Triethylene Glycol Dimethacrylate (T3EGDMA)

Methacrylic acid ester for manufacturing polymers and use as a feedstock for syntheses

Molecular formula: $\text{C}_{14}\text{H}_{22}\text{O}_6$

Product specification

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assay (Gas chromatography)</td>
<td>min. 95 %</td>
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<tr>
<td>Total ester, wt.</td>
<td>min. 99 %</td>
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<tr>
<td>Water content (ASTM E 203)</td>
<td>max. 0.2 %</td>
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<tr>
<td>Color on dispatch (APHA, ASTM D 1209)</td>
<td>max. 100</td>
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<tr>
<td>Standard stabilization (HPLC)</td>
<td>250 ± 100 ppm MEHQ</td>
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</tbody>
</table>

The aforementioned data shall constitute the agreed contractual quality of the product at the time of passing of risk. The data are controlled at regular intervals as part of our quality assurance program. Neither these data nor the properties of product specimens shall imply any legally binding guarantee of certain properties or of fitness for a specific purpose. No liability of ours can be derived therefrom.

Other properties

- Appearance: colorless
- Methacrylic acid (DIN EN ISO 2114): max. 0.2 %
- Physical form: clear liquid
- Density at 25 °C: 1.075 g/cm$^3$
- Boiling point: >250 °C at 1013.25 hPa
- Flash point: 169 °C
- Index of refraction, 20 °C: 1.4600
- Vapor pressure, 100 °C: <1.3 hPa
- Surface tension: 36.5 dynes/cm
- Functionality, theoretical: 2
- Water solubility, wt. at 20 °C: 2.6 %
- Freezing point: −52 °C

Labelling according to local Directives

see SDS
Applications

Triethylene Glycol Dimethacrylate (T3EGDMA) forms homopolymers and copolymers. Copolymers of Triethylene Glycol Dimethacrylate (T3EGDMA) can be prepared with acrylic acid and its salts, amides and esters, and with methacrylates, acrylonitrile, maleic acid esters, vinyl acetate, vinyl chloride, vinylidene chloride, styrene, butadiene, unsaturated polyesters and drying oils, etc.

Triethylene Glycol Dimethacrylate (T3EGDMA) is also a very useful feedstock for chemical syntheses, because it readily undergoes addition reactions with a wide variety of organic and inorganic compounds.

Triethylene Glycol Dimethacrylate (T3EGDMA) is used as a cross linking monomer or a reactive diluent in a variety of applications such as: anaerobic adhesives, sealants, UV-cured coatings, photopolymers for solder masks and circuit boards, and fuel-resistant metal parts.

Triethylene Glycol Dimethacrylate (T3EGDMA) is incorporated in formulations for wood impregnation resins and glass coatings.

Other applications of Triethylene Glycol Dimethacrylate (T3EGDMA) include: ion exchange resins.

Features & Benefits

Triethylene Glycol Dimethacrylate (T3EGDMA) is a hydrophilic, low viscosity difunctional methacrylate providing high crosslink density, low shrinkage, flexibility and impact strength.

Triethylene Glycol Dimethacrylate (T3EGDMA) can be used to impart the following properties to polymers:

- Adhesion
- Weather resistance
- High crosslink density
- Flexibility
- Improved impact resistance
- Hydrophilicity
- Heat resistance
- Abrasion resistance

Storage & Handling

In order to prevent polymerization Triethylene Glycol Dimethacrylate (T3EGDMA) must always be stored under air, and never under inert gases. The presence of oxygen is required for the stabilizer to function effectively. For extended storage periods over 4 weeks it is advisable to replenish the dissolved oxygen content. The storage temperature must not exceed 35 ºC to prevent premature quality degradation. If the above mentioned conditions are met a storage stability of one year can be expected upon delivery. In order to minimize the likelihood of overstorage, the storage procedure should strictly follow the “first-in-first out” principle.

The preferred construction material for tanks and pipes is stainless steel. Carbon steel is also acceptable, although the formation of rust may be a problem with product quality (color). Iron(III)-ions have been shown to be a weak polymerization initiator. If carbon steel is to be used, special procedures should be used to prepare the tank for use. Storage tanks, pumps and pipes should be earthed.

Safety

A Safety Data Sheet has been compiled for Triethylene Glycol Dimethacrylate (T3EGDMA) that contains up-to-date information on questions relevant to safety.
Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

September 2015