

AMP-90™ 90% 2-AMINO-2-METHYL-1-PROPANOL SOLUTION

AMP-90™ is the product name under which ANGUS markets 2-amino-2-methyl-1-propanol containing 10% water. This colorless, mobile liquid with a relatively low viscosity remains liquid above -11°C to permit easy, convenient handling.

Typical properties^(a)

Neutral equivalent.....	97–101
Water (max.).....	10.8% by wt.
Color (max.).....	20 APHA
Molecular weight (calc.).....	89.1
Specific gravity at 25/25°C.....	0.949
Viscosity at 25°C.....	119 mPa•s
Viscosity at 50°C.....	21.6 mPa•s
Vapor pressure at 82°C.....	~319 hPa
Freezing point.....	-11°C
Surface tension at 10% aqueous solution.....	~58 mN/m
pH of 0.1 M aqueous solution at 20°C.....	11.3
pKa at 25°C.....	9.75

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

Product Benefits

- Efficient amino alcohol for neutralization of acid-functional ingredients (resins, corrosion inhibitors, etc.)
- Acts as a co-dispersant for particulate systems
- Component of powerful anionic emulsifier systems
- Acts as a formaldehyde scavenger
- Corrosion inhibitor for steam-condensate lines
- Enables formulation of metalworking fluids
- metalworking fluids with extended fluid longevity
- Useful raw material for synthesis applications
- Multiple food contact approvals
- In-can corrosion protection in variety of applications

Uses

Latex emulsion paints

AMP-90 is a very efficient dispersant for pigments, and neutralizer for anionic emulsification systems (fatty acids, etc.). In addition, AMP-90 contributes pH stability, low odor, and anticorrosive properties; furthermore, it promotes acceptance of colorants.

Polyethylene and wax

AMP-90 is an effective emulsifier for polyethylene and wax by either the normal emulsification techniques or those requiring pressure.

Waterborne coatings

AMP-90 is a very efficient amino alcohol for neutralizing acid-functional resins to make them suitable for use in water-borne coatings and other aqueous applications. Such coatings formulations exhibit higher gloss and greater water resistance than do formulations based on other neutralizing amines.

Paper coatings

AMP-90 is used for the dispersion of TiO₂ and also to control the water retention and mottling.

Boiler water systems

Corrosion in boiler-water systems can be controlled successfully by use of AMP-90 as the amino alcohol additive to remove dissolved CO₂.

Aqueous solutions and metalworking fluids

AMP-90 also functions in dilute aqueous solutions containing small amounts of formaldehyde to scavenge that which otherwise might be released to the atmosphere. This makes AMP-90 a good additive for use in metalworking fluids. In addition, AMP-90 improves the longevity of use-diluted fluids, does not leach cobalt, and enhances the performance of certain approved biocides.

Cosmetics and personal care applications

AMP-90 is also an important additive for the personal care and cosmetics industries. It is compatible with virtually all fixative resins. Its high base strength and low molecular weight allow formulators to use significantly less AMP-90 for resin neutralization.

Regulatory Status

AMP-90 possesses the following U.S. Food and Drug Administration (FDA) clearances:

- **Section 175.105** lists AMP among substances cleared for use as components of food packaging adhesives (AMP is designated as aminomethylpropanol in the regulations).
- **Sections 176.170 and 176.180** have AMP cleared for use as an indirect food additive for use as a pigment dispersant at levels up to 0.25% by weight of pigment. The resulting dispersion may be used to coat paper which will contact fatty, dry, or aqueous foods in room temperature, refrigerated, or frozen storage.
- **Section 175.300** lists substances cleared for use as components in resinous and polymeric coatings intended for use in contact with food.

AMP is listed as a permissible catalyst for modification of triazine-formaldehyde resins in paragraph (b)(3)(xiii)(a) of this section. The FDA has identified AMP by the ambiguous name "methylpropanolamine."

The resins and coatings cleared under Section 175.300 have been cleared by cross reference for use as provided in the following sections:

- **Section 175.380** Xylene-formaldehyde resins condensed with 4,4'- isopropylidenediphenol-epichlorohydrin epoxy resins
- **Section 175.390** Zinc-silicon dioxide matrix coatings
- **Section 177.1210** Closures with sealing gaskets for food containers
- **Section 177.2260** Filter, resin-bonded

AMP has also received **BgVV approval under Recommendation XXXVI** "Production aid as dispersant and flotation agent in the manufacture of paper and board for food contact use."

Packaging and Storage

AMP-90 is not classified as hazardous under the European Agreement concerning International Carriage of Dangerous Goods by Road (ADR). AMP-90 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

AMP-90 is corrosive to copper, brass, and aluminum. Contact with these metals should be avoided. Ordinary iron and steel generally are unaffected by this product and are the recommended materials of construction. AMP-90 is a combustible liquid with a relatively high flash point and a low vapor pressure at ordinary temperatures. These properties cause no problems with respect to storage and handling. Do not store near heat or flame.

AMP-90 should not be exposed unnecessarily to the atmosphere, since it can pick up moisture and carbon dioxide due to its amine functionality. Evidence of this may be detected by a weight gain, a lower alkalinity equivalency than when first received, or the formation of cloudy solutions when dissolved in alcohol.

^(b)The shipping containers listed meet UN 1A1 packaging specifications. AMP-90 is also shipped in bulk in tank cars or tank trucks.

Chemical Inventories

Chemical Name	CAS No.	Concentration
2-Amino-2-methyl-1-propanol	124-68-5	>= 83.0 %
Water	7732-18-5	<= 11.0 %
2-Methylamino-2-methyl-1-propanol	27646-80-6	<= 7.0 %

EINECS No. 204-709-8

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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