

TRIMET[®] TME (Trimethylolethane) Product Data

TRIMET[®] TME

TECHNICAL DATA SHEET

▪ North America

300 Brookside Avenue
Building #23, Suite 100
Ambler, PA 19002
USA

☎ +1 215 773 9280

(Toll Free 888 519 3883)

☎ +1 215 773 9424

▪ Europe

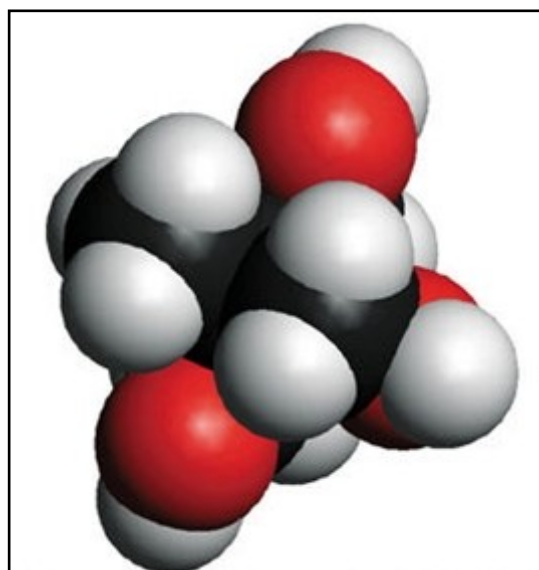
Charleston Road
Hardley, Hythe
Southampton, Hampshire
SO45 3ZG
UK

☎ + 44 2380 245 437

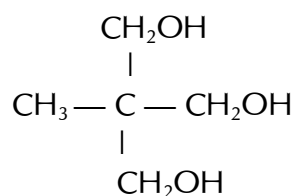
☎ + 44 2380 892 501

✉ PaintsandCoatings@geosc.com

🌐 www.geosc.com



TRIMET[®] TME (Trimethylolethane), C₅H₁₂O₃



CAS Registry No.77-85-0

EINECS Registry No. 2010639

Introduction

TRIMET® TME Trimethylolethane is manufactured by GEO Specialty Chemicals, Inc. at our Allentown, PA location in the US.

TRIMET® TME is a tri-functional polyol with a compact neo-pentyl structure. It is available in two grades, Technical and Pure and in two forms, cake resistant briquettes and granular. Pure grade is only available in granular form. Owing to the properties associated with its neo-pentyl structure and functionality, TRIMET® TME is considered to be a high quality polyol that can improve performance in a variety of applications.

Specifications	Tech	Pure
Hydroxyl content, wt %	41.0 min	41.75 min
Ash as NA ₂ O, wt %	0.01 max	0.01 max
Moisture, (Karl Fisher method), wt %	0.3 max	0.3 max
Water insoluble, ppm	50 max	50 max
Colour, APHA	250 max	100 max
Typical Properties	Tech	Pure
Appearance	White Crystalline Solid	
Melting point, °C	185 - 195	199 - 203
Density, briquettes lbs / ft ³	47.1	-
Density, granular lbs / ft ³	46.4	48.6
Combining weight	41.0	40.5
Specific gravity, g / ml	1.22	
Combining Weight, theory	40.05	
Molecular Weight	120.15	
Specific heat capacity < PCT @25°C, kJ/kg-C	1.477	
@50°C, kJ/kg-C	1.557	
Thermal conductivity, W/mK	0.17	
Flammability	no	
Coefficient of thermal expansion (at max. operating temperature), %	3	
Flashpoint, Cleveland open cup, °C	160	
Solubility, g / 100g solvent @ 25°C		
Water	40	
Methanol	75.2	
Ethanol	27.9	

Uses

TRIMET® TME is widely used as a raw material for the synthesis of **alkyd and polyester resins**. The stable neo-pentyl structure, combined with the three primary hydroxyl groups, make TME the ideal choice for preparing resins with very good resistance to heat, moisture and UV light. In **waterborne resins**, TME helps improve the hydrolytic stability of the resin.

