SAFETY DATA SHEET

Product name: Metacrylics TPO Primer

Metacrylics encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: Metacrylics TPO Primer

Recommended use of the chemical and restrictions on use
Identified uses: This product is used in coatings, textiles, binders and adhesives.

COMPANY IDENTIFICATION
METACRYLICS
365 Obata Court
Gilroy, CA 95020

Customer Information Number: 408 280-7733
sales@metacrylics.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 1 408 427-2557
Local Emergency Contact: 800-660-6950

2. HAZARDS IDENTIFICATION

Hazard classification
This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.
Carcinogenicity - Category 2

Label elements
Hazard pictograms

Signal word: WARNING!
Hazards
Suspected of causing cancer.

Precautionary statements
Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response
IF exposed or concerned: Get medical advice/ attention.

Storage
Store locked up.

Disposal
Dispose of contents/ container to an approved waste disposal plant.

Other hazards
No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Acrylic emulsion
This product is a mixture.

<table>
<thead>
<tr>
<th>Component</th>
<th>CASRN</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrylic polymer(s)</td>
<td>Not hazardous</td>
<td>&gt;= 53.0 - &lt;= 56.0 %</td>
</tr>
<tr>
<td>Residual monomers</td>
<td>Not required</td>
<td>&lt; 0.05 %</td>
</tr>
<tr>
<td>Aqua ammonia</td>
<td>1336-21-6</td>
<td>&lt;= 0.65 %</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>&gt;= 44.0 - &lt;= 47.0 %</td>
</tr>
<tr>
<td>Diphenyl Ketone</td>
<td>119-61-9</td>
<td>&gt;= 0.1 - &lt;= 0.3 %</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Description of first aid measures
Inhalation: Move to fresh air.

Skin contact: Wash with water and soap as a precaution. If skin irritation persists, call a physician.

Eye contact: Rinse with plenty of water. If eye irritation persists, consult a specialist.

Ingestion: Drink 1 or 2 glasses of water. Consult a physician if necessary. Never give anything by mouth to an unconscious person.
Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed
Notes to physician: Treatment should be directed at preventing absorption, administering to symptoms (if they occur), and providing supportive therapy.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture
Hazardous combustion products: No data available

Unusual Fire and Explosion Hazards: Material can splatter above 100C/212F. Dried product can burn.

Advice for firefighters
Fire Fighting Procedures: No data available

Special protective equipment for firefighters: Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Wear a NIOSH approved (or equivalent) self-contained breathing apparatus in the pressure demand mode or a full-facepiece airline respirator in the pressure demand mode with emergency escape provisions. If exposed to material during clean-up operations, see SECTION 4, First Aid Measures, for actions to follow.

Environmental precautions: CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water. NOTE: Spills on porous surfaces can contaminate groundwater.

Methods and materials for containment and cleaning up: Keep spectators away. Ventilate the area. Contain spills immediately with inert materials (e.g., sand, earth). Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Precautions for safe handling: Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Keep container tightly closed. Do not breathe vapors, mist or gas.
Conditions for safe storage: Keep from freezing - product stability may be affected. STIR WELL BEFORE USE.

Storage stability
Storage temperature: 1 - 49 °C (34 - 120 °F)
Other data: Monomer vapors can be evolved when material is heated during processing operations. See SECTION 8, for types of ventilation required. NOTE: Formaldehyde will be generated under acidic conditions. Maintain adequate ventilation under these conditions to prevent exposure to formaldehyde above the Rohm and Haas Co. recommended ceiling of 0.3 ppm.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Exposure limits are listed below, if they exist.

<table>
<thead>
<tr>
<th>Component</th>
<th>Regulation</th>
<th>Type of listing</th>
<th>Value/Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aqua ammonia</td>
<td>Rohm and Haas</td>
<td>TWA</td>
<td>10 ppm, As Ammonia</td>
</tr>
<tr>
<td></td>
<td>OSHA Z-1</td>
<td>TWA</td>
<td>35 mg/m3, 50 ppm</td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>TWA</td>
<td>25 ppm, Ammonia</td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>STEL</td>
<td>35 ppm, Ammonia</td>
</tr>
<tr>
<td>Diphenyl Ketone</td>
<td>Rohm and Haas</td>
<td>TWA</td>
<td>5 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Rohm and Haas</td>
<td>STEL</td>
<td>10 mg/m3</td>
</tr>
<tr>
<td></td>
<td>US WEEL</td>
<td>TWA</td>
<td>0.5 mg/m3</td>
</tr>
</tbody>
</table>

Exposure controls
Engineering controls: Use local exhaust ventilation with a minimum capture velocity of 100 ft/min. (0.5 m/sec.) at the point of vapor evolution. Refer to the current edition of Industrial Ventilation: A Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

Protective measures: Facilities storing or utilizing this material should be equipped with an eyewash facility.

