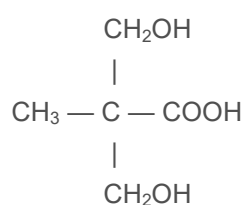


DMPA[®]

DMPA[®] Dimethylolpropionic Acid



CAS Number: 4767-03-7

DMPA[®] Dimethylolpropionic Acid is a unique and versatile hindered diol molecule with both hydroxyl and carboxyl functionality.

Specifications

Property	Regular Grade
Hydroxyl Content, wt %	24.0 min
Neutralization Equivalent	141.0 max
Ash as Na ₂ O, wt %	0.03 max
Moisture, wt %	0.3 max
Water Insolubles, ppm	50.0 max
Colour, APHA	250 max

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Typical Properties*

Property	Value
Molecular Weight	134.13
Acid Number, mg KOH / g	410 - 415
Melting Point, °C	170 - 180
Flashpoint (Cleveland Open Cup), °C	220
Decomposition Temperature, °C	230
Bulk Density, lbs / ft ³	52.4
Solubility, g / 100g solvent @ 25°C	
Water	11
Acetone	2.3
Ethanol	insoluble

DMPA[®] Dimethylolpropionic Acid is a unique and versatile hindered diol molecule with both hydroxyl and carboxyl functionality.

The neopentyl structure of this trifunctional compound, having two primary hydroxyl groups and one tertiary carboxylic group, permits simplified processing by allowing the combining of all reactants in a single kettle charge. Good control of the reaction is possible due to the slower esterification rate of the tertiary carboxyl, assuring a uniform distribution of carboxyl groups along the resin backbone.

The free acid group actively promotes resin water solubility or water dispersibility after neutralization with a base, easily introduces a polar group to improve coating adhesion and synthetic fibre dye receptivity, and increases the alkali solubility of deposited films.

DMPA[®] is an odourless, free flowing white crystalline solid, which provides superior advantages in the formulation and processing of water soluble resins.

* The typical values presented here are believed to be accurate; they should not, however be considered to constitute a specification.

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.

REVISION DATE: JUNE 2021

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Applications

DMPA[®] is widely used in:

- Aqueous urethane dispersions, resulting in fast air-drying, high gloss waterborne coatings with superior toughness and flexibility.
- Water soluble alkyd and polyester resins for improved hydrolytic stability, minimal coupling solvent and improved early water spot resistance in air dried resins.
- Powder coatings as a modifier for improved gloss, impact resistance and flow properties in epoxy-polyester systems. In polyester blocked isocyanate systems, DMPA imparts a high melting point hydroxyl functional reactive diluent for improved coating flexibility.
- Epoxy ester coatings, to permit resin formulating flexibility for improved cure response or larger oil strengths, to make resins water soluble, and for electro-deposition resins.
- Urethane elastomers, as a modifier for improved adhesion to plastics, glass and steel.
- Electro-deposition coatings, as a high performance neutralizing acid for cathodic electro-deposition and as a source of free acid groups in formulating anodic electro-deposition resins.
- Nylon / polyester fibre blends for improved compatibility and tear resistance.
- Lubricating oil additives, as a carrier for thiophosphates or in rust inhibiting derivatives.
- Photo resists / photo print plates, as a modifier of phenolic and urethane resists for improved alkali solubility and improved resolution in aqueous development systems.

Additional data on uses of DMPA[®] and patent references may be found in "A Complete Guide to the DMPA[®] Brand of Dimethylolpropionic Acid" which can be obtained from your GEO Specialty Chemicals customer service representative.

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Toxicity

DMPA[®] is essentially non-toxic. Tests with white mice indicate an LD50 for oral ingestion of greater than 5000mg / kg. No data is available on inhalation of DMPA[®] dust; no problems have been reported. DMPA[®] is not irritating to intact skin but may be slightly irritating to abraded skin. It is moderately irritating to the eyes with the irritation limited to the conjunctival area.

Registration & Regulatory Information: Please refer to the safety datasheet.

Handling & Storage: DMPA[®] is classified as "DOT not regulated" by the US Department of Transportation and requires no special labelling for shipment. The Harmonized Tariff Code is 2918.19.40

DMPA[®] should be stored in a clean, dry area, following good warehousing practices.

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

Miscellaneous: DMPA[®] is packaged in 250lb fibre drums, 50lb and 25kg multi-wall paper bags with HDPE liners and 500kg super sacks with LDPE liners.

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