

**MATERIAL SAFETY DATA SHEET : ACRYLIC MONOMER HEAT POLYMERIZED
FSMT32-001****1 IDENTIFICATION OF PRODUCT**

- 1.1 Chemical Name: Methyl Methacrylate.
- 1.2 Generic Name: (Stabilized) Methyl Methacrylate.
- 1.3 Synonyms: MMA; Acrylic Liquid; Monomer.

2 INFORMATION ABOUT COMPOSITION ELEMENTS

- 2.1 Hazardous Elements: Methyl Methacrylate (CASH 80-62-6)
- 2.2 Non-hazardous Elements: Not applicable.

3 HEALTH HAZARD DATA

- 3.1 Harmful characteristics of material: Highly flammable.
- 3.2 Appearance (in emergencies): Colorless liquid; irritant and pungent odor.
- 3.3 Potential Health Hazards: Possible sensitizing effects after skin contact. Long-term skin contact can cause dermatitis. High concentrations of this product in the atmosphere can produce irritation of the respiratory tract.

4 FIRST AID MEASURES

- 4.1 Emergency procedures and first aid after:
 - Inhalation: Take the patient to a ventilated area.
 - Eye Contact: Wash immediately the patient's eyes with plenty of water while keeping patient's eyelids completely open. See the ophthalmologist.
 - Skin Contact: Wash immediately the skin with plenty of water. Take off contaminated clothing. If any symptom (such as irritation or blisters), see the doctor.
 - Swallowing: Drink plenty of water. See the doctor.
- 4.2 Antidote: Not applicable.
- 4.3 Information for doctors: Not applicable.

5 FIRE FIGHTING MEASURES

- 5.1 Flammability of Product: This product is highly flammable. It produces vapors heavier than air and makes exploding mixtures in room temperature. In case of

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fire, it can produce dangerous toxic gases. If closed containers filled with this product are heated, they may explode.

- 5.2 Extinction of Fire: Use fire extinguishers such as CO₂, foam and/or powder.
- 5.3 Instructions for fire extinguishing: Use special protective equipment. In long stays in the contaminated area, use an autonomous breathing equipment and adequate protective clothing.

6 ACCIDENTAL RELEASE MEASURES

- 6.1 Techniques, procedures and materials in case of:
- Small spill: Absorb spilled product using sand, earth or another absorbent material deemed adequate. Do not absorb with sawdust or combustible materials. Put all the absorbed material in an adequate container for its later disposal.
 - Large spill: Avoid the spilled product to penetrate drainage channels. Absorb spilled product using sand, earth or another absorbent material deemed adequate. Do not absorb with sawdust or combustible materials. Put all the absorbed material in an adequate container for its later disposal. Uncontrolled throwing of waste of this product into waterways must be communicated to competent authorities.
- 6.2 Further considerations: This product must be used only in ventilated areas. Avoid accumulation of electrostatic charges. Avoid penetration of this product in surface or underground waterways.

7 HANDLING AND STORAGE OF PRODUCT

- 7.1 Handling: Please follow recommendations for fire fighting given above. This product must be kept away from fire sources.
- 7.2 Storage: Storage this product in a cool, dry, and well ventilated area. Keep this product away from flames or spark sources. Do not smoke. Keep this product away from heat and direct sunlight. It must be stored far from oxidizing agents, acids, bases or polymer initiators. Do not storage for long periods. Check frequently the product's translucency. Keep constant the inhibitor's concentration. For low stabilization monomers (Less than 2 ppm of Topanol A), the storage temperature must be lower than 15°C. Monomer's vapors are not inhibited and can form polymers in presence of fans or fire extinguishers and, in such case; they can originate the blockage of fans.

**MATERIAL SAFETY DATA SHEET : ACRYLIC MONOMER HEAT POLYMERIZED
FSMT32-001****8 EXPOSURE CONTROLS AND PERSONAL PROTECTION**

