SiSiB® STP94000 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® STP94000 is a silyl-terminated polyether (STP) polymer designed as a base polymer in moisture-curing, medium to high modulus adhesives, sealants, and coatings. When exposed to atmospheric moisture, it reacts through hydrolysis and crosslinking to create highly durable elastomeric materials.

SiSiB® STP94000 offers a balanced combination of durability, reactivity, and storage stability. Adhesives and sealants formulated with this polymer exhibit broad adhesion, good mechanical strength, and deliver excellent flexibility, weather resistance, and environmentally friendly curing performance.

FEATURES & BENEFITS

- Moderate to high modulus
- High elongation with excellent tensile elasticity
- High transparency
- Broad adhesion profile to diverse substrates
- Rapid curing (tin-free catalysts optional)
- Superior anti-aging, anti-yellowing, and UV resistance
- Excellent water and chemical resistance
- Long-term storage stability
- Eco-friendly: solvent-free, isocyanate-free, and odorless
- Wide formulating latitude for flexible formulation design

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PHYSICAL PROPERTIES

Appearance:	Yellow liquid
Boiling point	Min. 250°C
Density 25°C	1.00g/cm^3
Viscosity (25°C, mPa·s)	15,000~30,000
Flash point	Min. 237°C
Water solubility/miscibility:	Virtually insoluble

APPLICATIONS

SiSiB® STP94000 is a high-modulus base resin engineered for high-performance moisture-curing sealants and adhesives. It is compatible with both hot and cold processes. It offers extensive formulation flexibility, broad bonding capabilities, high hardness and strength, extended shelf life, and a short tack-free time. It also exhibits a balanced combination of durability, reactivity, and storage stability, resulting from its unique chemical structure combining a polyether backbone with methyldimethoxysilyl functional groups.

SiSiB® STP94000 is suitable for a wide range of applications, including industrial and transportation adhesives and sealants, construction and product assembly adhesives, as well as general-purpose (DIY) and specialty uses.

APPLICATIONS

Construction: Facade joints, window and door sealing, curtain wall panels, roof expansion joints
Automotive: Body seams, glass installation, interior trim bonding
Electronics: Joint sealing, moisture protection, thermal adhesive bonding
DIY & Consumer: Kitchen & bathroom sealing, flooring joints, tile grouting
Marine: Long-lasting, weather-resistant sealing for marine structures, boats, and ships

PROCESSING

SiSiB® STP94000 silyl terminated polyether readily dissolves in standard organic solvents but is virtually insoluble in water. Despite its highly reactive terminal groups, uncatalyzed STP94000 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.

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SiSiB® STP94000 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® STP94000 is available in 200Kg steel drum and 1000Kg IBC tote.

STORAGE

SiSiB® STP94000 has a shelf life of 12 months from the date of manufacture when stored in its original, unopened containers 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.

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	• Facade joints • Curtain walls

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	• Accommodates significant joint movement • Exerts low stress on substrates	• 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