



MATERIAL SAFETY DATA SHEET

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

Product Name: Dentsply® Repair Material Liquid
Product Number: 680007, 680049, 682315
MSDS Code Number: 178

Manufacturer: Dentsply Prosthetics
Address: 570 West College Ave.
York, PA 17405-0872
Information Telephone Number: 717-845-7511
Emergency Telephone Number: 800-424-9300 Chemtrec
E-mail Address: Prosthetics_MSDS@Dentsply.com

Product Use: Liquid used in removable dental appliances

Date of Last Revision: September 14, 2007

SECTION 2 HAZARDS IDENTIFICATION

Emergency Overview: Flammable liquid and vapor. Hazardous polymerization may occur. May cause respiratory tract, eye and skin irritation. Prolonged or repeated contact may cause allergic skin reaction (skin sensitization). May be harmful if swallowed, inhaled or absorbed through the skin. Inhalation of vapors may cause dizziness, headache, and other central nervous system effects. Absorption may cause effects on the blood (methemoglobinemia). Effects may be delayed.

EU Preparation Classification (1999/45/EC): F, Xn, R11, R20/21/22, R33, R37/38, R43

SECTION 3 COMPOSITION INFORMATION ON INGREDIENTS

Ingredient	CAS No./EINECS No.	Percent	EC Substance Classification (67/548/EEC)
Methyl Methacrylate	80-62-6/201-297-1	90-95	F, Xi, R11, R37/38, R43
Ethylene Glycol Dimethacrylate	97-90-5 / 202-617-2	1-10	Xi R36/37
N,N-dimethyl-p-toluidine	99-97-8 / 202-805-4	1-5	T R23/24/25, R33, R52/53
2-(2H-benzotriazol-2-yl)-p-cresol	2440-22-4 / 219-470-5	1-5	Xi R43

See Section 16 for further information on EU Classification.

SECTION 4 FIRST AID MEASURES

Eye Contact: Flush eyes with large quantities of water for at least 15 minutes, holding the eyelids apart. Get immediate medical attention.

Skin Contact: Remove contaminated clothing. Wash skin thoroughly with soap and water. If irritation or other symptoms develops, get medical attention. Launder clothing before re-use. (Discard contaminated shoes).

Ingestion: Get immediate attention. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious or convulsing person.
Inhalation: Remove victim to fresh air. If breathing is difficult have qualified personnel administer oxygen. If breathing has stopped, administer artificial respiration. Get immediate medical attention.

SECTION 5 FIRE FIGHTING PROCEDURES

Extinguishing Media: Use carbon dioxide, foam, water spray or water fog.
Firefighting Procedures: Do not enter fire area without proper protection. Fight fire from safe distance or protected location. Firefighters should wear full emergency equipment and approved positive pressure self-contained breathing apparatus. Water may be ineffective unless used as a fine spray or fog. Use water to cool fire-exposed containers.
Unusual Fire/Explosion Hazards: Vapors are heavier than air and may travel to ignition source and flash back. Heat of fire may cause an exothermic autopolymerization reaction. Emits toxic fumes under fire conditions. Closed containers may explode due to pressure build up when exposed to extreme heat.
Known or Anticipated Hazardous Products of Combustion: Carbon monoxide, carbon dioxide, nitrogen oxides, methyl methacrylate, and irritating smoke and fumes.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Provide explosion-proof ventilation. Wear appropriate protective clothing as described in Section 8. Eliminate all ignition sources. Contain and absorb spills with inert material and transfer to a suitable container for disposal. Do not allow spills to be released into the environment.
Personal Precautions: Avoid contact with skin, eyes or clothing. Avoid breathing vapors.
Environmental Precautions: Do not allow spills to enter sewers or waterways.

SECTION 7 HANDLING AND STORAGE

Handling: Avoid contact with eyes, skin, and clothing. Avoid breathing vapors or mist. Wash thoroughly after handling. Wear protective clothing and equipment as described in Section 8. Use with adequate ventilation. Keep away from heat, sparks and flames. Ground container when pouring. Do not expose to direct sunlight.

