MANTA

Technical Data Sheet

Version: 1.0

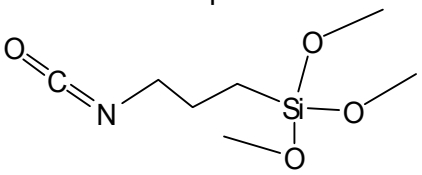
Manta S310

Isocyanate Functional Alkoxy Silane

Description

Manta S310 is a bifunctional organosilane possessing a highly active isocyanate group and a hydrolyzable trimethoxysilyl group. The isocyanate functionality exhibits the typical high reactivity of an alkyl isocyanate, reacting rapidly with most active hydrogen-containing compounds (such as hydroxyl, amino, and mercapto groups). The silane portion can then crosslink with each other upon moisture exposure or bond chemically to a wide variety of inorganic substrates.
Performance equivalent to Momentive Silquest A-Link™ 35, WACKER GENIOSIL GF 40, and Shin-Etsu KBM-9007.

Typical Physical Properties

Manta Code:	S310
Chemical Name:	γ-Isocyanatopropyltrimethoxysilane
Synonyms:	Trimethoxy(3-isocyanatopropyl)silane; 3-(Trimethoxysilyl)propyl isocyanate;
CAS No. :	15396-00-6
EINECS No. :	239-415-9
Molecular Weight:	205.28
Appearance:	Colorless transparent liquid
Purity (by GC, %):	97.00 min
Density (ρ20°C, g/cm³):	1.020~1.080
Refractive Index (n25/D):	1.4100~1.4300
Boiling Point:	>200°C
Flash Point:	99 °C closed cup
Chemical Structure:	

Properties

- Bifunctional Crosslinking: Highly reactive with -OH, -NH2, and -SH functional polymers, providing a highly efficient moisture-cure silane crosslinking mechanism.
- Rapid Cure Kinetics: The trimethoxy groups offer very fast hydrolysis and crosslinking in the presence of atmospheric moisture.
- Exceptional Adhesion: Acts as an adhesion promoter, providing superior wet and dry adhesion to difficult substrates including glass, metals, and inorganic minerals.
- Durable Bonds: The resulting siloxane bonds offer excellent thermal, chemical, and UV stability.

Applications

Manta S310 is widely utilized as an important crosslinker, end-capper, and adhesion promoter across advanced polymer systems:
1. Polymer Modification (MS Polymer / SPUR): Functions as the critical end-capping agent for diols or polyol polymers to manufacture Silane-Modified Polymers (SMP) and SPUR (Silane Terminated Polyurethanes). This enables the creation of high-performance, one-part moisture-curable urethane adhesives, sealants, and coatings without the presence of free unreacted isocyanates.
2. Adhesion Promoter: Extensively used in silicone sealants, polyurethane paints, and hybrid

adhesives requiring aggressively enhanced adhesion to organic plastics (like nylon) or inorganic substrates where active hydrogen species are present.
3. Resin Crosslinking: Serves as a highly efficient modifier for hydroxyl-bearing resins (such as Acrylic resins, PVA) and alkoxy-silyl crosslinked fluororesin fluids, significantly improving their chemical resistance and weatherability.
4. Reactive Additive: Enhances the performance of one-part moisture-curable and two-part reactive polyurethane systems.
5. Automotive Glass Primers (AGR): A key component in the formulation of fast-curing polyurethane primers for Automotive Glass Replacement (AGR) and direct glazing, providing immediate, reliable adhesion to glass substrates.

Packaging

In 20KG, 25kg iron pail, 200KG drum

Safety and Storage

- Moisture Sensitivity Warning (CRITICAL): This product is an isocyanate derivative and is extremely sensitive to moisture. Contact with water or ambient humidity will cause rapid hydrolysis, polymerization, and the generation of carbon dioxide (CO2) gas, which can pressurize and rupture closed containers.
- Storage: Must be stored in a cool, strictly dry, and well-ventilated area away from direct sunlight. After opening, containers must be purged with a dry inert gas (Nitrogen or Argon) and resealed instantly.
- Shelf Life: Minimum 12 months in original, unopened containers under proper storage conditions.
- Transportation: Classified and shipped as a hazardous substance. Consult the Material Safety Data Sheet (MSDS) for comprehensive handling instructions.

Contact Information

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