## 1. PRODUCT IDENTIFICATION

1.1 Product Name:

**ABSOLUTE PRECISION LIQUID MONOMER**

1.2 Chemical Name:

**METHACRYLATE SOLUTION**

1.3 Synonyms:

NA

1.4 Trade Names:

AB402, AB408, AB406, AB407, AB409

1.5 Product Use:

PROFESSIONAL USE ONLY

1.6 Manufacturer’s Name:

OPI PRODUCTS, INC.

1.7 Manufacturer’s Address:

13034 SATICOY STREET, NO. HOLLYWOOD, CA 91605 USA

1.8 Emergency Phone:

CHEMTREC: +1 (703) 527-3887 / +1 (800) 424-9300

1.9 Business Phone:

+1 (818) 759-2400 / +1 (800)-341-9999

## 2. HAZARD IDENTIFICATION

2.1 Hazard Identification:

Flammable liquid. This product is classified as a hazardous substance and as dangerous goods according to the classification criteria of NOHSC and ADG Code (Australia).

2.2 Routes of Entry:

<table>
<thead>
<tr>
<th></th>
<th>Inhalation:</th>
<th>Absorption:</th>
<th>Ingestion:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inhalation:</strong></td>
<td>YES</td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>

2.3 Effects of Exposure:

**INGESTION:** If product is swallowed, may cause nausea, vomiting and/or diarrhea and central nervous system depression.

**SKIN & EYES:** Moderately irritating to the eyes. Symptoms of overexposure may include redness, itching, irritation and watering. May be irritating to skin, especially after prolonged contact. The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) upon prolonged or repeated exposure.

**INHALATION:** Vapors of this product may be moderately irritating to the nose, throat and other tissues of the respiratory system. Symptoms of overexposure can include coughing, wheezing, nasal congestion, and difficulty breathing. Inhalation of concentrated vapors can cause central nervous system depression (e.g., drowsiness, dizziness, headaches, nausea).

2.4 Symptoms of Overexposure:

Symptoms of skin overexposure may include redness, itching, and irritation of affected areas. Overexposure in eyes may cause redness, itching and watering. The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) upon prolonged or repeated exposure.

2.5 Acute Health Effects:

Moderate irritation to eyes and skin near affected areas. Additionally, high concentrations of vapors can cause drowsiness, dizziness, headaches and nausea.

2.6 Chronic Health Effects:

None known

2.7 Target Organs:

Eyes, skin & respiratory system.

**NOTE:** all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-2004 format.
3. COMPOSITION & INGREDIENT INFORMATION

<table>
<thead>
<tr>
<th>CHEMICAL NAME(S)</th>
<th>CAS No.</th>
<th>RTECS No.</th>
<th>EINECS No.</th>
<th>%</th>
<th>EXPOSURE LIMITS IN AIR (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ACGIH - ppm</td>
</tr>
<tr>
<td>Ethyl Methacrylate</td>
<td>97-63-2</td>
<td>OZ45500000</td>
<td>202-597-5</td>
<td>≤ 90.0</td>
<td>15</td>
</tr>
<tr>
<td>Glycol Hema-Methacrylate</td>
<td>97-90-5</td>
<td>OZ44000000</td>
<td>202-617-2</td>
<td>≤ 10.0</td>
<td>NA</td>
</tr>
<tr>
<td>Hema</td>
<td>868-77-9</td>
<td>OZ47250000</td>
<td>212-782-2</td>
<td>≤ 5.0</td>
<td>NA</td>
</tr>
<tr>
<td>Benzophenone</td>
<td>119-61-9</td>
<td>DI99500000</td>
<td>204-337-6</td>
<td>≤ 2.0</td>
<td>NA</td>
</tr>
<tr>
<td>Dimethyltolylamine</td>
<td>99-97-8</td>
<td>XUS8030000</td>
<td>202-805-8</td>
<td>≤ 1.0</td>
<td>NE</td>
</tr>
<tr>
<td>CI 60725 (Violet 2)</td>
<td>81-48-1</td>
<td>CB77000000</td>
<td>201-353-5</td>
<td>≤ 1.0</td>
<td>NE</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1 First Aid:

**INGESTION:** If ingested, do not induce vomiting! If product has been swallowed, drink plenty of water or milk IMMEDIATELY. If the patient is vomiting, continue to offer water or milk. Never give water or milk to an unconscious person. Contact the nearest Poison Control Center or local emergency number. Provide an estimate of the time at which the material was ingested and the amount of the substance that was swallowed.

**EYES:** If product gets in the eyes, flush with copious amounts of lukewarm water for at least 15 minutes. Open and close eyelid(s) to ensure thorough irrigation. If problem persists, seek immediate medical attention.