- 8.1 How to control exposure to this product: Use adequate breathing equipment, safety glasses, and gloves.
- 8.2 Individual protective equipment:
- Breathing equipment: Use adequate protective equipment. To prevent exposure to concentration values beyond the limits of occupational exposure, use an adequate face mask with a type a filter. In presence of high concentration of vapors, use autonomous breathing equipment.
 - Eye Protection: For complete protection, use safety glasses and a total-protection face screen.
 - Gloves: Use adequate gloves. Adequate gloves are those that combine at least the following features: physical resistance, required sensibility, and permeability degree of material.
 - Laminated PVA/Polyethylene or PVA-covered gloves have a high permeability degree. Butyl or Nitrile rubber gloves provide a certain protection, but they must be replaced immediately if there has been exposure. Chirurgical latex gloves provide scarce protection against this product. Gloves must be replaced regularly and specially in case of excessive exposure.
- 8.3 Exposure parameters:
PEL (OSHA): 100 ppm, 410 mg/mm³, 8 Hr, TWA
TLV ACGIH: 100 ppm, 410 mg/mm³, 8 Hr, TWA

9 PHYSICAL AND CHEMICAL PROPERTIES OF THIS PRODUCT

- Physical Appearance or State: Liquid.
- Color: Clear, Colorless.
- Odor: Strong characteristic odor.
- Odor Threshold (ppm): 0.5 – 1.0.
- pH: Not applicable.
- Density: 0.945 g/ml at 20°C (68 °F).
- Solubility in water: 1.6g /100g at 20°C (68 °F).
- Solubility in solvents: Mixable with most organic solvents.
- Boling Point: 100.5°C (213 °F).
- Melting Point: -48°C (-54.4 °F).
- Flammability Point (closed cup): 10°C (50 °F).
- Lower Flammability Threshold (% v/v): 2.1.
- Upper Flammability Threshold (% v/v): 12.5.



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- Self-ignition Temperature: 421°C (790 °F).
- Exploding Features: Not applicable.
- Vapor Pressure (Pascal): 3600 at 20°C (68 °F).
- Minimum Ignition Energy (mJ) 0.89 – 0.97 at 23°C (73.4 °F).
- Vapor Density (Air=1): 3.5.
- Molecular Formula: C₅H₈O₂.

10 STABILITY AND REACTIVITY OF THIS PRODUCT

- 10.1 Chemical Stability: This product is stable until its self-ignition temperature.
- 10.2 Conditions to Avoid: Prolonged heating or a catalyst can initiate polymerization of this product.
- 10.3 Incompatibility with other materials: Peroxide and Azo polymer initiators, strong acids, alkalis, and oxidizing agents; also: bases, acids, and flammable solvents.
- 10.4 Dangerous Breaking down Products: Vapors heavier than air that tend to accumulate themselves form flammable mixtures.
- 10.5 Dangerous Polymerization: Exothermic reactions (that produce heat).

11 TOXICOLOGICAL INFORMATION

- 11.1 Acute Toxicity:
 - Inhalation: This product irritates the respiratory tract. High concentrations of this product in the atmosphere can irritate the respiratory tract and produce dizziness, headache, and anesthetic effects.
 - Skin Contact: Possible sensitivity after skin contact, Irritation of skin, Repeated and/or long-term skin contact can cause dermatitis.
 - Eye Contact: High concentrations of this product can irritate the eyes.
 - If swallowed: This product has low oral toxicity, but if swallowed, it can irritate the gastrointestinal tract.
- 11.2 Chronic Toxicity: Long-term exposure repeated exposure to high concentrations of this product can cause adverse effects on heart, lungs, liver, and kidneys. According to different studies, there is no reason to think that Methyl Methacrylate represents a carcinogenic or mutagenic risk for people. Long-term exposures of pregnant mothers do not produce either toxic effects on embryos or foetus or teratogenic effects.

**MATERIAL SAFETY DATA SHEET : ACRYLIC MONOMER HEAT POLYMERIZED
FSMT32-001****12 ECOLOGICAL INFORMATION:**

- 12.1 Distribution and Environmental Impact: This product is highly volatile. Its solubility in water is scarce. It has a low bioaccumulation potential. It is foreseeable for this product to have a high mobility under the surface of the ground.
- 12.2 Persistence and Degradation: This product is easily biodegradable. Its Chemical Demand of Oxygen (CDO) is 88% (28 days).
- 12.3 Inherent biodegradation: Elimination of dissolve organic carbon in more than 95% lasts 28 days.
- 12.4 Toxicity: Low toxicity for fish. CL50 (fish) typically: > 100 mg/L.
- 12.5 Innocuous for aquatic invertebrates: CE50 (Daphnia Magna) (48 hours) 69 mg/L. Low toxicity for algae. CE50 (Selenastrum Capricornutum) (96 hours) 170 mg/L.
- 12.6 Effects on Effluent Treatment: This product is practically eliminated during biological treatment processes.

