1. PRODUCT IDENTIFICATION

Trade Name (as labeled): Triad® DuaLine® Dual-Cure Reline Material
Product Identifier (Part/Item Number): 905530, 905537, 90130
U.N. Number: None
U.N. Dangerous Goods Classification: None
Recommended Use: Resin used in removable dental appliances
Restrictions on Use: For Professional Use Only
Manufacturer/Supplier Name: Dentsply Prosthetics
Manufacturer/Supplier Address: 570 West College Ave.
York, PA 17405-0872
Manufacturer/Supplier Telephone Number: 717-845-7511 (Product Information)
Emergency Contact Telephone Number: 800-424-9300 Chemtrec
Email address: Prosthetics_MSDS@Dentsply.com

2. HAZARD(s) IDENTIFICATION

EU Classification (1999/45/EC): Irritant (Xi), R36/38, R43, R52/53

Refer to Section 16 for the full text of the EU Classifications and R Phrases.

Labeling in accordance with 1999/45/EC

Contains Polymethylmethacrylate
R36/38 Irritating to eyes and skin
R43 May cause sensitization by skin contact.
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical attention.
S24/25 Avoid contact with skin and eyes.
S36/37 Wear suitable protective clothing and gloves.
S61 Avoid release to the environment. Refer to Safety data sheets.

US Hazard Classification: Hazardous (Irritant, Sensitizer)
3. COMPOSITION AND INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Components</th>
<th>C.A.S. #</th>
<th>EINECS #</th>
<th>Substance Classification</th>
<th>WT %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urethane Dimethyacrylate</td>
<td>72869-86-4</td>
<td>276-957-5</td>
<td>R52/53</td>
<td>40-80</td>
</tr>
<tr>
<td>Polymethylmethacrylate</td>
<td>Proprietary</td>
<td>Proprietary</td>
<td>Xi R36/38, R43</td>
<td>20-40</td>
</tr>
<tr>
<td>Amorphous Precipitated Silica</td>
<td>112945-52-5</td>
<td>231-545-4</td>
<td>Not Applicable</td>
<td>1-5</td>
</tr>
</tbody>
</table>

Refer to Section 16 for the full text of the EU Classifications and R Phrases.

4. FIRST-AID MEASURES

<table>
<thead>
<tr>
<th>Routes of Exposure</th>
<th>First Aid Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye</td>
<td>Immediately flush victim's eyes with large quantities of water for at least 15 minutes, holding the eyelids apart. Get medical attention.</td>
</tr>
<tr>
<td>Skin</td>
<td>Remove contaminated clothing. Wash skin thoroughly with soap and water. Get medical attention if irritation develops. Launder clothing before re-use. (Discard contaminated shoes).</td>
</tr>
<tr>
<td>Inhalation</td>
<td>If irritation develops, remove to fresh air. Get medical attention if symptoms persist.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>If conscious, wash mouth out with water. Do not induce vomiting. Never give anything by mouth to an unconscious or convulsing person. Get medical attention.</td>
</tr>
</tbody>
</table>

Most important symptoms of exposure: May cause eye and skin irritation. May cause skin sensitization.

Note to Physicians (Treatment, Testing, and Monitoring): Treat symptomatically.

5. FIRE-FIGHTING MEASURES

| Suitable Extinguishing Media: | Water fog, foam, carbon dioxide, water spray or dry chemical. |
| Fire Fighting Procedures:     | Cool exposed intact containers with water spray. |
| Specific Hazards Arising from the Chemical: | High temperatures and sunlight may cause a polymerizing reaction to occur. Decomposition may release acrid smoke and fumes; carbon oxides, and methylmethacrylate. |
| Precautions for Fire Fighters: | Firefighters should wear full emergency equipment and approved positive pressure self-contained breathing apparatus. |

Recommended Protective Equipment for Fire Fighters:

<table>
<thead>
<tr>
<th>EYES/FACE</th>
<th>HANDS</th>
<th>RESPIRATORY</th>
<th>THERMAL</th>
</tr>
</thead>
</table>
6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions, PPE and Emergency Procedures:** Avoid contact with skin, eyes or clothing.

**Environmental Precautions:** Spill and release reporting requirements vary. Consult local authorities regarding requirements. Prevent entry into sewers and waterways.

**Methods and Materials for Containment and Clean-up:** Exposure to sunlight or artificial light will cause the paste to polymerize. Spread the paste to maximize the surface area. Once the material is hard, pick up and place into a container for disposal.

### Recommended Personal Protective Equipment for Containment and Clean-up:

<table>
<thead>
<tr>
<th>EYES/FACE</th>
<th>HANDS</th>
<th>RESPIRATORY</th>
<th>SKIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. HANDLING AND STORAGE

**Precautions for Safe Handing:** Avoid contact with the eyes, skin and clothing. Wear protective clothing and equipment as described in Section 8. Use only with adequate ventilation. Wash thoroughly with soap and water after handling. Keep containers closed when not in use.