**SKIN:** If irritation occurs & product is on the skin, rinse thoroughly with lukewarm water, followed by a thorough washing of the affected area with plenty of soap and water. Do not wear contaminated clothing until after it has been properly cleaned. If irritation, redness or swelling persists, consult a physician immediately.

**INHALATION:** Remove victim to fresh air at once. If breathing stops, perform artificial respiration at once. Seek immediate medical attention.

4.2 Medical Conditions Aggravated by Exposure:

Pre-existing dermatitis, other skin conditions, and disorders of the target organs (eyes, skin, respiratory system).

5. FIREFIGHTING MEASURES

5.1 Flashpoint & Method:

20°C (68°F)

5.2 Autoignition Temperature:

ND

5.3 Flammability Limits:

Lower Explosive Limit (LEL): ND
Upper Explosive Limit (UEL): ND

5.4 Fire & Explosion Hazards:

This product is a flammable liquid. When involved in a fire, this product may ignite and decompose to form toxic gases (e.g., CO, CO₂, NOₓ).

5.5 Extinguishing Methods:

HazChem Code: 3YE
Hazard Identification Number: 33
Water, Foam, CO₂, Dry Chemical

5.6 Firefighting Procedures:

First responders should wear eye protection. Structural fire fighters must wear full protective equipment and MSHA/NIOSH-approved self-contained breathing apparatus. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas. If necessary, rinse contaminated equipment with soapy water before returning to service.
6. ACCIDENTAL RELEASE MEASURES

6.1 Spills:
Before cleaning any spill or leak, individuals involved in spill cleanup must wear appropriate Personal Protective Equipment.

For small spills (e.g., <1 gallon) wear appropriate personal protective equipment (e.g., goggles, gloves). Maximize ventilation (open doors and windows) and secure all sources of ignition. Remove spilled material with absorbent material and place into appropriate closed container(s) for disposal. Dispose of properly in accordance with local, state and federal regulations. Wash all affected areas and outside of container with plenty of warm water and soap. Remove any contaminated clothing and wash thoroughly before reuse.

For spills ≥ 1 gallon, deny entry to all unprotected individuals. Dike and contain spill with inert material (e.g., sand or earth). Use ONLY non-sparking tools for recovery and cleanup. Transfer liquid to containers for recovery or disposal and solid diking material to separate containers for proper disposal. Remove contaminated clothing promptly and wash affected skin areas with soap and water. Keep spills and cleaning runoffs out of municipal sewers and open bodies of water.

7. HANDLING & STORAGE INFORMATION

7.1 Work & Hygiene Practices:
Avoid prolonged contact with this material. Avoid breathing the vapors generated by this product. Use in a well-ventilated location (e.g., local exhaust ventilation, fans). Wash exposed skin thoroughly with plenty of soap & water after using this product. If necessary, use a moisturizer after washing. Do not eat, drink, or smoke while handling this product.

7.2 Storage & Handling:
Use and store in a cool, dry, well-ventilated location (e.g., local exhaust ventilation, fans). Keep away from excessive heat, open flames, sparks, and other possible sources of ignition. Keep away from incompatible materials listed in Section 10. Do not store in damaged or unmarked containers or storage devices. Keep containers securely closed when not in use. Open slowly on a level, stable surface. Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care. As a precaution against exposure to the eyes, nose, throat and face, this product should not be stored higher than waist level. Keep away from children at all times!

7.3 Special Precautions:
NA

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1 Ventilation & Engineering Controls:
Use with adequate ventilation (e.g., open doors and windows, local exhaust ventilation). Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-wash station).

8.2 Respiratory Protection:
No special respiratory protection is required under typical circumstances of use or handling. In instances where vapors or sprays of this product are generated, and respiratory protection is needed, use only protection authorized by 29 CFR §1910.134, applicable U.S. State regulations, or the Canadian CAS Standard Z94.4-93 and applicable standards of Canadian Provinces, EC member States, or Australia.

8.3 Eye Protection:
Wear protective eyewear (e.g., safety glasses with side-shield) at all times when handling this product. Always use protective eyewear when cleaning spills or leaks.

8.4 Hand Protection:
None required under normal conditions of use. However, may cause skin irritation in some sensitive individuals. When handling large quantities (e.g., ≥ 1 gallon), wear rubber or impervious plastic gloves.