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

Storage: Store in a cool, dry, well ventilated area. Keep container tightly closed when not in use. Do not store in direct sunlight. Prevent moisture contact. Protect from physical damage. Keep away from oxidizers and other incompatible materials.

SECTION 8 EXPOSURE CONTROL/PERSONAL PROTECTION

Occupational Exposure Limits:

Methyl Methacrylate	50 ppm TWA TLV 100 ppm STEL TLV 100 ppm PEL 50 ppm TWA DFG MAK 50 ppm TWA UK WEL 100 ppm STEL UK WEL
Ethylene Glycol Dimethacrylate	None Established
N,N-dimethyl-p-toluidine	None Established
2-(2H-benzotriazol-2-yl)-p-cresol	1 mg/m ³ TWA Manufacturer Recommended

Engineering Controls: Use ventilation that is adequate to keep employee exposure to airborne concentrations below exposure limits. Use explosion-proof equipment where required.

Personal Protective Equipment:

Eye Protection: Wear safety chemical goggles when the possibility exists for eye contact due to splashing or spraying material.

Skin Protection: Wear nitrile rubber or other impervious gloves to prevent skin contact.

Respiratory Protection: A NIOSH/MSHA approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain limited circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection. Selection and use of respiratory equipment must be in accordance with appropriate regulations and good industrial hygiene practice.

Other Protective Clothing or Equipment: Wear impervious clothing to prevent any contact with this product, such as gloves, apron, boots, or whole body suit.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Clear liquid, with an ester-like odor.

Boiling Point: 214°F (101°C)

Melting Point: Not available

Freezing Point: Not available

Specific Gravity: 0.94

Solubility in Water: Slight

pH: Not available

Vapor Pressure (mmHg): 35 mmHg @ 68°F(20°C)

Vapor Density: 3.45

Evaporation Rate: Not available (Bac = 1)

Viscosity: Not applicable

% Volatile by Volume: 98%

Flashpoint: 50°F (10°C)

Flammable Limits in Air: LEL: 2.1%

Autoignition Temperature: 806°F (430°C)

UEL: 12.5%

SECTION 10 STABILITY AND REACTIVITY

Stability: Stable

Conditions to Avoid (stability): Heat, sparks, open flame and other ignition sources, elevated temperatures, direct sunlight.

Incompatibility with Other Materials: Avoid contact with oxidizing agents, reducing agents, acids, and bases.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, nitrogen oxides, methyl methacrylate, and irritating smoke and fumes.

Hazardous Polymerization: Polymerization can occur. Conditions leading to polymerization are excessive heat, oxygen-free atmosphere inhibitor depletion (due to excessive aging), direct sunlight, and contamination with polymerization catalysts.

SECTION 11 TOXICOLOGICAL INFORMATION

Potential Health Effects:

Eyes: Liquid and vapors can cause irritation with redness, tearing and blurred vision. Corneal damage can occur.

Skin: May cause skin irritation with allergic skin reaction (skin sensitization). May be harmful if absorbed through the skin causing effects similar to inhalation.

Inhalation: May cause respiratory tract irritation with coughing, mucous production and shortness of breath. High concentration is irritating to the respiratory tract and may cause dizziness, headache and anesthetic effects. Absorption may cause effects on the red blood cells resulting in methemoglobinemia (reduction in the oxygen carrying capacity of the blood). Symptoms, which may be delayed, include headache, weakness, confusion, palpitations, chest pain, discoloration of the skin and blood and seizures.

Ingestion: Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain. Large doses may cause effects similar to inhalation.

Chronic Health Effects: Prolonged or repeated overexposure may cause skin irritation or sensitization in some individuals, as well as kidney, lung, liver, and heart damage.

Carcinogenicity: None of the components of this product are listed as carcinogens by OSHA, IARC or NTP or the EU directive.

Mutagenicity: Methyl methacrylate, ethylene glycol dimethacrylate and N,N-dimethyl-p-toluidine tested positive in the Ames Test for mutagenicity.

