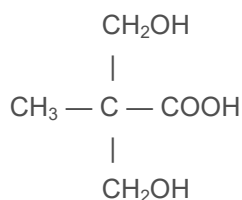


DMPA[®]

Ester & Metallic Salt Derivatives of DMPA[®] Dimethylolpropionic Acid



CAS Number: 4767-03-7

DMPA[®] Dimethylolpropionic Acid is a versatile compound having two different functional groups on a central carbon atom. These groups being both hydroxyl and carboxyl make **DMPA[®]** capable of reacting as a glycol or as an acid.

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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Characteristics of DMPA[®]

Regular Grade	
Appearance	Off-white crystalline solid
Molecular Weight	134
Neutral Equivalent	141 max
Melting Point, °C	170 - 180
Hydroxyl Value, mgKOH / g	24 min
Specific Gravity @ 25°C	1.355
Moisture Content, %	0.5 max
Solubility in Water	Soluble
Solubility in Methanol	Soluble
Solubility in Acetone	Slightly soluble
Solubility in Benzene	Insoluble

Esters of DMPA[®]

Esters are easily prepared at low temperatures through the carboxyl groups of the DMPA[®] molecule by using an excess of alcohol over the theoretical equivalent. P-toluenesulfonic acid can be used as the catalyst (0.7% based on DMPA[®]). After neutralizing with sodium carbonate the esters can be distilled under vacuum.

Some esters prepared from DMPA[®] and the corresponding aliphatic monohydric alcohol are shown in the following table:

Ester of DMPA	Density @ 25°C	Boiling Point	Refractive Index
Methyl	1.1760	130°C / 5 mm Hg	1.4566
Ethyl	1.1099	119°C / 2.5 mm Hg	1.4522
Butyl	1.0489	137°C / 3 mm Hg	1.4498
Allyl	1.1036	115°C / 2 mm Hg	1.4557
2-Ethylhexyl	0.9875	160°C / 2 mm Hg	1.4542

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.

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All of these esters, with the exception of the allyl ester, were prepared at atmospheric pressure. The allyl ester was prepared in a pressure reactor at 160-180°C and 14-16 kg / cm². In the case of the allyl ester, it is preferable to start with the sodium salt of DMPA[®] and allyl chloride, using triethylamine as a catalyst.

Metallic Salts of DMPA[®]

These salts were prepared by the addition of the metallic carbonate to a water dilution of DMPA[®]. The reactor was kept at 95-100°C to remove the carbon dioxide. The reaction mixture was filtered hot and cooled to isolate the metallic salt.

Salt of DMPA[®]

	Hydroxyl Value (%OH) Actual	Melting Point, °C
Calcium	22.10	243 - 244
Zinc	20.92	> 270
Cadmium	18.53	233 - 234
Barium	17.43	248 - 249
Lead	12.74	162 - 167

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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