

SiSiB® STP31050 Silane Terminated Polyether Polymer

BACKGROUND

Polyurethane sealants offer good mechanical strength and are paintable but often contain solvents and have limited weather resistance. Silicone sealants provide excellent aging resistance, flexibility, and thermal stability but cannot be painted and may cause staining on absorbent surfaces.

Silane terminated polyether polymers (STP), also known as silane-modified polymers or MS polymers, combine the advantages of polyurethane and silicone without their weakness.

STP-based formulations are solvent-free and isocyanate-free, curing without bubble formation or odor release, and exhibit low VOC emissions with excellent paintability.

INTRODUCTION

SiSiB® STP31050 is a high activity silane-terminated polyether polymer designed for moisture-curing elastic sealants, elastic structural adhesives, and waterproofing systems. Upon exposure to atmospheric moisture, the alkoxy silane groups hydrolyze and condense to form a stable siloxane crosslinked network. SiSiB® STP31050 combines low modulus, high elasticity, and good adhesion to a wide range of construction substrates. Compared with conventional silicone, polyurethane, and solvent-based systems, it offers solvent-free formulation capability, low VOC emission, no free isocyanate, good paintability, and stable curing performance.

FEATURES & BENEFITS

- Low modulus with high elasticity
- Good elastic recovery performance
- Good weathering and yellowing resistance
- Good water resistance and chemical resistance
- Good storage stability
- Solvent-free and low VOC
- No free isocyanate
- Good compatibility with other STP polymers

PHYSICAL PROPERTIES

Color	Colorless to light yellow
Appearance	Clear liquid
Viscosity (25°C, mPa·s)	20,000-30,000
Density (25°C)	1.00

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Flash point (°C)	> 237
pH value	6-8
Water solubility/miscibility	Virtually insoluble

APPLICATIONS

SiSiB® STP31050 is suitable for low-modulus construction sealants, precast concrete joint sealing, waterproofing sealants, and flexible sealing applications. It can also be used in civil engineering sealants and movement joint systems where low stress, high elasticity, and movement capability are required.

PROCESSING

SiSiB® STP31050 silyl terminated polyether readily dissolves in standard organic solvents but is virtually insoluble in water. Despite its highly reactive terminal groups, uncatalyzed SiSiB® STP31050 remains stable in air for several days. However, its reactivity with water or atmospheric humidity must be considered during storage and processing, as exposure may lead to slow condensation.

SiSiB® STP31050 silyl terminated polyether can be processed using both hot and cold methods, and are suitable for both one component and two-component formulations. To prevent premature curing during formulation or exposure to moisture during storage, the addition of a water scavenger is recommended, SiSiB® PC6110 (vinyltrimethoxysilane) is commonly used.

PACKING

SiSiB® STP31050 is available in 200Kg steel drum and 1000Kg IBC tote.

STORAGE

SiSiB® STP31050 Silicone Resin has a shelf life of 12 months from the date of manufacture when stored in its original, unopened containers at or below 30°C. After opening, containers should be tightly sealed to prevent contamination and moisture from entering the product.

HANDLING

This document does not contain the product safety information required for safe use. Before handling, please refer to the product and safety data sheets, as well as container labels, for information on safe usage, physical hazards, and health risks. Safety Data Sheet is available on the website, from the distributor, or by contacting SiSiB customer service.

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NOTE

All information in the leaflet is based on our present knowledge and experience. We reserve the right to make any changes according to technological progress or further developments. Performance of the product described herein should be verified by testing.

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We disclaim liability for any incidental or consequential damages.

APPENDIX: UNDERSTANDING SEALANT MODULUS

Modulus	• Key Characteristics	• Typical Applications
Low	• High flexibility • Accommodates significant joint movement • Exerts low stress on substrates	• Facade joints • Curtain walls • Glazing applications • Expansion joints in concrete structures • Areas with significant thermal or structural movement
Medium	• Balanced flexibility and strength • Suitable for general-purpose sealing • Moderate stress on substrates	• Perimeter sealing of windows and doors • Control joints in masonry • Precast concrete panel joints • General construction applications
High	• High strength and rigidity • Limited flexibility • Exerts higher stress on substrates	• Structural glazing • Non-moving joints • Industrial applications requiring high strength • Areas where joint movement is minimal