SECTION 1: Identification

1.1. Identification
Product form: Mixture
Product name: Dual Cure Opaquer Base

1.2. Recommended use and restrictions on use
Use of the substance/mixture: For Rx Only

1.3. Supplier
Manufacturer
Bisco, Inc.
1100 W. Irving Park Rd.
Schaumburg, IL 60193
T 847.534.6000 - F 847.891.5049
sales@bisco.com - www.bisco.com

1.4. Emergency telephone number
Emergency number: CHEMTREC - 24-Hour Hazmat Emergency Communications Center
Domestic: 1-800-424-9300 Outside the U.S.: 1-703-527-3887, collect calls accepted

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture
GHS-US classification
Skin corrosion/irritation: H315 Causes skin irritation
Category 2
Serious eye damage/eye irritation: H319 Causes serious eye irritation
Category 2
Skin sensitization, Category 1: H317 May cause an allergic skin reaction

Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements
GHS-US labeling
Hazard pictograms (GHS-US):

Hazard statements (GHS-US):
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation

Precautionary statements (GHS-US):
P261 - Avoid breathing vapors
P264 - Wash hands thoroughly after handling
P272 - Contaminated work clothing must not be allowed out of the workplace
P280 - Wear eye protection, face protection, protective gloves
P302+P352 - If on skin: Wash with plenty of Wash skin with soap and water
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P321 - Specific treatment (see First aid measures on this label)
P332+P313 - If skin irritation occurs: Get medical advice/attention
P337+P313 - If eye irritation persists: Get medical advice/attention
P362+P364 - Take off contaminated clothing and wash it before reuse
P363 - Wash contaminated clothing before reuse
P501 - Dispose in a safe manner in accordance with local/national regulations

2.3. Other hazards which do not result in classification
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable
**SECTION 3: Composition/Information on ingredients**

### 3.1 Substances

Not applicable

### 3.2 Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>BisGMA</td>
<td>(CAS-No.) 1565-94-2</td>
<td>10 - 30</td>
<td>Skin Irrit. 2, H315, Eye Irrit. 2B, H320, Skin Sens. 1, H317</td>
</tr>
<tr>
<td>Urethane Dimethacrylate</td>
<td>(CAS-No.) Proprietary</td>
<td>10 - 30</td>
<td>Skin Irrit. 2, H315, Eye Irrit. 2B, H320, STOT SE 3, H336</td>
</tr>
<tr>
<td>2-Hydroxyethyl Methacrylate</td>
<td>(CAS-No.) 868-77-9</td>
<td>10 - 30</td>
<td>Skin Irrit. 2, H315, Eye Irrit. 2, H319, Skin Sens. 1, H317</td>
</tr>
<tr>
<td>2,2'-(4-Methylphenyl)iminobisethanol</td>
<td>(CAS-No.) 3077-12-1</td>
<td>1 - 5</td>
<td>Acute Tox. 4 (Oral), H302, Eye Dam. 1, H318</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements: see section 16

**SECTION 4: First-aid measures**

### 4.1 Description of first aid measures

First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact: Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion: Call a poison center/doctor/physician if you feel unwell.

### 4.2 Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact: Irritation. May cause an allergic skin reaction.

Symptoms/effects after eye contact: Eye irritation.

### 4.3 Immediate medical attention and special treatment, if necessary

Treat symptomatically.

**SECTION 5: Fire-fighting measures**

### 5.1 Suitable (and unsuitable) extinguishing media


### 5.2 Specific hazards arising from the chemical

Reactivity: The product is non-reactive under normal conditions of use, storage and transport.

### 5.3 Special protective equipment and precautions for fire-fighters

Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

**SECTION 6: Accidental release measures**

### 6.1 Personal precautions, protective equipment and emergency procedures

#### 6.1.1 For non-emergency personnel

Emergency procedures: Ventilate spillage area. Avoid contact with skin and eyes. Avoid breathing mist, vapors.

#### 6.1.2 For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

### 6.2 Environmental precautions

Avoid release to the environment.

### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up: Take up liquid spill into absorbent material.

Other information: Dispose of materials or solid residues at an authorized site.

### 6.4 Reference to other sections

For further information refer to section 13.
Dual Cure Opaquer Base
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 7: Handling and storage
7.1. Precautions for safe handling
Precautions for safe handling : Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment. Avoid breathing mist, vapors.

Hygiene measures : Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions : Store in a well-ventilated place. Keep cool.

SECTION 8: Exposure controls/personal protection
8.1. Control parameters

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Control parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urethane Dimethacrylate (Proprietary)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>2-Hydroxyethyl Methacrylate (868-77-9)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>2,2’-[4-Methylphenyl]lmino]Bisethanol (3077-12-1)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>BisGMA (1565-94-2)</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

8.2. Appropriate engineering controls
Appropriate engineering controls : Ensure good ventilation of the work station.

Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:
Protective gloves

Eye protection:
Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment

SECTION 9: Physical and chemical properties
9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Viscous liquid.</td>
</tr>
<tr>
<td>Color</td>
<td>Straw</td>
</tr>
<tr>
<td>Odor</td>
<td>Acrylic</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

<table>
<thead>
<tr>
<th>Material</th>
<th>Acute toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urethane Dimethacrylate (Proprietary)</td>
<td>Not classified</td>
</tr>
<tr>
<td>LD50 oral rat</td>
<td>N/A</td>
</tr>
<tr>
<td>LD50 dermal rat</td>
<td>N/A</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>N/A</td>
</tr>
<tr>
<td>LC50 inhalation rat (ppm)</td>
<td>N/A</td>
</tr>
<tr>
<td>2-Hydroxyethyl Methacrylate (868-77-9)</td>
<td>5564 mg/kg body weight (Rat; Experimental value)</td>
</tr>
<tr>
<td>LD50 oral rat</td>
<td>5564 mg/kg body weight</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>&gt; 5000 mg/kg body weight (Rabbit; Experimental value)</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>5564 mg/kg body weight</td>
</tr>
<tr>
<td>2,2’-[4-(Methylphenyl)iminobisethanol (3077-12-1)</td>
<td>960 mg/kg (Rat; Literature study)</td>
</tr>
<tr>
<td>LD50 oral rat</td>
<td>960 mg/kg (Rat; Literature study)</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>960 mg/kg body weight</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**: Causes skin irritation.

**Serious eye damage/irritation**: Causes serious eye irritation.

**Respiratory or skin sensitization**: May cause an allergic skin reaction.

**Germ cell mutagenicity**: Not classified

**Carcinogenicity**: Not classified

### Urethane Dimethacrylate (Proprietary)

<table>
<thead>
<tr>
<th>Material</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC group</td>
<td>4 - Probably not carcinogenic to humans</td>
</tr>
</tbody>
</table>
Dual Cure Opaquer Base
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Reproductive toxicity: Not classified
Specific target organ toxicity – single exposure: Not classified

<table>
<thead>
<tr>
<th>Urethane Dimethacrylate (Proprietary)</th>
<th>LOAEL (oral, rat)</th>
<th>N/A mg/kg body weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOAEL (dermal, rat/rabbit)</td>
<td>N/A mg/kg body weight</td>
<td></td>
</tr>
<tr>
<td>LOAEC (inhalation, rat, gas)</td>
<td>N/A ppmV/4h</td>
<td></td>
</tr>
<tr>
<td>LOAEC (inhalation, rat, vapour)</td>
<td>N/A mg/l/4h</td>
<td></td>
</tr>
<tr>
<td>LOAEC (inhalation, rat, dust/mist/fume)</td>
<td>N/A mg/l/4h</td>
<td></td>
</tr>
</tbody>
</table>

