

SAFETY DATA SHEET

SECTION 1. IDENTIFICATION



Great Lakes Orthodontics
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Product Name: Biocryl Monomer Resin
Product Number: 040-022, 040-024, 040-026, 040-033, 040-034, 040-049
KITS: 040-013, 040-014, 040-015, 040-016, 040-030, 040-031

Effective Date: 7/26/13

SECTION 2. HAZARDOUS IDENTIFICATION

Potential Health Effects:

Primary Routes of Entry

- Inhalation
- Skin Contact
- Eye Contact

Medical Conditions Aggravated by Exposure

- High atmospheric concentrations may lead to irritation of the respiratory tract and anesthetic effects.
- Repeated exposure to high levels produces adverse effects on the nose, liver, and kidneys.
- Repeated and/or prolonged contact may cause dermatitis.

Human Effects and Symptoms of Overexposure:

Skin

Irritation to skin.

Inhalation

Irritation to respiratory system.

Eyes

Irritation to eyes.

Chronic Effects or Exposure

None.

Carcinogenicity

No carcinogenic substances as defined by IARC, NTP and / or OSHA.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components	CAS #	EINECS	%	Hazard Symbol	R Phrases
Methyl Methacrylate	80-62-6	2012971	>95	F, Xi	11;36/37/38;43
99-97-8 N,N-dimethyl-p-toluidine			<2	T	23/24/25;33;52/53

SECTION 4. FIRST AID MEASURES**Eye Contact**

Irrigate with eyewash solution or clean water, holding the eyelids apart for at least 15 minutes. Obtain immediate medical attention.

Skin Contact

Remove contaminated clothing. Wash skin immediately with water. If symptoms (irritation or blistering) occur obtain medical attention.

Inhalation

Remove patient from exposure, keep warm and at rest. Obtain immediate medical attention.

Ingestion

If ingested, do not induce vomiting. If product has been swallowed, drink plenty of water or milk immediately. Never give anything by mouth to an unconscious person. Provide an estimate of the time at which the material was ingested and the amount of the substance that was swallowed. Obtain immediate medical attention.

Treatment

Treat symptoms conventionally, after thorough decontamination.

SECTION 5. FIRE FIGHTING MEASURES**Suitable Extinguishing Media**

Chemical Foam, Dry chemical, Carbon Dioxide (CO₂)

Special Fire Fighting Procedures

Highly flammable. When involved in a fire, this product may ignite readily and decompose to produce carbon oxides. Vapors of this product are heavier than air and may travel to a source of ignition and flash back to a leaking or open container. Do not enter fire area without proper protection. Fight fire from a safe location. Heat / impurities may cause pressure to build and/or rupture closed containers, spreading fire, increasing risk of burns / injuries. A self-contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

Unusual Fire / Explosion Hazards

For bulk size > 1L – High temperatures, inhibitor depletion, accidental impurities, or exposure to radiation or oxidizers may cause spontaneous polymerizing reaction generating heat / pressure. Closed containers may rupture or explode during a runaway polymerization. Use a water spray or fog to reduce or direct vapors. Water may not be effective in actually extinguishing a fire involving this product.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Spill and Leak Procedures

Eliminate sources of ignition. Ensure suitable personal protection (including respiratory protection) during removal of spillages. Prevent entry into drains. Adsorb spillages onto sand, earth, or any suitable adsorbent material. Do not absorb onto sawdust or other combustible materials. Use only non-sparking tools for recovery and cleanup. Maximize ventilation (open doors and windows) and secure all sources of ignition. Transfer to a container for disposal or recovery. Wash all affected areas with plenty of warm water and soap. Remove any contaminated clothing and wash thoroughly before reuse. Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.

SECTION 7. HANDLING & STORAGE

Storage temperature

Preferably not exceeding 25 °C.

Handling Precautions

Observe precautions found on the label. Close container after each use. Ground all metal containers when transferring. Use explosion-proof equipment. Avoid contact with skin and eyes. Avoid inhalation of high concentration of vapors. Use only in well ventilated areas. The vapor is heavier than air; beware of pits and confined spaces. Take precautionary measures against static discharges.

