1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: TMPTA
Synonyms: None
Chemical Family: Acrylated resin
Molecular Formula: Mixture
Molecular Weight: Mixture

Allnex USA Inc., 9005 Westside Parkway, Alpharetta, Georgia 30009, USA
For Product and all Non-Emergency Information call your local Allnex contact point or contact us at http://www.allnex.com/contact

EMERGENCY PHONE (24 hours/day) - For emergency only involving spill, leak, fire, exposure or accident call:
Asia Pacific:
  Australia: +61 2801 44558 (Carechem 24)
  China (PRC): +86(0)532-8388-9090 (NRCC)
  Japan: +81 345 789 341 (Carechem 24)
  New Zealand: +64 9929 1483 (Carechem 24)
  All Others: +65 3158 1074 (Carechem 24)
Europe/Africa/Middle East (Carechem 24):
  Europe, Middle East, Africa, Israel: +44 (0) 1235 239 670
  Middle East, Africa (Arabic speaking countries): +44 (0) 1235 239 671
Latin America (Carechem 24):
  Brazil: +55 113 711 9144
  Mexico and all others: +52-555-004-8763
Canada and USA (Carechem 24 - Allnex29003-NCEC): +1-866-928-0789 (toll free) or +1-215-207-0061

2. HAZARDS IDENTIFICATION

APPEARANCE AND ODOR:
  Color: clear colorless to pale yellow
  Appearance: liquid
  Odor: ester acrylate

STATEMENTS OF HAZARD:
  WARNING! CAUSES EYE AND SKIN IRRITATION
  MAY CAUSE ALLERGIC SKIN REACTION

POTENTIAL HEALTH EFFECTS

EFFECTS OF EXPOSURE:
The acute oral (rat) LD50 and dermal (rabbit) LD50 values are both >2000 mg/kg. Direct contact with this material may cause moderate eye and skin irritation. Repeated or prolonged dermal contact may cause allergic skin reactions. The toxicological properties of this material have not been fully investigated. Refer to Section 11 for toxicology information on the regulated components of this product.

3. COMPOSITION/INFORMATION ON INGREDIENTS
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OSHA REGULATED COMPONENTS

Component / CAS No. % Carcinogen
Trimethylolpropane triacrylate 99 - 100 -
15625-89-5

4. FIRST AID MEASURES

Eye Contact:
Rinse immediately with plenty of water for at least 15 minutes. Obtain medical attention immediately.

Skin Contact:
Remove contaminated clothing and shoes without delay. Wash immediately with plenty of water. Do not reuse
contaminated clothing without laundering. Get medical attention if pain or irritation persists after washing or if signs and
symptoms of overexposure appear.

Ingestion:
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by
mouth to an unconscious person.

Inhalation:
Remove to fresh air. If breathing is difficult, give oxygen. Obtain medical advice if there are persistent symptoms.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:
Use water spray, alcohol foam, carbon dioxide or dry chemical to extinguish fires. Water stream may be ineffective.

Extinguishing Media to Avoid:
high pressure water jet.

Protective Equipment:
Firefighters, and others exposed, wear self-contained breathing apparatus. Wear full firefighting protective clothing. See
MSDS Section 8 (Exposure Controls/Personal Protection).

Special Hazards:
Keep containers cool by spraying with water if exposed to fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:
Where exposure level is not known, wear approved, positive pressure, self-contained respirator. Where exposure level is
known, wear approved respirator suitable for level of exposure. In addition to the protective clothing/equipment in Section
8 (Exposure Controls/Personal Protection), wear impermeable boots.

Methods For Cleaning Up:
Remove sources of ignition. Cover spills with some inert absorbent material; sweep up and place in a waste disposal
container. Flush spill area with water.

Environmental Precautions:
None known
7. HANDLING AND STORAGE

HANDLING
Precautionary Measures: Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep container tightly closed. Use with adequate ventilation. Wash thoroughly after handling.

Special Handling Statements: Product exposed to sunlight will slowly polymerize.

STORAGE
Containers which are opened must be carefully resealed and kept upright to prevent leakage. Prevent unauthorised access. Storage in stainless steel, amber glass, amber polyethylene or baked phenolic lined container. Keep containers tightly closed. Keep away from heat.

Storage Temperature: Store at 4 - 40 °C 39.2 - 104 °F
Reason: Safety.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures:
Utilize a closed system process where feasible. Where this material is not used in a closed system, good enclosure and local exhaust ventilation should be provided to control exposure.

Respiratory Protection:
For operations where inhalation exposure can occur use an approved respirator. Recommendations are listed below. Other protective respiratory equipment may be used based on user's own risk assessment. Recommended respirators include those certified by NIOSH.