Individual protection measures
Eye/face protection: Eye protection worn must be compatible with respiratory protection system employed. Use chemical splash goggles (ANSI Z87.1 or approved equivalent).

Skin protection
Hand protection: The glove(s) listed below may provide protection against permeation. (Gloves of other chemically resistant materials may not provide adequate protection): Neoprene gloves

Respiratory protection: A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant a respirator’s use. None required if airborne concentrations are maintained below the exposure limit listed in Exposure Limit Information. Up to 10 times the exposure limit: Wear a properly fitted NIOSH approved (or equivalent) half-mask, air-purifying respirator. Up to 50 times the exposure limit: Wear a properly fitted NIOSH approved (or equivalent) full-facepiece, air-purifying respirator, OR full-facepiece, airline respirator in the pressure demand mode. Above 50 times the exposure limit or Unknown: Wear a properly fitted NIOSH approved (or equivalent) self-contained breathing apparatus in the pressure demand mode, OR full-facepiece, airline respirator in the pressure demand mode with emergency escape provision. Air-purifying respirators should be equipped with NIOSH approved (or equivalent) ammonia/methylamine cartridges and N95 filters. If oil mist is present, use R95 or P95 filters.
9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
  Physical state: liquid milky
  Color: white
Odor: Ammonia
Odor Threshold: No data available
pH: 9.5 - 11.0
Melting point/range: 0 °C (32 °F) Water
Freezing point: No data available
Boiling point (760 mmHg): 100 °C (212 °F) Water
Flash point: Noncombustible
Evaporation Rate (Butyl Acetate = 1): <1.0 Water
Flammability (solid, gas): Not Applicable
Lower explosion limit: Not applicable
Upper explosion limit: Not applicable
Vapor Pressure: 17 mmHg at 20 °C (68 °F)
Relative Vapor Density (air = 1): <1.0 Water
Relative Density (water = 1): 1.0 - 1.2
Water solubility: soluble
Partition coefficient: n-octanol/water: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Dynamic Viscosity: 100 - 300 mPa.s
Kinematic Viscosity: No data available
Explosive properties: No data available
Oxidizing properties: No data available
Molecular weight: No data available
Percent volatility: 44 - 47 % Water

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: No data available

Possibility of hazardous reactions: None known.
Product will not undergo polymerization.
Stable
Conditions to avoid: No data available

Incompatible materials: There are no known materials which are incompatible with this product.

Hazardous decomposition products: Thermal decomposition may yield acrylic monomers.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity
   Acute oral toxicity
      LD50, Rat, > 5,000 mg/kg

   Acute dermal toxicity
      LD50, Rabbit, > 5,000 mg/kg

   Acute inhalation toxicity
      Product test data not available. Refer to component data.

Skin corrosion/irritation
   May cause transient irritation.

Serious eye damage/eye irritation
   No eye irritation

Sensitization
   Product test data not available. Refer to component data.

Specific Target Organ Systemic Toxicity (Single Exposure)
   Product test data not available. Refer to component data.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
   Product test data not available. Refer to component data.

Carcinogenicity
   Product test data not available. Refer to component data.

Teratogenicity
   Product test data not available. Refer to component data.

Reproductive toxicity
   Product test data not available. Refer to component data.

Mutagenicity
   Product test data not available. Refer to component data.

Aspiration Hazard
   Product test data not available. Refer to component data.
Additional information
No data are available for this material. The information shown is based on profiles of compositionally similar materials.

COMPONENTS INFLUENCING TOXICOLOGY:

Acrylic polymer(s)
Acute inhalation toxicity
The LC50 has not been determined.

Residual monomers
Acute inhalation toxicity
The LC50 has not been determined.

Aqua ammonia
Acute inhalation toxicity
LC50, Rat, male, 1 Hour, dust/mist, 9.850 mg/l

Sensitization
For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Carcinogenicity
Did not cause cancer in laboratory animals.

Teratogenicity
Available data are inadequate for evaluation of potential to cause fetotoxicity.

Reproductive toxicity
Available data are inadequate to determine effects on reproduction.

Mutagenicity
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

Diphenyl Ketone
Acute inhalation toxicity
At room temperature, exposure to vapor is minimal due to low volatility; single exposure is not likely to be hazardous. The LC50 has not been determined.

Sensitization
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.
Specific Target Organ Systemic Toxicity (Single Exposure)
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
In animals, effects have been reported on the following organs:
Blood
Liver
Kidney
Bone Marrow

Carcinogenicity
Has caused cancer in laboratory animals. However, the relevance of this to humans is unknown.

Teratogenicity
Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive toxicity
In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Mutagenicity
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

<table>
<thead>
<tr>
<th>Carcinogenicity Component</th>
<th>List</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphenyl Ketone</td>
<td>IARC</td>
<td>Group 2B: Possibly carcinogenic to humans</td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

General Information
There is no data available for this product.

Toxicity

Acrylic polymer(s)
Acute toxicity to fish
No relevant data found.