Oil-free polyester baking enamels based on TME are noted for their excellent colour retention properties and over-bake resistance. TME is commonly used in the preparation of **silicone modified polyesters and alkyds** designed for high temperature applications such as bakeware, grill and muffler coatings.

TME esters may be used as the **lubricant base stocks**. Depending on the acid chain length, structure and composition, TME esters can be used in lubricants for textile processing or jet engines for example. A list of TME esters along with properties is available upon request.

TME is used for **pigment surface treatment** to improve wetting and dispersing of pigments in extruded plastics, paints and coatings. TME is easily dissolved into water for easy application.

TME can also be used as a thermal energy storage material (**Phase Change Material**) due to its ability to store a large amount of energy in the form of latent heat as it undergoes a phase change. TME has two phase change temperatures depending on its form. Technical Grade TME undergoes a solid/solid phase change at ~ 80°C with a latent heat capacity of ~192 KJ/KG. In the hydrated form it undergoes a solid/liquid phase change at 27-29°C with a latent heat capacity of ~218 KJ/KG.

TME is also used in **investment casting wax** as a filler to reduce thermal expansion and mold cracking. The combination of high melt point, specific gravity, low coefficient of thermal expansion and non-hazardous classification make it an ideal substitute for Bis-phenol A. TME can be used in both water-soluble and paraffinic blends.

For additional information on the uses of TME in various applications, please refer to "A Complete Guide to TRIMET® Brand of Trimethylolethane" which can be obtained through your local GEO Specialty Chemicals sales representative.

Toxicity

TME is essentially non-toxic. The LD₅₀ in mice is greater than 5000mg / kg. TME is mildly irritating to abraded skin with a score of 0.6 in the Draize test. TME is not irritating to the eye with a score of 0.0 in the Draize test. No toxicological or allergenic problems have been noted during our many years of production experience.

Shipping, Handling & Storage

TRIMET® TME is packaged in 50lb and 25kg multi-wall paper bags with HDPE liners. Super sacks containing 500kg / 1102lb and lined with antistatic LDPE are also available.

TME is a combustible solid with a flashpoint (Cleveland open cup) of 160°C. Store in a cool, dry area. Do not store near oxidizers.

The moisture content of TRIMET® TME may increase slowly with extended storage.

Shelf life: TRIMET® TME has a minimum shelf life of not less than 3 years if stored in its original unopened container and under normal storage conditions.

Granular TRIMET® TME Tech storage should be limited to 6 months or less due to a tendency of the product to cake. To minimize caking, pallets should not be stacked on top of each other and storage temperatures should be minimized. High humidity conditions may accelerate caking especially if packaging has been opened.

The NPFA Hazardous Materials Identification System rating for TME is: Health Hazard - 1; Flammability - 1; Reactivity - 0. This rating indicates that TME is a minimal hazard substance.

Due to its granular nature, TME is not likely to form explosive dusts. However, care should be taken to avoid accumulation of dusts.

Trimethylolethane is classified as "DOT not regulated" by the US Department of Transportation. No special labelling is required for shipment. The Harmonized Tariff Code is 2905.49.

The product may be disposed of in an approved disposal facility in accordance with applicable federal, state and local regulations. The nature and extent of contamination, if any, may require the use of specialized disposal methods.

Consult the Safety Data Sheet for current information on this product. Copies may be obtained through your GEO Specialty Chemicals customer service representative.

Trimethylolethane is listed on the Chemical Substance Inventory of Existing Chemicals Substance. The US and Canadian CAS Registry Number is 77-85-0 and the European EINECS Registry Number is 2010639.

The REACH registration number for TRIMET® TME is 01-2120757439-41-0000.

TRIMET® is a registered trademark of GEO Specialty Chemicals, Inc.

All information and data, including the formulations and procedures discussed herein, are believed to be correct. However, this should not be accepted as a guarantee of their accuracy, and confirming tests should be run in your laboratory or plant. No statement should be construed as a recommendation for any use which would violate any patent rights. Sales of all products are pursuant to terms and conditions included in GEO Specialty Chemicals sales documents. Nothing contained therein shall constitute a guarantee or warranty with respect to the products described or their use. Safety information regarding these products is contained in their Safety Data Sheets. Users of these products are urged to review and use this information.