Storage Precautions

Keep only in original container. Store in cool, dry place away from heat, sparks, flame, and direct sunlight, other light sources, or sources of intense heat. Keep container closed to prevent water absorption and contamination. Keep away from sources of ignition – No Smoking. Methacrylate stored in bulk must be kept in contact with air (oxygen).

Further Info on Storage Conditions

Monomer vapors are uninhibited and may form polymers in vent or flame arresters, resulting in blockage of vents.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation Measures

Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.

Respiratory Protection

Wear suitable respiratory protective equipment if exposure to levels above the occupational exposure limit is likely. A suitable mask with filter type A may be appropriate. If necessary, use only respiratory protection authorized per U.S. OSHA's requirement in 29 CFR SS 1910.134 or other appropriate governing standard.

Hand Protection

If anticipated that prolonged and repeated skin contact will occur during use of this product, wear chemical resistant gloves for routine industrial use. If necessary, use only protection authorized per U.S. OSHA's requirement in 29 CFR SS 1910.138 or other appropriate governing standard.

Eye Protection

Depending on the use of this product, splash or safety glasses may be worn. If necessary, use only protection authorized per U.S. OSHA's requirement in 29 CFR SS 1910.133 or other appropriate governing standard. Ensure that an eyewash station, sink, or washbasin is available in case of exposure to eyes.

Skin and Body Protection

Wear suitable protective clothing.

Occupational Exposure Limits:

<u>Hazardous Ingredient(s)</u>	<u>PEL (OSHA)</u>	<u>TLV (ACGIH):</u>	<u>Recommendation</u>
Methyl Methacrylate	100 ppm	100 ppm	100 ppm

SECTION 9. PHYSICAL & CHEMICAL PROPERTIES

- **Form** – Liquid
- **Color** – Clear
- **Odor** – Characteristic strong and acrid
- **Flash Point** - 115 °C (52.7 °F) (TCC)
- **Boiling Point** - 101 °C (214 °F)
- **Auto Ignition Temperature** - 421 °C (790 °F)
- **Lower Explosion Limit** – 2.12%
- **Upper Explosion Limit** – 12.5%
- **Vapor Pressure (28mmHg)** – 20 °C (68 °F)
- **Solubility in Water** – 1.6 wt.% @ 20 °C (68 °F)
- **Vapor Density (AIR=1)** – 3.5 @ 15.5 °C (60 °F)
- **Percent Volatile (W/W %)** – 99+
- **Viscosity** – Like water
- **Evaporation Rate (BuAc=1)** – 3.1
- **Specific Gravity (H2O=1)** – 0.94
- **Density** – 0.949 g/ml @ 15.5 °C

SECTION 10. STABILITY & REACTIVITY

Hazardous Reactions – Hazardous polymerization may occur.

Stability – Unstable / Reactive upon depletion of inhibitor.

Materials to Avoid – Strong oxidizers, strong reducers, free radical initiators, inert gases, and oxygen scavengers. Material has strong solvent properties and can soften paint and rubber.

Conditions to Avoid – Temperatures above 21 °C, 70 °F, localized heat sources (example drum or band heaters) oxidizing conditions, freezing conditions, direct sunlight, ultraviolet radiation, inert gas blanketing.

Hazardous Decomposition Products – Oxides of carbon when burned.

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicity Data:

There is no reason to believe that Methyl Methacrylate represents a carcinogenic or mutagenic hazard to man based upon evidence from well-conducted studies in relevant cohorts. Recent studies in animals have shown that high exposure is maintained at or below the occupational exposure limit.

Methacrylate

Acute oral toxicity

- LD50: > 7,900 mg/kg (Rat)

Acute dermal toxicity

- LD50: > 35,500 mg/kg (Rabbit)

Inhalation Human

- TCLO: 125 ppm
- TCLO: 60 mg/m³
- LC50: 7,094 ppm/4H (Rat)

N,N-dimethyl-p-toluidine

Acute dermal toxicity

- LD50: > 2,000 mg/kg (Rat)

Inhalation Human

- LC50: 2,540 ppm/4H (Rat)

Skin Irritation

May cause sensitization by skin contact. Irritating to skin. Repeated and prolonged contact may cause dermatitis.

