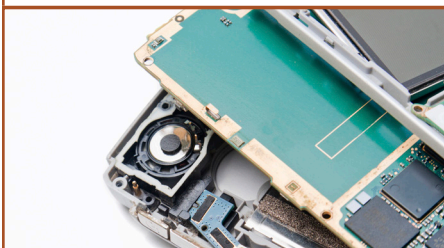


VOLTAN™ BETA

Specialty Electronics-Grade Chemical Additive
 2-AMINO-2-METHYL-1-PROPANOL SOLUTION
 CAS Registry No. 124-68-5 EINECS No. 204-709-8

Key Performance Advantages

- Delivers high purity solutions for cleaning and rinsing operations
- Provides high precision, tunable functionality for a variety of processing demands
- Supports removal of unwanted debris during manufacturing, while preserving end-product functionality
- Enhances performance of rinses and strippers for ultra-high definition large screen flat panels with lower copper corrosion



Electronic Chemicals

Advanced semiconductors and electronic displays are manufactured with materials that are highly sensitive and can be easily damaged during the manufacturing process. ANGUS provides new and superior chemical additives that deliver the finely tuned functionality required to produce tomorrow's products—especially in formulating effective cleaning and rinsing solutions—without negative effects commonly experienced with harsh and underperforming chemistries.

VOLTAN™ BETA is a highly purified, low-metals grade of 2-amino-2-methyl-1-propanol. This colorless liquid with a relatively low viscosity remains liquid at temperatures as low as 0°C for easy, convenient handling.

The many benefits of VOLTAN BETA include:

- Helps remove debris from precious metals and materials while preserving component functionality
- Effective in cleaners, rinses, and strippers for advanced semiconductors and ultra-high definition large screen flat panel displays with lower copper corrosion
- Efficient neutralizer with high base strength and low molecular weight
- Acts as a co-dispersant for particulates (PCMP cleaners, etc.)
- Demonstrates low cobalt-leaching potential
- VOC-exempt by U.S. EPA

ANGUS amino alcohols can be used in a variety of processes during electronics manufacturing. Our products cover a range of pKa's, solubilities, and other physical chemical properties. Common applications of amino alcohols include CMP slurries, post-CMP cleaners, post-etch residue removers and photoresist strippers.

Typical Properties

The following are typical properties of VOLTAN BETA. They are not to be considered product specifications.

Neutral Equivalent	93–97	Flash Point, Pensky-Martens Closed Cup	87°C
Water (max.)	5.8% by wt.	Vapor Pressure at 20°C	10.6Pa
Color (max.)	20APHA	Freezing Point	-2°C
Molecular Weight (calc.)	89.1	Surface Tension, Neat	36-38mN/m
Specific Gravity at 25/25°C	0.942	Surface Tension in 10% Aqueous Solution	~58 mN/m
Viscosity at 25°C	147mPa-s	pH of 0.1M Aqueous Solution at 20°C	11.3
Viscosity at 10°C	561mPa-s	pKa at 25°C	9.7
Coefficient of Expansion, 20 to 90°C	0.00096/°C	Refractive Index, nD, at 20°C	1.4568
Flash Point, Tag Closed Cup	83°C	Metals Content	<200 ppb

Uses

During the fabrication of advanced electronic devices (semiconductors, displays, etc.), removal of contaminants from various surfaces is mandatory for achieving maximum device performance and yield. VOLTAN BETA offers superior performance—all while helping to retain and preserve peak product functionality during manufacturing. It also provides an innovative alternative to harsh chemistries normally relied upon for cleansing and rinsing processes.

Handling and Storage


In its concentrated form, VOLTAN BETA 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.

VOLTAN BETA 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.

VOLTAN BETA 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.

Product Stewardship

ANGUS encourages its customers to review their applications of ANGUS products from the standpoint of human health and environmental quality. To help ensure that ANGUS products are not used in ways for which they are not intended, ANGUS personnel will assist customers in dealing with environmental and product safety considerations. For assistance, product Safety Data Sheets, or other information, please contact your ANGUS representative at the numbers provided in this document. When considering the use of any ANGUS product in a particular application, review the latest Safety Data Sheet 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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