DMAMP-80™

80% 2-DIMETHYLAMINO-2-METHYL-1-PROPANOL

DMAMP-80™ (80% aqueous solution of 2-dimethylamino-2-methyl-1-propanol) is one of the strongest tertiary amino alcohols commercially available. Because it is a strong base, DMAMP-80 can be used in water systems to provide formulations of exceptional clarity, wettability and stability.

Typical properties[(a)]

Amine Value (mg KOH/g)	383
Specific Gravity @ 25°C	0.95
Weight per Gallon @ 25°	7.9 lb
Flash Point, Tag Open Cup	150°F/66°C
Flash Point, Tag Closed Cup	153°F/67°C
Freezing Point	–4°F/–20°C
Boiling Point @ 760mm Hg	208°F/98°C
Viscosity @ 25°C	84 mPa•s
Gardner color	A-A_2
pH of 0.1N Aqueous Solution	11.6

[(a)]Values shown are typical properties and are not to be considered product specifications. Test methods available upon request.

Product Benefits

Tests with a variety of carboxyl-functional polymers in air-drying or baking systems using DMAMP-80 as the solubilizing amine indicate that DMAMP-80 can contribute an excellent combination of properties to both the solution and the film. DMAMP-80 provides the following advantages when used to solubilize polymers:

- As a strong base, DMAMP-80 is efficient, i.e., less amine is required to achieve a stable system.
- DMAMP-80 has excellent release from the film due to its ability to form an azeotrope with water (containing 25% by weight DMAMP-80; b.p. 208°F).
- Resin dispersions made with DMAMP-80 often have low viscosity and small particle size. This also means better solution clarity.
- DMAMP-80 will not cause undesirable color development.
- As an efficient neutralizer, DMAMP-80 can lower the co-solvent demand of the system potentially resulting in a more favorable VOC profile, and it allows the formulator flexibility to accommodate wider variations in resin molecular weight, acid value and aliphatic character.

Uses

DMAMP-80 can be used in paints and coatings, metalworking fluids and numerous industrial applications where it often improves product performance and reduces package corrosion.

Improved package stability

Many pigments react with the neutralizing amine to cause pH drift and destabilization of the system. Even water-compatible pigments can cause formulation instability if the system pH drops too low. DMAMP-80 acts to minimize pH drift. With DMAMP-80 as the neutralizing amine, it is easier to maintain a sufficiently high pH and viscosity stability.

Effective pH control

A resin solution that has been solubilized with DMAMP-80 will have a higher pH than a similar resin solution that is neutralized, for example, with dimethylaminoethanol to the same degree of neutralization. Conversely, it will require fewer equivalents of DMAMP-80 than diethylaminoethanol to maintain a resin solution at the higher pH. As resin hydrolysis occurs in storage, DMAMP-80 will minimize the danger of the resin solution attaining an undesirably low pH.

Increasing base strength ↑	Amine	pKa	pH of 0.01*N* aqueous solution
	Triethylamine (TEA)	10.78	10.80
	DMAMP-80	10.20	10.60
	AMP-95™	9.82	10.35
	Dimethylaminoethanol (DMAE)	9.31	10.15
	Ammonia	9.24	10.10

Improved film release properties

Highly volatile amines, such as triethylamine or ammonia, should not be used in open dip-tanks. Not only are there dangers from vapors above the tank, but the amine lost by evaporation causes a drop in pH and must be replaced by the addition of more amine—at an added cost. The favorable boiling point and flash point of DMAMP-80 are advantageous in this end use.

The relatively low volatility of DMAMP-80 lends stability to a system, and the ability to form an azeotrope with water aids in removal of excess amine during the drying process. DMAMP-80 possesses a high boiling point for good resin-system stability and contains enough amine in its water azeotrope to ensure good release from the film.

Packaging and Storage

DMAMP-80 is not classified as hazardous under the European Agreement concerning International Carriage of Dangerous Goods by Road (ADR). DMAMP-80 does not meet any of the defined criteria for “dangerous goods” contained in the International Transportation Regulations for Air (ICAO Technical Instructions) or for Ocean Transport (IMDG Code).

Shipping containers[(b)]	**Net wt.**	**Gross wt.**
Unlined steel drums	195 kg	213 kg
Intermediate bulk containers	950 kg	1003 kg

Store in original container and in a well-ventilated place. Keep cool. Keep container tightly closed when not in use. Do not store in: zinc, galvanized containers, aluminum, copper, or copper alloys. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

[(b)]The shipping containers listed meet UN 1A1 packaging specifications. DMAMP-80 is also shipped in bulk in tank cars or tank trucks.

Chemical Inventories

Chemical Name	**CAS No.**	**Concentration**
2-dimethylamino-2-methyl-1-propanol	7005-47-2	78.0%
Water	7732-18-5	20.0%
2-Amino-2-methyl-1-propanol	124-68-5	<= 3.0 %
2-Methylamino-2-methyl-1-propanol	27646-80-6	<= 1.3 %

Product Safety

When considering the use of any ANGUS product in a particular application, review the latest Safety Data Sheet (SDS) to ensure that the intended use is within the scope of approved uses and can be accomplished safely. Before handling any of the products, obtain available product safety information including the Safety Data Sheet(s) and take the necessary steps to ensure safety of use.

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