MANTA

Technical Data Sheet

Version: 1.0

Manta E563

Eco-Friendly Bifunctional Epoxy Silane (Water-Borne Adhesion Promoter)

Description

Manta E563 is a bifunctional epoxy organosilane featuring a reactive glycidoxy group and a methyldiethoxy silyl group. This advanced molecular architecture delivers two critical formulation advantages over standard tri-alkoxy silanes:

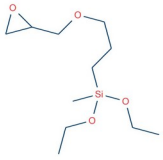
It hydrolyzes to release non-toxic ethanol, meeting stringent environmental and VOC regulations.

Its dialkoxy (bifunctional) structure reduces crosslink density, acting as a flexible chain extender rather than a rigid 3D crosslinker.

It is an adhesion promoter for water-borne systems, delivering exceptional wet adhesion without sacrificing the elongation and flexibility of the cured polymer.

Performance equivalent to Momentive Silquest WetLink 78 / CoatOSil 2287, Dow Z-6042, and Shin-Etsu KBE-402.

Typical Physical Properties

Product No.	E563
Chemical Name	3-(2,3-Epoxypropoxy)propylmethyldiethoxysilane; 3-Glycidoxypropylmethyldiethoxysilane;
CAS NO.	2897-60-1
EINECS NO.	220-780-8
Formula	C11H24O4Si
Molecular Weight	248.39
Appearance	Colorless Transparent Liquid
Density (ρ20°C, g/cm³)	0.9780±0.0050
Refractive Index (n25/D)	1.4280–1.4380
Purity (by GC, %)	97.0 min
Chemical Structure	

Features

- Water-Borne Compatibility: Stable in aqueous environments. It significantly improves both dry and wet adhesion in water-borne acrylic sealants and coatings.
- Eco-Friendly Byproduct: Releases safe, non-toxic ethanol upon moisture-curing, bypassing restrictions on methanol-releasing chemicals.
- High Flexibility / Low Modulus: The methyl-substituted silane acts as a chain modifier, preventing polymer embrittlement and maintaining the high elastomeric flexibility of sealants and adhesives.
- Non-Yellowing Stability: Imparts exceptional adhesion without the yellowing or discoloration typically associated with amino silanes.

Applications

Manta E563 is specifically designed for eco-friendly and high-flexibility polymer systems:

1. Water-Borne Sealants & Coatings: An adhesion promoter for WB acrylic sealants, WB polyurethanes, and WB epoxies, significantly enhancing wet adhesion to glass and metals.
2. Electronic Encapsulants: Significantly enhances the wet electrical properties and moisture resistance of advanced epoxy-based encapsulants and packaging materials.

3. Primerless Sealants: Eliminates the need for a separate surface primer in the formulation of high-movement polysulfide and polyurethane joint sealants.
4. Composites & Fiberglass: Improves the dry and wet mechanical strength in cured composites reinforced with glass fiber rovings.
5. High-Performance Water-Borne Coatings: Widely utilized as an internal crosslinker and adhesion promoter in Polyurethane Dispersions (PUDs) and WB acrylics (especially wood and industrial metal finishes). It significantly enhances mar resistance, chemical resistance, and wet adhesion without embrittling the cured film, ensuring excellent flexibility during substrate thermal expansion.
6. Low-Stress Electronic Encapsulants: Important for potting compounds protecting sensitive microelectronics. It delivers robust epoxy-level adhesion while acting as a flexibilizer to reduce crosslink density, thereby minimizing shrinkage and thermal mechanical stress on fragile wire bonds and components.
7. Anti-Corrosion Metal Primers: Highly effective in formulating advanced primers for steel and aluminum. It forms dense, covalent bonds with metal oxides, significantly enhancing salt-spray resistance and preventing cathodic delamination and blistering under harsh environmental conditions.

Packaging

In 200kg drum and 970kg container.

Safety and Storage

Keep away from heat and open flame. When stored at or below 35 °C in the original unopened containers, this product has a usable life of 12 months from the date of production. It's shipped as non-hazardous material.

Contact Information

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