13 DISPOSAL CONSIDERATIONS

Do not throw waste material of this product into waterways. Waste disposal of this product must be in accordance with regulations into effect in each country.

WARNING: Laws, regulations and local restrictions can change or be reinterpreted from one country to another and also, they can be different from the ones being into effect in Colombia. This is why considerations about waste disposal of product and its packing may differ from the ones appearing in this document!

14 TRANSPORT INFORMATION

- 14.1 Dangerous material: Methyl Methacrylate
- 14.2 Type of Risk: Flammable
- 14.3 UN Number: 1247
- 14.4 IATA Classification: 3



**MATERIAL SAFETY DATA SHEET : ACRYLIC MONOMER HEAT POLYMERIZED
FSMT32-001****15 INFORMATION ABOUT REGULATIONS INTO EFFECT**

- 15.1 In Colombia: Transportation of this product must be made according to provisions of Decree 1609 of 2002 concerning road transportation of chemical and dangerous substances.
- 15.2 International Regulations: This product must be labeled according to directives of the EEC/Regulations on dangerous substances.

16 IMPORTANT ADDITIONAL INFORMATION

In case of emergency, please call our Industrial -and- Physical Safety Area, phone n° (574) 550 00 00.

Information appearing in this Safety Data Sheet is based on our current knowledge of this product. Our firm is not responsible for inappropriate usage of this product.



Elaboration date: 2009-12-30
Modification date:

Prepared By: Auxilary R&D
Approved By Head of Industrial Safety Area

Class: E.

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**MATERIAL SAFETY DATA SHEET: ACRYLIC POLYMER HEAT POLYMERIZED
FSRT32-001****1 IDENTIFICATION OF PRODUCT**

- 1.1 Chemical Name: Poly (methacrylate).
- 1.2 Generic Name: Poly (methacrylate).
- 1.3 Synonyms: PMMA, Acrylic Resin.

2 INFORMATION ABOUT COMPOSITION ELEMENTS

- 2.1 Hazardous Elements: None.
- 2.2 Non-hazardous Elements: Poly (methacrylate) (CASH 9011-14-7)

3 HEALTH HAZARD DATA

- 3.1 Characteristics of material: Odorless fine powder.
- 3.2 Appearance (in emergencies): Odorless fine powder. If this powder is dispersed in the air, it irritates the eyes.
- 3.3 Potential Health Hazards: Low oral toxicity. If it is dispersed in the air, it can irritate the eyes. Irritation after skin contact is not known. No adverse health effects are known.

4 FIRST AID MEASURES

- 4.1 Emergency procedures and first aid after:
 - Inhalation: Take out the patient from the exposure area and move him/her to a ventilated place. If any harmful effect appears, call the doctor.
 - Eye Contact: Wash immediately the patient's eyes with plenty of water while keeping patient's eyelids completely open. See the ophthalmologist.
 - Skin Contact: Wash immediately the skin with plenty of water. Take off contaminated clothing. In case of appearance of any symptom (such as irritation or blisters), see the doctor.
 - Swallowing: See the doctor.
- 4.2 Antidote: Not applicable.
- 4.3 Information for doctors: Not applicable.



**MATERIAL SAFETY DATA SHEET: ACRYLIC POLYMER HEAT POLYMERIZED
FSRT32-001****5 FIRE FIGHTING MEASURES**

- 5.1 Flammability of Product: This is a low-flammable product.
- 5.2 Extinction of Fire: Fire can be extinguished using spray water, foam, dry powder, or CO₂
- 5.3 Instructions for fire extinguishing: Use special protective equipment. In long stays in the contaminated area, use an autonomous breathing equipment and adequate protective clothing. This product breaks down if heated at temperatures higher than 200°C. The breaking down of this product caused by combustion or overheating can produce irritant and flammable toxic vapors.

6 ACCIDENTAL RELEASE MEASURES

- 6.1 Techniques, procedures and materials in case of:
- Small spill: Spilled powder is slippery underfoot. If spilled, use gloves to pick it up and put it in a container for its later disposal or recuperation.
 - Large spill: Sweep away the spilled product and put it in a waste drum or in a plastic bag. Wash the slippery area with water. Avoid the spilled product to penetrate drainage channels. Uncontrolled throwing of waste of this product into waterways must be communicated to competent authorities.
- 6.2 Further considerations: Avoid penetration of this product in surface or underground waterways.