Eye Irritation

Irritating to eyes. High vapor concentration will cause irritation.

Inhalation

Irritating to respiratory system. High atmospheric concentrations may lead to irritation of the respiratory tract, dizziness, headache, and anesthetic effects.

Ingestion

Low oral toxicity, but ingestion may cause irritation of the gastrointestinal tract.

Target Organs for Methyl Methacrylate

Repeated exposure to high levels produces effects on the nose, liver, and kidneys.

SECTION 12. ECOLOGICAL INFORMATION (non-mandatory)

Aquatic Toxicity:

Methyl Methacrylate

- LC50: 130 mg/L, 96h (Fathead minnow)
- EC50: 69 mg/L, 48H (Daphnia Magna)
- LC50: 170 mg/L, 96H (Algae)

Environmental Fate

- 28 Day Biodegradation Study: Not readily biodegradable.
- Chemical Oxygen Demand (COD) 88% (28 days).
- Inherent Biodegradation: Dissolved Organic Carbon Removal (DOC Removal) > 95% (28 days).
- Adsorption / Desorption: High Mobility in soil.

SECTION 13. DISPOSAL CONSIDERATIONS (non-mandatory)

Waste Disposal Method

When discarded it is a hazardous waste by the EPA under RCRA. The reportable quantity (RQ) for Methyl Methacrylate is 1000lbs (40 CFR Part 302). After addition of excess inhibitor, dispose waste material in accordance with Federal, State, and Local Regulations.

Reuse of empty drums or containers is not recommended. Employees should be advised of the potential hazards, due to residual flammable material, associated with empty containers. Dispose of all empty containers properly, in accordance with Federal, State, and Local regulations.

SECTION 14. TRANSPORT INFORMATION (non-mandatory)

- **DOT / UN Shipping Name:** Flammable liquid, n.o.s.
(Methyl Methacrylate monomer, stabilized / N,N-dimethyl-p-toluidine solution)
- **NA / UN Number:** UN1993
- **DOT / Unclass:** 3
- **Packing Group – II**
- **Label – Flammable liquid**
- **IMDG Class – 3**
- **CERCLA RQ – 1000lbs**

SECTION 15. REGULATORY INFORMATION (non-mandatory)

EC Regulations

EINECS – all chemical listed

ECC Classification – Highly Flammable and Irritant.

Symbol: Indication of danger

- F – Highly Flammable
- Xn – Harmful

Risk Phrases

- R11 – Highly flammable
- R20/21/22 – Harmful by inhalation, and in contact with skin.
- R33 – Danger of cumulative effects.
- R43 – May cause sensitization by skin contact.

Safety Phrases

- S3 – Keep in a cool place.
- S7 – Keep container tightly closed.
- S9 – Keep container in well ventilate place.
- S16 – Keep away from sources of ignition. No smoking.
- S20 – When using do not eat or drink.
- S24 – Avoid contact with skin.
- S29 – Do not empty into drains.
- S37/39 – Wear suitable gloves and eye/face protection.
- S46 – If swallowed, seek medical advice immediately and show this container or label.

Canadian Regulations

DSL – included

WHMIS Classification –

- B2 – Flammable Liquid
- D2B – Irritant

This product has been classified according to the hazard criteria of the CPR and the SDS contains all of the information required by CPR. None of the components of this product are listed on the Priorities Substances List.

TSCA Inventory Status - The components of this product are listed on the TSCA Inventory.

Other Federal Requirements – This product complies with the appropriate sections of the U.S. FDA's 21 CFR.

State Regulatory – This product may contain components that are covered under specific state criteria.

SARA Reporting Requirements – Yes

SARA Threshold Planning Quantity – There are specific Threshold Planning Quantities for the components of this product.

SECTION 16. OTHER INFORMATION (non-mandatory)
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HMIS Rating:

- **Health** – 2
- **Flammability** – 3
- **Reactivity** – 2
- **Personal Protective Equipment** – Gloves and safety glasses or chemical splash goggles.

NFPA Rating

- **Health** – 2
- **Flammability** – 3
- **Reactivity** – 2

0 = Minimal, 1 = Slight, 2 = Moderate, 3 = Serious, 4 = Severe

* = Chronic Health Hazard