GELEST, INC.
11 East Steel Rd. Morrisville, PA 19067
Phone: (215) 547-1015

MATERIAL SAFETY DATA SHEET

EMERGENCY TELEPHONE CHEMTREC: 1-800-424-9300

NAME USED ON LABEL: Gelest OE™ 43 2-part Flexible Optical Encapsulant
CHEMICAL NAME: VINYL MODIFIED SILICA Q RESIN in POLY(DIMETHYLSILOXANE), VINYL TERMINATED with (part B) HYDRIDE FUNCTIONAL CROSSLINKER
SYNONYMS: RESIN REINFORCED VINYL TERMINATED POLYDIMETHYLSILOXANE
CHEMICAL FAMILY: SILICONE
HMIS CODES HEALTH: 1 FLAMMABILITY: 1 REACTIVITY: 0

INGREDIENTS

IDENTITY CAS NO. % TL OSHA PEL
PART A
DIMETHYLSILOXANE - DIPHENYLSILOXANE COPOLYMER, VINYL TERMINATED
68951-96-2 >95 not established not established
VINYL MODIFIED Q SILICA RESIN 68584-83-8 <30 not established not established

Part B contains the following additional component
METHYLHYDROISILOXANE-DIMETHYLSILOXANE copolymer
68037-59-2 <10 not established not established

PHYSICAL DATA

Boiling Point: >205°C
Specific Gravity: 1.01
Vapor Pressure, 20°C: <1mm
Vapor Density, air = 1: NA
% volatiles: NA
Molecular Weight: NA (mixture)
Appearance & Color: Clear liquid
Melting Point: -60°C
Solubility in water: insoluble
Evaporation rate: NA
Viscosity: 1000-4000 cSt.

FIRE & EXPLOSION DATA

Flash Point, COC: 220°C (428°F) Autoignition Temp.: not determined
Flammability Limits- LEL: NA UEL: NA
Extinguishing Media: Water spray or fog, foam, carbon dioxide, dry chemical.
Special Fire Fighting Procedures: Avoid eye and skin contact. Do not breathe fumes or inhale vapors.
Unusual Fire and Explosion Hazards: Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.
1-(PP2-OE43)
ENVIRONMENTAL INFORMATION

Spill response: Sweep material and transfer to a suitable container for disposal.

Recommended Disposal: Incinerate. Follow all chemical pollution control regulations.

HEALTH HAZARD DATA

Eye Contact: May cause immediate or delayed severe eye irritation.

Skin contact: A single relatively short exposure causes no adverse effect. Several or prolonged exposures may cause mild irritation. Avoid Contact.

Inhalation: No information available. Avoid inhalation.

Oral Toxicity: not determined

Inhalation Toxicity: not determined

SUGGESTED FIRST AID

EYES: In case of contact, immediately flush eyes with flowing water for at least 15 minutes. Get medical attention.

SKIN: Flush with water, then wash with soap and water.

INHALATION: Move exposed individual to fresh air. Administer oxygen if needed. Call a physician.

INGESTION: Never give fluids or induce vomiting if patient is unconscious or having convulsions. To conscious individual give one full cup of water to dilute ingested material. Get medical attention.

REACTIVITY DATA

Stability: Stable in sealed containers under dry inert atmosphere.

Conditions to avoid: Store away from alkalis, oxidizers, metal salts, precious metals.

Hazardous decomposition products: Organic acid vapors and silicon dioxide.

SPECIAL PROTECTION INFORMATION

Ventilation: Local exhaust is recommended. Mechanical is recommended.

Respiratory Protection: If exposure exceeds TLV, NIOSH approved organic vapor respirator.

Eye and Face Protection: Chemical worker's goggles. Do not wear contact lenses.

Other Clothing and Equipment: Rubber, neoprene or nitrile gloves. An eyewash and emergency shower should be available. Launder clothing before reuse.

-2-(PP2-OE43)
OTHER PRECAUTIONS

For research and industrial use only.

Storage and Handling: Store in sealed containers.

TRANSPORTATION

DOT SHIPPING NAME: CHEMICALS, NOI
DOT HAZARD CLASS: None required
DOT LABEL: None required
DOT ID No: None required

Prepared by safety and environmental affairs ISSUE DATE PP2-OE43: 1/13/03
SUPERSEDES: 3/19/99

The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore.
Gelest Flexible Optical Encapsulant Series

Filler-Free 2-part Silicone Elastomers

Features: Provide rapid-cure pure silicone elastomers with high optical transmission. They have relatively low viscosity and extended pot-life, allowing potting, embedding and coating. Systems are vinyl-addition (platinum) cure.

Applications:
- **Electronic devices** - provide mechanical and chemical protection to electronic components, free of abrasive silica.
- **Optical devices** - index matching, cladding or transmission media applications.
- **Supported membranes** - filler-free silicone allows maximum transport of gases.

<table>
<thead>
<tr>
<th>Capsular Description</th>
<th>Thickness</th>
<th>Cure Pt catalyst</th>
<th>Hardness</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>thick</td>
<td></td>
<td>medium</td>
<td>100% active 2-part</td>
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</table>

| Gelest OETM 42 | 1.42 refractive index | 2-part silicone RTV encapsulant, supplied as 1:1 kit |
|-----------------------------------------------|
| **Description** | Gelest OETM 42 is a flexible, optically clear molding, encapsulation and coating compound, offering improved adhesion to substrates compared to Gelest OETM 41. The low viscosity of the catalyzed mix, long pot-life at room temperature and moderate cure temperature make this extremely useful in laboratory, prototype and small production run applications. |

<table>
<thead>
<tr>
<th>Cured Properties</th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Refractive Index</td>
<td>1.420</td>
<td>Refractive Index</td>
<td>1.430</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>&gt;200psi</td>
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<td>&gt;200psi</td>
</tr>
<tr>
<td>Elongation</td>
<td>90-150%</td>
<td>Elongation</td>
<td>75-100%</td>
</tr>
<tr>
<td>Durometer, Shore A</td>
<td>10-25</td>
<td>Durometer, Shore A</td>
<td>5-15</td>
</tr>
<tr>
<td>Tear Strength</td>
<td>5-10pli</td>
<td>Tear Strength</td>
<td>5-10pli</td>
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<table>
<thead>
<tr>
<th>Uncured Properties of Gelest OETM 42</th>
<th></th>
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<tbody>
<tr>
<td>Viscosity (1:1) catalyzed:</td>
<td>1500-2000 cSt.</td>
<td>Viscosity (1:1) catalyzed:</td>
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<thead>
<tr>
<th>Standard Packaging</th>
<th></th>
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<tr>
<td>PP2-OE42 Gelest OETM 42</td>
<td></td>
<td>PP2-OE43 Gelest OETM 43</td>
</tr>
<tr>
<td>1 kg kit (500g OE42-A, 500g OE42B)</td>
<td></td>
<td>1 kg kit (500g OE43-A, 500g OE43B)</td>
</tr>
<tr>
<td>6 kg kit (3kg OE42-A, 3kg OE42B)</td>
<td></td>
<td>6 kg kit (3kg OE43-A, 3kg OE43B)</td>
</tr>
</tbody>
</table>

**Application Methods**
Thoroughly mix Part A with Part B in a 1:1 ratio. De-air mix under vacuum for about 20 minutes. The pot-life is 18 hours at 25°C. Pot-life may be extended by storing at 5°C. Pour into mold or apply to substrate. Avoid entrapping air. Cure at 55°C for 4 hours or at room temperature over 72 hours.