Recommended: Full Face Mask with organic vapor cartridge, Type A filter (BP >65°C)

Eye Protection:
Prevent eye and skin contact. Provide eye wash fountain and safety shower in close proximity to points of potential exposure. Wear eye/face protection such as chemical splash proof goggles or face shield.

Skin Protection:
Prevent contamination of skin or clothing when removing protective equipment. Wear impermeable gloves and suitable protective clothing.

Hand Protection:
Wear protective gloves. Recommendations are listed below. Other protective materials may be used based on user's own risk assessment. Barrier creams may help to protect the exposed areas of the skin, they should however not be applied once exposure has occurred. Replace gloves immediately when torn or any change in appearance (dimension, color, flexibility etc.) is noticed.

Gloves for short term exposure: Laminated multilayer gloves, break through time: > 60 min
Nitrile rubber (NBR), thickness: > 0.56 mm, break through time: < 60 min

The chemical resistance depends on the type of product and amount of product on the glove. Therefore gloves need to be changed when in contact with chemicals.

Not suitable gloves: Latex gloves

Due to many conditions (e.g. temperature, abrasion) the practical usage of a chemical protective glove in practice may be much shorter than the permeation time determined through testing.

Additional Advice:
Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use. Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water.

Exposure Limit(s)
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>clear colorless to pale yellow</td>
</tr>
<tr>
<td>Appearance</td>
<td>liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>ester acrylate</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>&gt;100 °C</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>&lt;1.33hPa @ 20 °C</td>
</tr>
<tr>
<td>Specific Gravity/Density</td>
<td>1.11 g/cm³</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not available</td>
</tr>
<tr>
<td>Percent Volatile (% by wt.)</td>
<td>&lt;0.3 %</td>
</tr>
<tr>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Saturation In Air (% by Vol.)</td>
<td>Not available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility In Water</td>
<td>Not available</td>
</tr>
<tr>
<td>Volatile Organic Content</td>
<td>Not available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>&gt;100 °C 212 °F Cleveland Open Cup</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable</td>
</tr>
<tr>
<td>Conditions To Avoid</td>
<td>Avoid exposure to strong UV sources. Avoid friction with temperature increase as result. Avoid direct contact with heat sources. Avoid temperatures higher than 60°C. Protect from direct sunlight.</td>
</tr>
<tr>
<td>Polymerization</td>
<td>May occur</td>
</tr>
<tr>
<td>Conditions To Avoid</td>
<td>Hazardous polymerization can occur when exposed to direct sunlight. Hazardous exothermic polymerization can occur when heated. Uncontrolled polymerization may cause rapid evolution of heat and increase in pressure that could result in violent rupture of sealed storage vessels or containers</td>
</tr>
<tr>
<td>Materials To Avoid</td>
<td>Avoid contact with oxidizing agents.</td>
</tr>
<tr>
<td></td>
<td>Avoid contact with acids and alkali&quot;s.</td>
</tr>
<tr>
<td></td>
<td>Avoid free radical producing initiators.</td>
</tr>
<tr>
<td></td>
<td>Avoid contact with reactive metals.</td>
</tr>
<tr>
<td></td>
<td>Avoid contact with peroxides.</td>
</tr>
<tr>
<td></td>
<td>Unintentional contact with them should be avoided.</td>
</tr>
<tr>
<td></td>
<td>They give an exothermic reaction with the product.</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>oxides of carbon</td>
</tr>
<tr>
<td></td>
<td>hydrocarbons</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION
11. TOXICOLOGICAL INFORMATION
Toxicological information for the product is found under Section 2. HAZARDS IDENTIFICATION.
Toxicological information on the regulated components of this product is as follows:

Trimethylolpropane triacrylate has acute oral (rat) LD50 and acute dermal (rabbit) LD50 values of 5760 mg/kg and 7050 mg/kg, respectively. Direct contact with this material may cause moderate eye and skin irritation. Repeated or prolonged skin contact may cause allergic skin reactions. Results of in vitro mutagenicity testing for trimethylolpropane triacrylate are mixed with both positive and negative findings. Trimethylolpropane triacrylate may cause mutagenic effects based on in vitro studies. However, a more definitive in vivo study indicates trimethylolpropane triacrylate is not mutagenic (non-genotoxic). Additionally, in a long-term bioassay in which trimethylolpropane triacrylate was applied dermally to mice, trimethylolpropane triacrylate was determined to be non-carcinogenic. Therefore, the weight of the evidence of various genotoxicity (mutagenicity) test results leads to the conclusion that trimethylolpropane triacrylate is not mutagenic.

In January 2013, the National Toxicology Program (NTP) released their final report regarding the toxicology and carcinogenesis studies of Trimethylolpropane triacrylate (TMPTA). The report indicates that there was some evidence of carcinogenic activity of TMPTA in a 2-year dermal study that was conducted in rodents. At least one or more of the findings are notably specific to rodents and should have no relevance to humans. The other findings are believed by some experts to be inappropriately related to the treatment with TMPTA. Further investigation of the findings in this study is ongoing.

