

# ANGUS Chemie GmbH

## Technical Data Sheet

### AMP-95™

**95% 2-AMINO-2-METHYL-1-PROPANOL SOLUTION**  
 CAS Registry No. 124-68-5  
 EINECS No. 204-709-8

AMP-95 is the product name under which ANGUS markets 2-amino-2-methyl-1-propanol containing 5% added water. This colorless, mobile liquid with a relatively low viscosity remains liquid at temperatures as low as 4°C to permit easy, convenient handling.

AMP-95 use benefits include, but are not limited to, the following:

- **Efficient Amine for Resin Neutralization**
  - High base strength
  - Relatively low molecular weight
- **Multiple Food Contact Approvals**
- **Acts as a Co-Dispersant for Particulate Systems**
- **Corrosion Inhibitor for Steam-Condensate Lines**
- **Key Component of Low Cobalt-Leaching Metalworking Fluids**
- **Acts as a Formaldehyde Scavenger**
- **Useful Raw Material for Synthesis Applications**
- **Component of Powerful Anionic Emulsifier Systems**

### Typical Properties

The following are typical properties of AMP-95. They are not to be considered product specifications.

Neutral equivalent	93 – 97
Water (max.)	5.8% by wt.
Color (max.)	20 APHA
Molecular weight (calc.)	89.1
Specific gravity at 25/25°C	0.942
Viscosity at 25°C	147 mPa·s
at 10°C	561 mPa·s
Coefficient of Expansion,	
20 to 90°C	0.00096/°C
Flash Point, Tag Closed Cup	83°C
Pensky-Martens Closed Cup	87°C
Vapor Pressure at 20°C	10.6 Pa
Freezing Point	- 2°C
Surface Tension, neat	36-38 mN/m
in 10% Aqueous Solution	~58 mN/m
pH of 0.1 M Aqueous Solution at 20°C	11.3
pKa at 25°C	9.72
Refractive Index, $n_D$ , at 20°C	1.4568

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## Uses

In latex emulsion paints, AMP-95 is a very efficient co-dispersant for pigments. In addition, AMP-95 contributes pH stability, low odor, and anticorrosive properties; furthermore, it promotes acceptance of colorants.

AMP-95 is an effective emulsifier for polyethylene and wax by either the normal emulsification techniques or those requiring pressure.

AMP-95 is a very efficient amine for neutralizing the carboxylic acid moieties in 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.

Corrosion in boiler-water systems can be controlled successfully by use of AMP-95 as the amine additive to remove CO<sub>2</sub>.

AMP-95 is a high performance alkanolamine, proven as a multifunctional additive for metalworking fluids. It is a highly efficient alkalinity enhancer which also provides corrosion inhibition properties. The use of AMP-95 will often improve the blastability of these fluids, which can result in longer fluid life. AMP-95 is the least aggressive amine towards the cobalt binder in carbide tooling. As an added feature, AMP-95 enhances the performance of triazine biocides, while reducing levels of airborne formaldehyde. AMP-95 does not contribute to ammonia release as do other amines.

AMP-95 is an important additive for the personal care industry. It is compatible with virtually all fixative resins. Its high base strength and low molecular weight allow formulators to use significantly less AMP-95 for resin neutralization. AMP-95 possesses liquid phase corrosion inhibition properties, especially useful for the protection of aerosol cans containing aqueous based formulations. It can also be used to neutralize Carbomer resins, in emulsification together with stearic acid, and to make amides and other derivatives used as cosmetic ingredients (CTFA/INCI designation: Aminomethyl propanol).

AMP-95 also functions in dilute aqueous solutions containing small amounts of formaldehyde to scavenge that which otherwise might be released to the atmosphere.

Technical bulletins giving detailed suggestions on the uses of AMP-95 are available.

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## Food Contact Approvals

AMP-95 possesses the following 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** – AMP is 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 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”.

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## Toxicity

AMP-95 causes eye burns. Wear protective goggles for any operation in which splashing is likely to occur. In case of eye contact, *immediately* flush eyes with plenty of water for at least 15 minutes; see a physician.

Prolonged or frequently repeated exposure of the skin to AMP-95 may result in skin irritation. When such exposure is unavoidable, use of protective clothing is advised. In case of skin contact, wash the exposed area thoroughly with water. Remove contaminated clothing and wash before reuse. Discard contaminated shoes.

The vapor pressure of AMP-95 is quite low. Hence there will be only a small concentration of vapors at ordinary temperatures of use. Avoid repeated inhalation exposure to vapors or mists from heated material as the effects of inhalation have not been fully evaluated.

The acute oral LD<sub>50</sub> for AMP is 2.9 g/kg when tested in rats. Intraperitoneal administration to mice gave an LD<sub>50</sub> of 0.32 g/kg. Thus, AMP-95 would be considered as only slightly toxic by either route of administration.

AMP-95 when neutralized with fatty acids, as in the use for emulsification, has much less potential for irritation of skin or eyes. In several decades of use, there have been no reports of dermatitis resulting from exposure to its fatty acid soaps. Oral ingestion by rats of solutions containing 3 g/kg of the stearate soap of AMP produced no acute toxic symptoms or death.

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## Precautionary Labeling

For details consult the Safety Data Sheet.

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## Handling and Storage

AMP-95 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-95 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-95 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.

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## Shipping and Packaging

AMP-95 is not classified as hazardous under the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR).

AMP-95 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).

<b>Shipping Containers</b>	<b>Net Wt.</b>	<b>Gross Wt.</b>
Unlined steel drums	195 kg	213 kg
Intermediate bulk containers	950 kg	1003 kg

The shipping containers listed above meet UN 1A1 packaging specifications. AMP-95 is also available for shipment in bulk (tank cars and trucks).

The information and data contained herein are believed to be correct. However, we do not warrant either expressly or by implication the accuracy thereof. In presenting uses for this product, no attempt has been made to investigate or discuss any patent situations which may be involved.

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