Empty containers retain product residues can be hazardous. Follow all MSDS precautions when handling empty containers.

**Conditions for Safe Storage:** Store in a tightly closed container in a cool, well ventilated location away from incompatible materials. Do not store near high temperatures or ignition sources. Prevent contact with moisture. Refrigeration prolongs shelf life. Store away from food or beverages.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Occupational Exposure Limits:**

<table>
<thead>
<tr>
<th>Urethane Dimethacrylate</th>
<th>United States</th>
<th>None Established</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Germany</td>
<td>None Established</td>
</tr>
<tr>
<td></td>
<td>United Kingdom</td>
<td>None Established</td>
</tr>
<tr>
<td></td>
<td>European Union</td>
<td>None Established</td>
</tr>
</tbody>
</table>
Polymethylmethacrylate | United States | None Established |
--- | --- | --- |
| Germany | None Established |
| United Kingdom | None Established |
| European Union | None Established |

Amorphous Precipitated Silica

<table>
<thead>
<tr>
<th>Location</th>
<th>United States</th>
<th>Germany</th>
<th>United Kingdom</th>
<th>European Union</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Respirable Fraction) TWA OSHA PEL</td>
<td>5 mg/m³</td>
<td>None Established</td>
<td>None Established</td>
<td>None Established</td>
</tr>
<tr>
<td>(Total Dust) TWA OSHA PEL</td>
<td>15 mg/m³</td>
<td>None Established</td>
<td>None Established</td>
<td>None Established</td>
</tr>
</tbody>
</table>

**Biological Exposure Limits:** None Established

**Appropriate Engineering Controls:** Use with adequate local exhaust ventilation to maintain exposures below the occupational exposure limits or when grinding polymerized (cured) materials.

**Individual Protection Measures (PPE)**

- **Specific Eye/face Protection:** Chemical safety glasses or chemical splash goggles recommended.
- **Specific Skin Protection:** Wear impervious gloves such as rubber to prevent skin contact. Recommended glove: Rubber. Consult glove supplier for thickness and breakthrough times.
- **Specific Respiratory Protection:** None under normal use conditions. If the product is heated and ventilation is inadequate, wear an approved respirator appropriate for the exposure conditions.
- **Specific Thermal Hazards:** None required.

**Recommended Personal Protective Equipment**

- **EYES/FACE:**
  - ![Eye Protection Icon]
- **HANDS:**
  - ![Glove Icon]
- **RESPIRATORY:**
  - ![Respiratory Protection Icon]
- **SKIN**

**Environmental Exposure Controls:** Do not allow spills to enter sewers or waterways.

**General Hygiene Considerations and Work Practices:** Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

**Protective Measures During Repair and Maintenance of Contaminated Equipment:** Wear appropriate protective clothing and equipment.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Two pink, paste components in the uncured state. Pink, hard plastic when cured by mixing.</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic odor.</td>
</tr>
<tr>
<td>Vapor pressure (mmHg)</td>
<td>&lt; 1</td>
</tr>
</tbody>
</table>
Odor threshold: Not determined  
Vapor density: >1  

pH: Not determined  
Relative density: 1.14  

Melting/freezing point: <-40°C(<-40°F)  
Solubility: Negligible  

Initial boiling point and range: Not applicable (polymerizes)  
Partition coefficient: n-octanol/water: Not available  

Flash point: Not applicable  
Auto-ignition temperature: Not applicable  

Evaporation rate: Not available  
Decomposition temperature: Not determined  

Flammability: Not Flammable  
Viscosity: Not determined  

Explosive Properties: None  
Oxidizing Properties: None  

% Volatile by Volume: Not determined

---

10. STABILITY AND REACTIVITY

Reactivity: Polymerization can occur.

Chemical Stability: Unstable if heated. Polymerizes to form a hard plastic in 6 hours at 60°C(140°F) with low exotherm.

Possibility of Hazardous Reactions: Polymerization can occur if heated above 60°C(140°F)

Conditions to Avoid: Avoid heating greater than 60°C(140°F)

Incompatible materials: Oxidizing agents, reducing agents, tertiary amines, heavy metals, peroxides, and free radical initiators. Avoid excessive heat, flames, ignition sources and direct sunlight.

Hazardous Decomposition Products: Thermal decomposition may release acrid smoke and fumes; carbon oxides, and methylmethacrylate.

---

11. TOXICOLOGICAL INFORMATION

Potential Health Effects:
Enyes: May cause irritation, redness and tearing.
Skin: May cause irritation, redness, rash and swelling. May cause allergic skin reaction (sensitization).
Ingestion: None expected under normal use conditions.
Inhalation: None expected under normal use.

Chronic Health Effects: None expected under normal use.
Carcinogenicity: None of the components at 0.1% or greater are listed as possible carcinogens by NTP, IARC, ACGIH, the EU Dangerous Substances Directive, or OSHA.