Residual monomers
Acute toxicity to fish
No relevant data found.

Aqua ammonia
Acute toxicity to fish
Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).
LC50, Fish, 96 Hour, 0.89 mg/l

Acute toxicity to aquatic invertebrates
LC50, Daphnia magna (Water flea), static test, 48 Hour, 101 mg/l

Diphenyl Ketone
Acute toxicity to fish
Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).
LC50, Fathead minnow (Pimephales promelas), 96 Hour, 14.7 mg/l, Method Not Specified.

Acute toxicity to aquatic invertebrates
EC50, ceriodaphnia dubia (water flea), 48 Hour, 7.6 mg/l, Method Not Specified.

Acute toxicity to algae/aquatic plants
EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, 3.5 mg/l, Method Not Specified.

Chronic toxicity to fish
NOEC, Pimephales promelas (fathead minnow), flow-through test, 32 d, survival, 0.54 mg/l
LOEC, Pimephales promelas (fathead minnow), flow-through test, 32 d, survival, 0.99 mg/l
MATC (Maximum Acceptable Toxicant Level), Pimephales promelas (fathead minnow), flow-through test, 32 d, survival, 0.73 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia (water flea), 21 d, 0.20 mg/l

Persistence and degradability

Acrylic polymer(s)
Biodegradability: No relevant data found.

Residual monomers
Biodegradability: No relevant data found.

Aqua ammonia
Biodegradability: Material is expected to be readily biodegradable. Biodegradation may occur under aerobic conditions (in the presence of oxygen).

Theoretical Oxygen Demand: 3.76 mg/mg Estimated.

Diphenyl Ketone
Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines. 10-day Window: Not applicable
Biodegradation: 0 %
Exposure time: 14 d
Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 2.63 mg/mg

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 3.009 d
Method: Estimated.

Bioaccumulative potential

Acrylic polymer(s)
    Bioaccumulation: No relevant data found.

Residual monomers
    Bioaccumulation: No relevant data found.

Aqua ammonia
    Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Diphenyl Ketone
    Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
    Partition coefficient: n-octanol/water(log Pow): 3.18 Measured
    Bioconcentration factor (BCF): 3.4 - 9.2 Cyprinus carpio (Carp) 42 d Measured

Mobility in soil

Residual monomers
    No relevant data found.

Diphenyl Ketone
    Potential for mobility in soil is medium (Koc between 150 and 500).
    Partition coefficient(Koc): 430 Measured

13. DISPOSAL CONSIDERATIONS

Disposal methods: Coagulate the emulsion by the stepwise addition of ferric chloride and lime.
Remove the clear supernatant and flush to a chemical sewer. For disposal, incinerate this material at a facility that complies with local, state, and federal regulations.

14. TRANSPORT INFORMATION

DOT
    Not regulated for transport

Classification for SEA transport (IMO-IMDG):
    Not regulated for transport
    Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):
Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

OSHA Hazard Communication Standard
This product is considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312
Chronic Health Hazard

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Pennsylvania
Any material listed as “Not Hazardous” in the CAS REG NO. column of SECTION 2, Composition/Information On Ingredients, of this MSDS is a trade secret under the provisions of the Pennsylvania Worker and Community Right-to-Know Act.

California (Proposition 65)
This product contains a component or components known to the state of California to cause cancer:

Components: Diphenyl Ketone
CASRN: 119-61-9

California (Proposition 65)
This product contains trace levels of a component or components known to the state of California to cause cancer:

Components: Acetaldehyde
CASRN: 75-07-0
Components: Dioxane
CASRN: 123-91-1

California (Proposition 65)
This product contains trace levels of a component or components known to the state of California to cause cancer and birthdefects or other reproductive harm:

Components: Ethylene Oxide
CASRN: 75-21-8

California (Proposition 65)
This product contains trace levels of a component or components known to the state of California to cause birth defects or other reproductive harm:

**Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>CASRN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
</tr>
</tbody>
</table>

**United States TSCA Inventory (TSCA)**

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

**Hazard Rating System**

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health</th>
<th>Flammability</th>
<th>Physical Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health / Flm</td>
<td>1*</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

* = Chronic Effects (See Hazards Identification)

**Revision**

Identification Number: 101168283 / 1001 / Issue Date: 07/28/2015 / Version: 4.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

<table>
<thead>
<tr>
<th>Information Source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>OSHA Z-1</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td>Rohm and Haas</td>
<td>Rohm and Haas OEL's</td>
</tr>
<tr>
<td>STEL</td>
<td>Short-term exposure limit</td>
</tr>
<tr>
<td>TWA</td>
<td>Time weighted average</td>
</tr>
<tr>
<td>US WEEL</td>
<td>USA. Workplace Environmental Exposure Levels (WEEL)</td>
</tr>
</tbody>
</table>

**Information Source and References**

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

METACRYLICS urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.