>
<td>Allergen, Blood, Irritant, Kidney, Spleen, Reproductive</td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION

Ecological information: Not available

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Dispose according to EPA and local governmental regulations.

EPA hazardous waste number: Not a RCRA hazardous waste.

14. TRANSPORT INFORMATION

The shipping classifications in this section are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

**U.S. Department of Transportation Ground (49 CFR):**
- Proper shipping name: Diethylenetriamine solution
- Hazard class or division: 8
- Identification number: UN 2079
- Packing group: II
- Exceptions: (Not more than 1 Liter) Consumer Commodity ORM-D

Item No.: 83187_HARDENER

Product name: Hysol 1C Varian
International Air Transportation (ICAO/IATA):

Proper shipping name: Diethylenetriamine solution
Hazard class or division: 8
Identification number: UN2079
Packing group: II

WaterTransportation (IMO/IMDG):

Proper shipping name: Diethylenetriamine solution
Hazard class or division: 8
Identification number: UN2079
Packing group: II

Marine pollutant: None known

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification: None.
CERCLA/SARA Section 302 EHS: None.
CERCLA/SARA Section 311/312: Immediate Health Hazard
CERCLA/SARA 313: None above reporting de minimus.
California Proposition 65: This product contains a chemical known to the State of California to cause cancer.

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Domestic Substances List.

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: Corrected information in Section(s) 14.

Prepared by: Gary Pierson, Sr. Product Safety and Regulatory Affairs Specialist

DISCLAIMER: The data contained herein are furnished for information only and are believed to be reliable. However, Henkel Corporation does not assume responsibility for any results obtained by persons over whose methods Henkel Corporation has no control. It is the user's responsibility to determine the suitability of Henkel's products or any production methods mentioned herein for a particular purpose, and to adopt such precautions as may be advisable for the protection of property and persons against any hazards that may be involved in the handling and use of any of Henkel Corporation's products. In light of the foregoing, Henkel Corporation specifically disclaims all warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation further disclaims any liability for consequential or incidental damages of any kind, including lost profits.