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

Toxicological Data:

Methyl Methacrylate: Oral rat LD50: 7900 mg/kg; Dermal rabbit LD50: >35,500 mg/kg;
Inhalation Rat LC50 4h: 7093 ppm

Ethylene Glycol Methacrylate: Oral rat LD50: 3300 mg/kg; Oral mouse LD50: 2 g/kg

N,N-dimethyl-p-toluidine: Oral rat LD50: 1400 mg/kg; Inhalation rat LC50 4 hr: 1400 mg/m³

2-(2H-benzotriazol-2-yl)-p-cresol: Oral rat LD50: >10,000 mg/kg; Dermal rat LD50: >1,000 mg/kg;
Inhalation Rat LC50 1 hr: >163 mg/l

SECTION 12 ECOLOGICAL INFORMATION

Methyl Methacrylate	Fathead minnow LC50 96 hr: 130 mg/L Algae EC50 48 hr: 170 mg/L
Ethylene Glycol Methacrylate	No data available
N,N-dimethyl-p-toluidine	No data available
2-(2H-benzotriazol-2-yl)-p-cresol	Rainbow trout LC50 96 hr: >0.17 mg/L Daphnia magna EC50 24 hr: >1000 ppm

SECTION 13 DISPOSAL CONSIDERATIONS

This product will polymerize when exposed to sunlight. The product should be disposed of in accordance with Federal, State and local regulations.

SECTION 14 TRANSPORT INFORMATION

DOT Shipping Name: Methyl Methacrylate Monomer, Inhibited

DOT Hazard Class: 3, PG II

UN Number: UN1247

DOT Labels Required (49CFR172.101): Flammable Liquid

IATA Shipping Name: Methyl Methacrylate Monomer, Inhibited

IATA Hazard Class: 3, PG II

UN Number: UN1247

IATA Hazard Labels Required: Flammable Liquid

IMDG Shipping Name: Methyl Methacrylate Monomer, Inhibited

IMDG Class: 3, PG II

UN Number: UN1247

IMDG Label: Flammable Liquid

SECTION 15 REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS:

CERCLA 103 Reportable Quantity: Releases above the RQ of 1,052 lbs (based on the RQ for methyl methacrylate of 1,000 lbs present at 95% max) must be reported to the National Response Center. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

SARA TITLE III:

Hazard Category For Section 311/312: Acute Health, Chronic Health, Fire Hazard, Reactivity.

Section 313 Toxic Chemicals: This product contains the following chemicals subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372):

Methyl Methacrylate	80-62-6	90-95%
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Section 302 Extremely Hazardous Substances (TPQ): None

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

U.S. STATE REGULATIONS

California Proposition 65: This product contains the following substances known to the state of California to cause cancer and/or reproductive toxicity: None.

INTERNATIONAL REGULATIONS:

Canadian Environmental Protection Act: This product is a medical device and not subject to chemical notification requirements.

Canadian WHMIS Classification: Medical devices are not subject to WHMIS.

European Community Labeling: Contains Methyl Methacrylate



Highly Flammable



Harmful

R11 Highly flammable.
R43 May cause sensitization by skin contact.
R20/21/22 Harmful by inhalation, in contact with the skin and if swallowed.
R37/38 Irritating to respiratory system 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.
S16 Keep away from sources of ignition – No smoking.
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.
S44 If you feel unwell, seek medical advice (show the label where possible).
S61 Avoid release to the environment. Refer to special instructions/ material safety data sheet.

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

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.

SECTION 16 OTHER INFORMATION

HMIS Hazard Rating:

Health – 2 Fire Hazard – 3 Reactivity – 2

Revision Date: 09/14/2007

Supercedes: 03/06/2002

EU Classes and Risk Phrases for Reference (See Sections 2 and 3):

F Flammable

Xi Irritant

Xn Harmful

T Toxic

R11 Highly flammable.

R20/21/22 Harmful by inhalation, in contact with the skin and if swallowed

R23/24/25 Toxic by inhalation, in contact with the skin and if swallowed

R33 Danger of cumulative effects.

R36/37 Irritating to eyes and respiratory tract.

R37/38 Irritating to respiratory tract 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