MANTA

Technical Data Sheet

Version: 1.0

Manta MS311

Silyl-terminated polyether (STPE), SMP type

Description

Manta MS311 is an alkoxysilane-terminated polyether (STPE, also known as silane-modified polymer, SMP) based on a polypropylene oxide (PPO) backbone with trimethoxysilylpropylcarbamate end groups.

On exposure to moisture the end groups hydrolyze and crosslink to form a siloxane network. MS311 is used as a binder for moisture-curing elastic sealants, elastic structural adhesives, sealing coatings, potting compounds and related low-emission adhesive systems. The polymer is solvent-free and isocyanate-free, has low odor, is suitable for low-VOC formulations, cures without bubble formation, is highly transparent and adheres to a wide range of substrates.

Typical Physical Properties

Manta Code:	MS311
Chemical Name:	Silane-modified polyether (trimethoxysilylpropylcarbamate-terminated)
CAS No.:	216597-12-5
Appearance:	Colorless, transparent viscous liquid
Flash Point:	> 100 °C
Viscosity (25 °C):	4,000 – 5,000 mPa·s
Density (25 °C):	1.002 – 1.005 g/cm³
Tack-Free Time:	30 min
Chemical Structure:	
Activity:	High
Modulus:	Medium-high

Properties

- Fast curing: the moisture-reactive alkoxysilane groups cure at room temperature.
- Low viscosity and high transparency: colorless, transparent polymer that is easy to compound and suitable for clear formulations.
- Durability: cured formulations show good resistance to aging, yellowing, water and chemical solvents.
- Adhesion: good bond strength on many common substrates; adhesion should be confirmed on the actual substrate.

- Environmental profile: solvent-free, low odor, suitable for low-VOC formulations and free of isocyanates.
- Formulation: good storage stability and compatibility with other polymers.

Applications

1. Adhesives and sealants: base polymer for one-component and two-component moisture-curing sealants and elastic adhesives.
2. Elastic structural adhesives: formulations requiring medium-high modulus, high bond strength and durable elasticity.
3. Potting compounds: moisture-curing encapsulation systems for industrial use; can be evaluated for electronic potting, with electrical properties to be verified in the final formulation.
4. Coatings: flexible sealing coatings and protective coatings requiring adhesion, transparency and chemical resistance.
5. Market segments: bonding and sealing in construction, general industry and transportation; new energy applications are subject to testing.

Processing

The alkoxysilane groups of Manta MS311 hydrolyze and crosslink on contact with water, so moisture must be excluded during storage and production. Dry fillers before use to avoid premature curing; vinyltrimethoxysilane (VTMO) is commonly used as a water scavenger.

MS311 can be adjusted flexibly in formulations and is compatible with most common fillers, including nano (precipitated) calcium carbonate, ground calcium carbonate, fumed silica, silica powder, diatomaceous earth and aluminum hydroxide. Common plasticizers are phthalates and low-molecular-weight polyethers. Adhesion promoters, antioxidants, fungicides and light stabilizers can be added to adjust the end-use properties.

Packing

200 kg steel drum with aluminum-foil liner bag;

1,000 kg IBC (tote);

Other pack sizes available on request.

Shipped as ordinary chemical goods; refer to the SDS for transport information.

Safety and Storage

Store in the tightly closed original container in a cool, dry place, protected from direct sunlight. Shelf life: 12 months from the date of production when stored as recommended. For handling and disposal, follow standard chemical safety practice and the current Safety Data Sheet (SDS).

Note: The values in this data sheet are typical values and are not intended for use in preparing specifications. Users should test the product to determine its suitability for their specific application.

Contact Information

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