MANTA

Technical Data Sheet

Version: 1.0

Manta A431

Secondary Amino-Functional Silane Adhesion Promoter

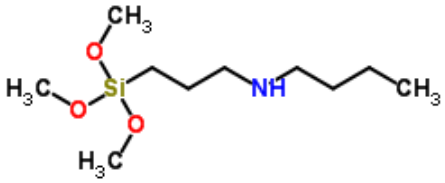
Description

Manta A431 is a high-performance mono-amino silane featuring a reactive secondary amine functional group and three hydrolyzable methoxy groups. This dual reactivity enables it to function as a highly efficient molecular bridge, forming robust bidirectional chemical bonds between inorganic substrates (e.g., glass, metals, minerals) and organic polymers.

Unlike primary amino silanes, the secondary amine structure in A431 provides enhanced flexibility, improved stability, and reduced yellowing in final formulations. It is specifically designed to improve the mechanical properties of composites and enhance the bond strength and water resistance of resin coatings.

Performance equivalent to Momentive Silquest A-1189 and Evonik Dynasylan 1189.

Typical Physical Properties

Manta No.	A431
Chemical Name	N-(3-(Trimethoxysilyl)propyl)butylamine
CAS NO.	31024-56-3
EINECS No.:	250-437-8
Formula	C10H25NO3Si
Appearance	Colorless to Pale Yellow Transparent Liquid
Density(ρ20°C，g/cm³)	0.947
Refractive Index(n 25°C)	1.4246
Purity (by GC,%)	97 min
Chemical Structure	

Applications

Manta A431 is widely utilized across adhesives, sealants, coatings, and composites:

1. Adhesives & Sealants: Used as an adhesion promoter and for the chemical modification of NCO-functional prepolymers in advanced adhesive systems.
2. Silane-Modified Polymers (SMP): Functions as a highly flexible adhesion promoter and end-capper in MS Polymer and SPUR systems.
3. Resin Modification: Serves as an important additive in phenolic, furan, and melamine-based resins, specifically in high-performance foundry formulations.
4. Mineral Fillers: Provides excellent surface treatment for fillers and pigments incorporated into mineral-reinforced polymers, improving dispersion and mechanical strength.
5. Paints & Coatings: Acts as a primer and formulation additive to significantly enhance wet and dry adhesion to challenging substrates.
6. Fiberglass Composites: Utilized as a sizing agent and finishing component in glass fiber and glass fabric composites.

Formulation & Handling Guidelines

- Autocatalytic Hydrolysis: In the presence of ambient moisture, the methoxy groups hydrolyze to form reactive silanols, releasing methanol. Unlike many silanes, A431 is autocatalytic and does not require an acid catalyst. The typical pH of its hydrolysate is 10–11; however, adjusting to ~pH 4 can significantly improve bath stability.
- Solvent Incompatibility (CRITICAL): The secondary amine group reacts with ketones and esters. Strictly avoid using ketone or ester-based solvents for dilution or formulation.
- Atmospheric Sensitivity: The active amine groups can react with atmospheric carbon dioxide (CO2) to form carbamates or carbonates. Ensure containers are tightly sealed and purged with inert gas after dispensing.

Packaging

In 20kg pail, 190kg drum and 950kg IBC

Safety and Storage

Storage Conditions: Keep tightly closed in a cool, strictly dry, and well-ventilated area. Keep away from heat, sparks, and open flames.
Shelf Life: Minimum 12 months when stored at or below 25°C in the original, unopened containers.

Contact Information

Nanjing Manta New Material Co., Ltd
Add: Room 102-247, Building 17, No. 1 Qiliqiao North Road, Nanjing Area of the China (Jiangsu) Pilot Free Trade Zone, Nanjing, China
Factory: Miaoguan Town Industrial Park, Sishui County, Jining City, Shandong Province, China
Mob: +86 18961071292
Mail: inquiry@mantasil.com Web: www.mantasil.com