Mutagenicity: No data available. This product is not expected to cause mutagenic activity.

Medical Conditions Aggravated by Exposure: Individuals with pre-existing skin and respiratory disorders may be at increased risk from exposure.

Acute Toxicity Data:
Urethane Dimethacrylate: Oral Rat LD50: >2000 mg/kg
Polymethylmethacrylate: No data available
Amorphous Precipitated Silica: Oral Rat LD50: 3,160 mg/kg; Inhalation Rat LC50: >0.139 mg/l/4h; Skin Rabbit LD50: >5000 mg/kg

Reproductive Toxicity Data: No data available. This product is not expected to cause adverse reproductive effects.

Specific Target Organ Toxicity (STOT):
Single Exposure: No data available.
Repeated Exposure: No data available.

12. ECOLOGICAL INFORMATION

Toxicity:
Urethane Dimethacrylate: 96h/LC50 zebra fish: 10.1 mg/l,
Polymethylmethacrylate: No data available
Amorphous Precipitated Silica: 24h/EC50 Daphnia Magna: >10,000 mg/l; 96h/LC50 Zebra Fish: >10,000 mg/l

Persistence and Degradability: Urethane Dimethacrylate is not readily biodegradable

Bio-accumulative Potential: No data is currently available

Mobility in Soil: No data is currently available

Other Adverse Effects: Some components are toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Results of PBT/vPvB Assessment: Not applicable.

13. DISPOSAL CONSIDERATIONS

Regulations: Dispose in accordance with all national and local regulations.

Properties (Physical/Chemical) Affecting Disposal: Exposure to sunlight or artificial light will cause the material to polymerize into a hard plastic. Empty containers retain product residues can be hazardous. Follow all MSDS precautions when handling empty containers.

Waste Treatment Recommendations: Dispose in accordance with national and local regulations.

14. TRANSPORT INFORMATION
15. REGULATORY INFORMATION

U.S. Federal Regulations

US OSHA Hazard Classification: Irritant, Sensitizer

Comprehensive Environmental Response and Liability Act of 1980 (CERCLA): This product is not subject to CERCLA reporting requirements. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

Toxic Substances Control Act (TSCA): This product is a medical device and not subject to chemical notification

Clean Water Act (CWA): This material is not regulated under the Clean Water Act

Clean Air Act (CAA): This material is not regulated under the Clean Air Act

Superfund Amendments and Reauthorization Act (SARA) Title III Information:

SARA Section 311/312 (40 CFR 370) Hazard Categories:

<table>
<thead>
<tr>
<th>Immediate Hazard:</th>
<th>Yes</th>
<th>Pressure Hazard:</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delayed Hazard:</td>
<td>Yes</td>
<td>Reactivity Hazard:</td>
<td>No</td>
</tr>
<tr>
<td>Fire Hazard:</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This product contains the following toxic chemical(s) subject to reporting requirements of SARA Section 313 (40 CFR 372):

<table>
<thead>
<tr>
<th>Components</th>
<th>C.A.S. #</th>
<th>WT %</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

State Regulations
California: This product contains the following substances known to the state of California to cause cancer and/or reproductive toxicity:

<table>
<thead>
<tr>
<th>Components</th>
<th>C.A.S. #</th>
<th>WT %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium Dioxide</td>
<td>13463-67-7</td>
<td>&lt; 0.01%</td>
</tr>
</tbody>
</table>

**International Regulations**

**Canadian Workplace Hazardous Materials Information System (WHMIS):** Class D Division 2B (Toxic material causing other toxic effects).

**European Inventory of Existing Chemicals (EINECS):** This product is a medical device and not subject to chemical notification requirements.

**EU REACH:** All components requiring registration have been pre-registered.

**Australian Inventory of Chemical Substances:** This product is a medical device and not subject to chemical notification requirements.

**China Inventory of Existing Chemicals and Chemical Substances:** This product is a medical device and not subject to chemical notification requirements.

**Japanese Existing and New Chemical Substances:** This product is a medical device and not subject to chemical notification requirements.

**Korean Existing Chemicals List:** This product is a medical device and not subject to chemical notification requirements.

**Philippine Inventory of Chemicals and Chemical Substances:** This product is a medical device and not subject to chemical notification requirements.

**16. OTHER INFORMATION**

**HMIS Hazard Rating:**
Health – 2
Flammability – 1
Physical Hazard – 1

Full text of Classification abbreviations used in Section 2 and 3:

Xi  Irritant
N  Dangerous for the environment.
R36/38  Irritating to eyes and skin.
R36/37/38  Irritating to eyes, respiratory system and skin.
R43  May cause sensitization by skin contact.
R51/53  Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Supersedes: 10 June 2009

Revision Summary: Change in format. Comprehensive review. Changes to all sections.

Data Sources: US NLM ChemID Plus and HSDB, Substance SDS for components, IUCLID Dataset EU Chemical Bureau,ESIS, Country websites for occupational exposure limits.