8.5 Body Protection:
No apron required when handling small quantities.
When handling large quantities (e.g., ≥ 1 gallon), eye wash stations and deluge showers should be available. Upon completion of work activities involving large quantities of this product, wash any exposed areas thoroughly with soap and water.
9. PHYSICAL & CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>0.918</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>117 °C (243 °F)</td>
</tr>
<tr>
<td>Melting Point</td>
<td>NE</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>NA</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>NA</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>NE</td>
</tr>
<tr>
<td>Appearance &amp; Color</td>
<td>Blue liquid with a mild acrylic odor.</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>NE</td>
</tr>
<tr>
<td>Solubility</td>
<td>Slightly soluble.</td>
</tr>
<tr>
<td>pH</td>
<td>NA</td>
</tr>
<tr>
<td>Viscosity</td>
<td>NE</td>
</tr>
<tr>
<td>Other Information</td>
<td>Vapor density (air=1): &gt; 1.0</td>
</tr>
</tbody>
</table>

10. STABILITY & REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Relatively stable under ambient conditions when stored properly.</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>If exposed to extremely high temperatures, products of thermal decomposition may include irritating vapors and toxic gases (e.g., oxides of carbon &amp; nitrogen).</td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>May occur.</td>
</tr>
<tr>
<td>Conditions to Avoid</td>
<td>Exposure or contact to extreme temperatures, incompatible chemicals, strong light sources, sparks, flame.</td>
</tr>
<tr>
<td>Incompatible Substances</td>
<td>Strong oxidizers, peroxides, strong alkalis or acids.</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity Data</td>
<td>This product has not been tested on animals to obtain toxicological data. There are toxicology data for the components of this product, which are found in the scientific literature. These data have not been presented in this document.</td>
</tr>
<tr>
<td>Acute Toxicity</td>
<td>See Section 2.5</td>
</tr>
<tr>
<td>Chronic Toxicity</td>
<td>See Section 2.6</td>
</tr>
<tr>
<td>Suspected Carcinogen</td>
<td>No</td>
</tr>
<tr>
<td>Reproductive Toxicity</td>
<td>This product is not reported to produce reproductive toxicity in humans.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>This product is not reported to produce mutagenic effects in humans. However, animal mutation data are available for the components of this product.</td>
</tr>
<tr>
<td>Embryotoxicity</td>
<td>This product is not reported to produce embryotoxic effects in humans.</td>
</tr>
<tr>
<td>Teratogenicity</td>
<td>This product is not reported to produce teratogenic effects in humans.</td>
</tr>
<tr>
<td>Reproductive Toxicity</td>
<td>This product is not reported to produce reproductive effects in humans.</td>
</tr>
<tr>
<td>Infantility of Product</td>
<td>See Section 2.3</td>
</tr>
<tr>
<td>Biological Exposure Indices</td>
<td>NE</td>
</tr>
<tr>
<td>Physician Recommendations</td>
<td>Treat symptomatically.</td>
</tr>
</tbody>
</table>
12. ECOLOGICAL INFORMATION

12.1 Environmental Stability:
This product will slowly volatile from soil. Components of this product will slowly decompose into organic compounds.

12.2 Effects on Plants & Animals:
There is no specific data available for this product.

12.3 Effects on Aquatic Life:
There is no specific data available for this product. Releases of large volumes may be harmful or fatal to overexposed aquatic life. Aquatic toxicity data for components of this product are available, but are not presented in this MSDS.

13. DISPOSAL CONSIDERATIONS

13.1 Waste Disposal:
Dispose of in accordance with all Federal, state, and local regulations.

13.2 Special Considerations:
U.S. EPA Characteristic Waste: D001 (flammable)

14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.

14.1 49 CFR (GND):
CONSUMER COMMODITY, ORM-D (x ≤ 1.0 L)
UN2277, ETHYL METHACRYLATE, STABILIZED, 3, II (x > 1.0 L)

14.2 IATA (AIR):
CONSUMER COMMODITY, 9, ID8000 (x ≤ 0.5 L)
UN2277, ETHYL METHACRYLATE, STABILIZED, 3, II (x > 0.5 L)

14.3 IMDG (OCN):
UN2277, ETHYL METHACRYLATE, STABILIZED, 3, II, LTD QTY (x ≤ 1.0 L)
UN2277, ETHYL METHACRYLATE, STABILIZED, 3, II (x > 1.0 L)

14.4 TDG (Canadian GND):
MARK PACKAGE “LIMITED QUANTITY” or “QUANTITÉ LIMITÉE” or “LTD QTY” or “QUANT LTÉE” (x ≤ 1.0 L)
UN2277, ETHYL METHACRYLATE, STABILIZED, 3, II (x > 1.0 L)

14.5 ADR/RID (EU):
UN2277, ETHYL METHACRYLATE, STABILIZED, 3, II, ADR, LTD QTY (x ≤ 1.0 L)

14.6 MEXICO (SCT):
UN2277, ETIL METILACRILATO, STABILIZADA, 3, II, CANTIDAD LIMITADA (x ≤ 1.0 L)
15. REGULATORY INFORMATION

15.1 SARA Reporting Requirements:
SARA 304 (Ethyl Methacrylate) ; HEMA (CAS # 868-77-9): immediate, reactive.

15.2 SARA Threshold Planning Quantity:
NA

15.3 TSCA Inventory Status:
All components of this product are listed in the TSCA Inventory or are exempt.

15.4 CERCLA Reportable Quantity (RQ):
Ethyl Methacrylate: 1000 lbs

15.5 Other Federal Requirements:
This product complies with the appropriate sections of the Food and Drug Administration’s 21 CFR Subchapter G, (Cosmetics).