7 HANDLING AND STORAGE OF PRODUCT

- 7.1 Handling: **DO NOT PUT THIS PRODUCT IN CONTACT WITH HOT MATERIALS** to avoid firing. All polymers degrade somehow if overheated. Avoid eye contact. Avoid long-term skin contact. Avoid inhalation of high concentrations of this powder. Please follow fire fighting measures shown above. This product must be kept away from fire sources.
- 7.2 Storage: Storage this product at room temperature, in a cool area. Containers of this product must always be well sealed.
- 7.3 Further information: Acrylic resin for denture bases Veracril® is delivered in specially packaged drums and bottles. Always keep product containers in a clean and cool area, protected from heat or fire sources.

**MATERIAL SAFETY DATA SHEET: ACRYLIC POLYMER HEAT POLYMERIZED
FSRT32-001****8 EXPOSURE CONTROLS AND PERSONAL PROTECTION**

- 8.1 How to control exposure to this product: Use a mask to protect yourself from powder. Also use safety glasses, and adequate face protection.
- 8.2 Individual protective equipment:
- Breathing equipment: Use adequate protective equipment. In case of high levels of exposure, use an adequate mask to protect yourself from powder.
 - Eye Protection: For complete protection, use safety glasses and a total-protection face screen.
 - Others: Use adequate protective clothing and follow general safety and hygienic measures. Wash your hands after using this product.
- 8.3 Exposure parameters:
PEL (OSHA): Total powder 5 mg/mm³, 8 Hr, TWA, breathable powder.
TLV ACGIH: Not available.

9 PHYSICAL AND CHEMICAL PROPERTIES OF THIS PRODUCT

- Percentage of Volatile Elements: < 1%
- Solubility in Water: Not significant
- Odor: Odorless
- Physical appearance: Pearls
- Flash Point: 300°C (572 °F)

10 STABILITY AND REACTIVITY OF THIS PRODUCT

- 10.1 Chemical Stability: This product is very stable. When it is overheated or in presence of a catalyst, a new polymerization process may start again.
- 10.2 Conditions to Avoid: Incompatibility with Peroxide or Azo polymer initiators, strong acids, alkalis, and oxidizing agents; also with bases, acids, and flammable solvents.
- 10.3 Incompatibility with other materials: Monomers.
- 10.4 Dangerous Breaking down Products: Monomer Vapors.
- 10.5 Dangerous Polymerization: Exothermic reactions (that produce heat).

**MATERIAL SAFETY DATA SHEET: ACRYLIC POLYMER HEAT POLYMERIZED
FSRT32-001****11 TOXICOLOGICAL INFORMATION****11.1 Acute Toxicity:**

- Inhalation: Health risks after inhalation of this product are not known. High concentrations of this powder can irritate the respiratory tract. High concentrations of vapors originated from overheating can irritate the respiratory tract.
- Skin Contact: Cases of skin irritation caused by contact with this product are not known.
- If swallowed: This product has low oral toxicity, but if swallowed, it can irritate the gastrointestinal tract.

11.2 Chronic Toxicity:

- Long-term exposure: This product has been used during many years without any evidence of adverse effects. According to different studies, there is no reason to think that Polymethyl Methacrylate represents a carcinogenic or mutagenic risk for people. Long-term exposures do not produce either toxic effects on embryos or foetus or teratogenic effects on pregnant mothers.

12 ECOLOGICAL INFORMATION

- 12.1 Distribution and Environmental Impact: Volatility of this product is low. It is not soluble in water. It has a low bioaccumulation potential and a low mobility under the surface of the ground.
- 12.2 Persistence and Degradation: This product is not biodegradable under the surface of the ground. There is no evidence of biodegradation of this product in water or under the surface of the ground.
- 12.3 Toxicity: Low toxicity for aquatic life.
- 12.4 Effects on Effluent Treatment: There is difficulty in eliminating this product during biological treatment processes.

13 DISPOSAL CONSIDERATIONS

Recyclable this product if is possible. Do not throw waste material into waterways. Waste disposal of this product must be in accordance with regulations into effect in each country.

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14 TRANSPORT INFORMATION

- 14.1 Dangerous material: None
- 14.2 Type of Risk: None
- 14.3 UN Number: Not available
- 14.4 Classification: Non-dangerous material

15 INFORMATION ABOUT REGULATIONS INTO EFFECT

- 15.1 In Colombia: Transportation of this product must be made according to provisions of Decree 1609 of 2002 concerning road transportation of chemical and dangerous substances.
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