MANTA

Technical Data Sheet

Version: 1.0

Manta MS313

Hybrid Polymer

Description

Manta MS313 is a silane-terminated polyether (STPE, also known as silane-modified polymer, SMP) for moisture-curing adhesives and sealants. It cures rapidly on exposure to atmospheric moisture.

This reactivity allows fast curing without organotin catalysts and makes MS313 an alternative to conventional polyurethane and silicone systems where tin-free formulations are required. On exposure to atmospheric moisture it cures to a tough, elastic siloxane-crosslinked network.

Performance equivalent to WACKER GENIOSIL® STP-E30.

Typical Physical Properties

Manta Code:	MS313
Chemical Name:	Silane-terminated polyether (high-reactivity type)
Appearance:	Colorless, transparent viscous liquid
Viscosity (25 °C):	30,000 – 42,000 mPa·s
Density (25 °C):	1.005 – 1.006 g/cm³
Activity:	High

Properties

- High reactivity: fast curing and short tack-free time.
- Tin-free formulation: allows tin-free and plasticizer-free adhesives for products with stricter regulatory requirements.
- Processing: the moderate viscosity gives broad formulation latitude and allows compounding with high filler loadings.
- Mechanical properties: high tensile strength and high elasticity; the modulus can be adjusted over a wide range by formulation.
- Stability: good shelf-life stability in properly sealed formulations.
- Adhesion: bonds to a variety of substrates without primer; adhesion should be confirmed on the actual substrate.

Applications

Manta MS313 is used as a reactive binder for moisture-curing sealants, adhesives and potting compounds and as an additive in coatings, particularly where fast curing, high elastic recovery and tin-free formulations are required. Typical fields of use:

1. Industrial adhesives: elastic bonding in structural engineering, automotive assembly and transportation where vibration resistance and durability are required.
2. Construction sealants: paintable, weather-resistant construction sealants; suitable for low-VOC formulations.
3. Transparent adhesives: clear, elastic adhesives.
4. Electrical and electronics: can be evaluated as potting or encapsulation compound for stress relief of components; insulation properties must be verified in the final formulation.
5. DIY and assembly: "liquid nail" type assembly adhesives with high initial tack and fast strength build-up.

Processing

1. Moisture sensitivity: Manta MS313 is highly reactive with moisture. Maintain moisture-free conditions during storage and production to prevent premature gelation.
2. Fillers: compatible with fillers such as PCC, GCC, fumed silica and aluminum hydroxide.
3. Drying: dry fillers before use. Vinyltrimethoxysilane (VTMO) is recommended as a water scavenger during mixing to ensure shelf-life stability.
4. Plasticizers: compatible with plasticizers such as DINP, DIDP and polypropylene glycol (PPG).
5. Additives: adhesion promoters, antioxidants, UV stabilizers and fungicides can be added to adjust the end-use properties.

Starting Formulation: Crystal-Clear Sealant

Component	% by Weight
Manta MS313	49.50
Plasticizer (PPG)	34.00
Water Scavenger (VTMO)	2.00
Pyrogenic Silica (HDK® H18)	12.00
Stabilizers	0.50
Adhesion Promoter (AMMO)	2.00

Crystal-Clear Sealant Properties

Property	Test Condition / Method	Result
Skin-Formation Time (min)	23 °C / 50% r.h.	40
Tensile Strength at Break (N/mm²)	ISO 37 - rod 1	2
Elongation at Break (%)	ISO 37 - rod 1	300
Shore A Hardness	ISO 868	35

Packing

50 kg plastic drum with aluminum-foil liner bag;
200 kg drum with aluminum-foil liner bag;
1,000 kg IBC (tote);
Other pack sizes available on request.

Safety and Storage

Store in the tightly closed original container in a cool, dry place, protected from moisture and direct sunlight. Shelf life: 12 months from the date of production when stored as recommended. The product is classified as non-hazardous. Refer to the current Safety Data Sheet (SDS) for safety, handling and transport information.

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.

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