15.6 Other Canadian Regulations:
This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR. The components of this product are listed on the DSL/NDSL. None of the components of this product are listed on the Priorities Substances List (PSL). Class B2 Flammable Liquid.

15.7 State Regulatory Information:
Ingredients in this mixture on found on the following state criteria lists:
- California OSHA Hazardous Substances List: Ethyl Methacrylate
- Delaware Air Quality Management List: Ethyl Methacrylate
- Massachusetts Hazardous Substances List: Ethyl Methacrylate
- New York List of Hazardous Substances: Ethyl Methacrylate
- Pennsylvania Hazardous Substances List: Ethyl Methacrylate

15.8 67/548/EEC (European Union) Requirements:
The primary component of this product is not listed in Annex I of EU Directive 67/548/EEC:

16. OTHER INFORMATION

16.1 Other Information:
Precisely follow directions and MSDS (available through your supplier) for use. Avoid all skin contact. If redness or other signs of adverse reaction occur, discontinue use immediately. Use only in a well ventilated area. A ventilation system that expels vapors to the outdoors is recommended. Poisonous if swallowed! Keep out of reach of children. FLAMMABLE! Keep away from heat or flame. In case of emergency, contact your physician or local Poison Control Center immediately. FOR PROFESSIONAL USE ONLY.

16.2 Terms & Definitions:
See last page of this MSDS.

16.3 Disclaimer:
This Material Safety Data Sheet is offered pursuant to OSHA’s Hazard Communication Standard, 29 CFR §1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of ShipMate’s & OPI Products’ knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein relates only to the specific product(s). If this product(s) is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

16.4 Prepared for:
OPI Products, Inc.
13034 Saticoy Street
No. Hollywood, CA  91605 USA
+1 (818) 759-2400 phone
+1 (818) 759-5770 fax
http://www.opi.com/

16.5 Prepared by:
ShipMate, Inc.
18436 Hawthorne Boulevard, Suite 201
Torrance, CA 90504
+1 (310) 370-3600 phone
+1 (310) 370-5700 fax
http://www.shipmate.com/
A large number of abbreviations and acronyms appear on a MSDS. Some of these that are commonly used include the following:

GENERAL INFORMATION:

CAS No. Chemical Abstract Service Number

EXPOSURE LIMITS IN AIR:

ACGIH American Conference on Governmental Industrial Hygienists
TLV Threshold Limit Value
OSHA U.S. Occupational Safety and Health Administration
PEL Permissible Exposure Limit
IDLH Immediately Dangerous to Life and Health

FIRST AID MEASURES:

CPR Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

0 Minimal Hazard
1 Slight Hazard
2 Moderate Hazard
3 Severe Hazard
4 Extreme Hazard

PERSONAL PROTECTION RATINGS:

A Safety Glasses
B Splash Goggles
C Face Shield & Eye Protection
D Gloves
E Boots
F Synthetic Apron
G Dust Respirator
H Full Suit
I Full Face Respirator
J Airline Hood/Mask or SCBA
K Vapor Respirator
L Consult your supervisor or S.O.P. for special handling directions.

OTHER STANDARD ABBREVIATIONS:

NA Not Available
NR No Results
NE Not Established
ND Not Determined
ML Maximum Limit
SCBA Self-Contained Breathing Apparatus

DEFINITION OF TERMS

LD₅₀ Lethal Dose (solids & liquids) which kills 50% of the exposed animals
LC₅₀ Lethal concentration (gases) which kills 50% of the exposed animal
ppm Concentration expressed in parts of material per million parts
TD₅₀ Lowest dose to cause a symptom
TC₅₀ Lowest concentration to cause a symptom
TD₅₀, LD₅₀, & LC₅₀ or TC, TC₅₀, LC₅₀ & LC₉₀ Lowest dose (or concentration) to cause lethal or toxic effects
IARC International Agency for Research on Cancer
NTCP National Toxoplasmosis Program
RTECS Registry of Toxic Effects of Chemical Substances
BCF Bioconcentration Factor
T₉₅ Median threshold limit
log Kow or log Koc Coefficient of Oil/Water Distribution

EC INFORMATION:

C Explode
E Explosive
F Flammable
N Harmful
O Oxidizing
T+ Toxic
Xi Irritant
Xn Harmful