Specific target organ toxicity – repeated exposure: Not classified

<table>
<thead>
<tr>
<th>Urethane Dimethacrylate (Proprietary)</th>
<th>LOAEL (oral, rat, 90 days)</th>
<th>N/A mg/kg bodyweight/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOAEL (dermal, rat/rabbit, 90 days)</td>
<td>N/A mg/kg bodyweight/day</td>
<td></td>
</tr>
<tr>
<td>LOAEC (inhalation, rat, gas, 90 days)</td>
<td>N/A ppmV/6h/day</td>
<td></td>
</tr>
<tr>
<td>LOAEC (inhalation, rat, vapour, 90 days)</td>
<td>N/A mg/l/6h/day</td>
<td></td>
</tr>
<tr>
<td>LOAEC (inhalation, rat, dust/mist/fume, 90 days)</td>
<td>N/A mg/l/6h/day</td>
<td></td>
</tr>
</tbody>
</table>

Aspiration hazard: Not classified
Symptoms/effects after skin contact: Irritation. May cause an allergic skin reaction.
Symptoms/effects after eye contact: Eye irritation.

**SECTION 12: Ecological Information**

12.1. Toxicity

Ecology - general: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

2-Hydroxyethyl Methacrylate (868-77-9)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>227 mg/l (LC50; 96 h)</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>171 mg/l (NOEC; OECD 202: Daphnia sp. Acute Immobilisation Test; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)</td>
</tr>
<tr>
<td>EC50 Daphnia 2</td>
<td>380 mg/l (EC50; OECD 202: Daphnia sp. Acute Immobilisation Test; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)</td>
</tr>
<tr>
<td>Threshold limit algae 1</td>
<td>836 mg/l (ErC50; OECD 201: Alga, Growth Inhibition Test; 72 h; Pseudokirchneriella subcapitata; Static system; Fresh water; Experimental value)</td>
</tr>
<tr>
<td>Threshold limit algae 2</td>
<td>345 mg/l (EcC50; OECD 201: Alga, Growth Inhibition Test; 72 h; Pseudokirchneriella subcapitata; Static system; Fresh water; Experimental value)</td>
</tr>
</tbody>
</table>

2,2’-[(4-Methylphenyl)imino]Bisethanol (3077-12-1)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>&gt; 100 mg/l (LC50; 96 h; Brachydanio rerio)</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

2-Hydroxyethyl Methacrylate (868-77-9)


2,2’-[(4-Methylphenyl)imino]Bisethanol (3077-12-1)

Persistence and degradability: Biodegradability in water: no data available. No (test) data on mobility of the substance available. Photolysis in the air.

12.3. Bioaccumulative potential

2-Hydroxyethyl Methacrylate (868-77-9)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCF fish 1</td>
<td>1.3 - 1.5 (BCF)</td>
</tr>
<tr>
<td>Log Pow</td>
<td>-0.55 - 0.49 (0.42; Experimental value; OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method; 25 °C)</td>
</tr>
</tbody>
</table>

Bioaccumulative potential: Low potential for bioaccumulation (BCF < 500).

2,2’-[(4-Methylphenyl)imino]Bisethanol (3077-12-1)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
<td>1.09 (Experimental value)</td>
</tr>
</tbody>
</table>
12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
Effect on the global warming: No known effects from this product.
GWPmix comment: No known effects from this product.

SECTION 13: Disposal considerations
13.1. Disposal methods
Waste treatment methods: Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information
Department of Transportation (DOT)
In accordance with DOT
Other information: No supplementary information available.
TDG

Transport by sea

Air transport

SECTION 15: Regulatory information
15.1. US Federal regulations

2-Hydroxyethyl Methacrylate (868-77-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

2,2’-{(4-Methylphenyl)Imino}Bisethanol (3077-12-1)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations
CANADA
No additional information available

EU-Regulations
No additional information available

National regulations
No additional information available

15.3. US State regulations
No additional information available

SECTION 16: Other information
Revision date: 12/03/2014
Dual Cure Opaquer Base
Safety Data Sheet

Revision date: 09/28/2017

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H317</td>
<td>May cause an allergic skin reaction</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td>H320</td>
<td>Causes eye irritation</td>
</tr>
<tr>
<td>H336</td>
<td>May cause drowsiness or dizziness</td>
</tr>
</tbody>
</table>

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.