MANTA

Technical Data Sheet

Version: 1.0

Manta MS330A

Silyl-terminated polyether (STPE), SMP type

Description

Manta MS330A is a silane-terminated polyether (STPE, also known as silane-modified polymer, SMP) with trimethoxysilylpropylcarbamate end groups on a linear polypropylene oxide (PPO) backbone.

It is designed for moisture-curing elastic sealants and adhesives. On exposure to moisture the end groups hydrolyze and condense to form a densely crosslinked siloxane network. MS330A is solvent-free and isocyanate-free, cures with low odor and without bubble formation, and combines high bond strength with good elastic recovery on a wide range of substrates.

Performance equivalent to WACKER GENIOSIL® STP-E35.

Typical Physical Properties

Manta Code:	MS330A
Chemical Name:	Trimethoxysilylpropylcarbamate-terminated polyether (polyether reacted with 3-isocyanatopropyltrimethoxysilane)
CAS No.:	216597-12-5
Appearance:	Colorless, transparent viscous liquid
Flash Point:	237 °C
Viscosity (25 °C):	25,000 – 35,000 mPa·s
Density (25 °C):	1.02 – 1.05 g/cm³
Catalyst Dosage (Tin, on polymer):	1 – 2 %
Chemical Structure:	
Activity:	High
Modulus:	Medium-high

Properties

- Reactivity and modulus: high reactivity for short tack-free times, combined with medium-high modulus.
- Elasticity: good mechanical strength and high elastic recovery for joints subject to movement.
- Environmental profile: solvent-free (100 % solids) and isocyanate-free; no bubbles or odor are generated during crosslinking; suitable for low-VOC formulations.
- Optical properties: high transparency and good resistance to yellowing for clear sealants and coatings.
- Processing: the moderate viscosity allows efficient mixing with standard fillers and additives.

- Adhesion: good adhesion to many porous and non-porous substrates, often without primer; adhesion should be confirmed on the actual substrate.

Applications

1. Automotive and transportation: elastic sealants for vehicle bodies, rail vehicles and container construction where vibration resistance is required.
2. Construction: can be formulated into low- to medium-modulus joint sealants for buildings and infrastructure with good weathering resistance.
3. Transparent products: clear adhesives, e.g., for decorative glass bonding; can be evaluated for transparent potting compounds for electronic components, with electrical properties to be verified.
4. Interior decoration: DIY and professional adhesives and sealants for interior use; suitable for low-VOC formulations.
5. Coatings: flexible protective sealing coatings with good adhesion to metal and plastic surfaces.

Processing

Manta MS330A is soluble in common organic solvents and practically insoluble in water. On contact with moisture it hydrolyzes slowly, releasing methanol, and condenses to a siloxane network. Without catalyst the polymer is stable in air for a limited time; it should nevertheless be stored and processed with moisture excluded to prevent slow condensation.

Standard mixing and compounding equipment can be used. A water scavenger is required to obtain adequate shelf life of the formulated product; vinyltrimethoxysilane (VTMO) is recommended to prevent premature gelation during production and storage.

Typical Performance of a Reference Sample

MS330A Test Item	Standard	Result
Appearance	Colorless or light yellow, transparent liquid	Colorless, transparent liquid
Viscosity (25 °C), mPa·s	25,000 – 35,000	26,880
pH Value	6 – 9	7.0
Tensile Strength, MPa	≥ 0.5	0.77
Elongation at Break, %	≥ 80	109
Hardness, Shore A	≥ 35	36

Starting Formulation: Elastic Sealant

Component	% by Weight	Example / Function
Manta MS330A	25.00	Silane-terminated polymer (binder)
Plasticizer	25.00	PPG (alternatives: DINP, DOTP)
Water Scavenger	2.00	Vinyltrimethoxysilane (VTMO)
Filler	21.80	Fine coated ground calcium carbonate (GCC)
Filler	21.80	Ultrafine coated precipitated calcium carbonate (PCC)
Thixotropic Agent	2.00	Pyrogenic silica (HDK® H18)
Stabilizers	0.20	Hindered phenols (AO) / HALS (UV)
Adhesion Promoter	1.00	Amino-silane (AMMO; alternative: AMEO)
Catalyst	0.20	Dioctyltin dilaurate (alternatives: DBTDL, tin-free catalysts)

Elastic Sealant Properties

Property	Test Condition / Method	Result
Skin-Formation Time (min)	23 °C / 50% r.h.	30
Tensile Strength at Break (N/mm²)	ISO 37 - rod 1	2.5
Elongation at Break (%)	ISO 37 - rod 1	600
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: 24 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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