California Proposition 65 Warning (applicable in California only) - This product contains (a) chemical(s) known to the State of California to cause birth defects or other reproductive harm.

12. ECOLOGICAL INFORMATION
The ecological properties of this material have not been fully investigated.

ECOTOXICITY
Not available

BIOACCUMULATIVE POTENTIAL
Not available

PERSISTENCE AND DEGRADABILITY
Not available

MOBILITY IN SOIL
Not available

OTHER ADVERSE EFFECTS

HAZARD TO THE OZONE LAYER
Not available

13. DISPOSAL CONSIDERATIONS
13. DISPOSAL CONSIDERATIONS
The information on RCRA waste classification and disposal methodology provided below applies only to the product, as supplied. If the material has been altered or contaminated, or it has exceeded its recommended shelf life, the guidance may be inapplicable. Hazardous waste classification under federal regulations (40 CFR Part 261 et seq) is dependent upon whether a material is a RCRA "listed hazardous waste" or has any of the four RCRA "hazardous waste characteristics." Refer to 40 CFR Part 261.33 to determine if a given material to be disposed of is a RCRA "listed hazardous waste"; information contained in Section 15 of this MSDS is not intended to indicate if the product is a "listed hazardous waste." RCRA Hazardous Waste Characteristics: There are four characteristics defined in 40 CFR Section 261.21-61.24: Ignitability, Corrosivity, Reactivity, and Toxicity. To determine Ignitability, see Section 9 of this MSDS (flash point). For Corrosivity, see Sections 9 and 14 (pH and DOT corrosivity). For Reactivity, see Section 10 (incompatible materials). For Toxicity, see Section 3 (composition). Federal regulations are subject to change. State and local requirements, which may differ from or be more stringent than the federal regulations, may also apply to the classification of the material if it is to be disposed. The Company encourages the recycle, recovery and reuse of materials, where permitted, as an alternate to disposal as a waste. The Company recommends that organic materials classified as RCRA hazardous wastes be disposed of by thermal treatment or incineration at EPA approved facilities. The Company has provided the foregoing for information only; the person generating the waste is responsible for determining the waste classification and disposal method.

14. TRANSPORT INFORMATION
This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

US DOT
Dangerous Goods? Not applicable/Not regulated

TRANSPORT CANADA
Dangerous Goods? Not applicable/Not regulated

ICAO / IATA
Dangerous Goods? Not applicable/Not regulated

IMO
Dangerous Goods? Not applicable/Not regulated

15. REGULATORY INFORMATION
Inventory Information

United States (USA): All components of this product are included on the TSCA Chemical Inventory or are not required to be listed on the TSCA Chemical Inventory.

Canada: All components of this product are included on the Domestic Substances List (DSL) or are not required to be listed on the DSL.

European Economic Area (including EU): When purchased from an Allnex legal entity based in the EEA (EU or Norway), this product is compliant with the registration of the REACH Regulation (EC) No. 1907/2006 as all its components are either excluded, exempt, pre-registered and/or registered.

Australia: All components of this product are included in the Australian Inventory of Chemical Substances (AICS) or are not required to be listed on AICS.

China: All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.
Japan: All components of this product are included on the Japanese (ENCS) inventory or are not required to be listed on the Japanese inventory.

Korea: All components of this product are included on the Korean (ECL) inventory or are not required to be listed on the Korean inventory.

Philippines: All components of this product are included on the Philippine (PICCS) inventory or are not required to be listed on the Philippine inventory.

Switzerland: All components of this product are exempt from the new substance notification requirements for Switzerland (SR 813.11 art. 16-17).

OTHER ENVIRONMENTAL INFORMATION
The following components of this product may be subject to reporting requirements pursuant to Section 313 of CERCLA (40 CFR 372), Section 12(b) of TSCA, or may be subject to release reporting requirements (40 CFR 307, 40 CFR 311, etc.) See Section 13 for information on waste classification and waste disposal of this product.

This product does not contain any components regulated under these sections of the EPA

PRODUCT HAZARD CLASSIFICATION UNDER SECTION 311 OF SARA
- Acute
- Reactivity

16. OTHER INFORMATION

NFPA Hazard Rating (National Fire Protection Association)
Health: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.
Fire: 1 - Materials that must be preheated before ignition can occur.
Instability: 1 - Materials that in themselves are normally stable, but that can become unstable at elevated temperatures and pressures.

Reasons For Issue: Company address changed
Date Prepared: 01/31/2014
Date of last significant revision: 06/01/2013

Prepared By: Product Stewardship & Regulatory Affairs Department, http://www.allnex.com/contact

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