



Polysilazane SILZ-150

Description:

SILZ-150 is a slow-curing, solvent-free, room-temperature self-curing polysilazane-siloxane resin. Curing mainly involves hydrolysis and oxidation of Si-NH-Si groups. These groups also react readily with hydroxyl groups on the substrate surface, producing strong adhesion. With a suitable catalyst, reactions involving Si-H and Si-NH-Si form a three-dimensional cross-linked structure that provides excellent mechanical properties, pencil hardness above 5H and resistance to yellowing. Typical uses include insulating, wear-resistant, flame-retardant, outdoor hydrophobic self-cleaning and weather-resistant coatings, as well as skin-friendly antibacterial coatings. The product may also be used as an amine curing agent or to modify hydroxyl-functional phenolic, epoxy, alkyd and acrylic resins to improve heat and weather resistance.

Benchmark reference: Durazane 1500 Slow Cure. This reference is for comparative evaluation only and does not imply composition or performance equivalence. Suitability must be confirmed by application testing.

Applicable substrates:

Carbon steel, stainless steel, cast iron, aluminum alloy, titanium alloy, high-temperature alloy steel, microcrystalline glass, ceramics, cement, etc. Note: Different substrates require different coating formulations. Within a certain range, the formulation can be adjusted according to the specific application conditions of the substrate.

Applicable Temperature:

Suitable for outdoor applications below 400°C and short-term high-temperature exposure up to 500°C. Actual temperature resistance depends on the substrate and coating system. The coating resists thermal and cold shock; different substrates may require different formulations.

The main characteristics of the SILZ-150 coating are as follows:

Coating performance

Test Items	Performance Indicators	Test Methods
Color and Appearance	Pale yellow to colorless transparent liquid	GB/T 1721-1979
Solid Content (120 ± 2°C)	>97%	GB/T 1725-2007
Density (g/cm ³)	0.93 ± 0.1	GB/T 6750-2007
Pencil Hardness	≥6H	GB/T 6739-2006
Adhesion	Grade 0	GB/T 9286-1998
Neutral Salt Spray Resistance	>500 h	GB/T 10125-2021
Hydrophobic Contact Angle	>100°	GB/T 26490-2011
Artificial Aging Resistance	30 d: no rust, powdering, cracking or discoloration	GB/T 1865-2009

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Dielectric Strength (V/mm)	$\geq 10^5$	ASTM D149
Volume Resistivity ($\Omega \cdot m$)	$\geq 10^{12}$	GB/T 35856-2018

Construction basic parameters

Item	Parameters	Item	Parameters
Coating Solids Content (%)	>97	Volatility	Low volatility
Theoretical Coverage (m^2/kg)	8–15	Curing Temperature ($^{\circ}C$)	Room temperature
Dry Film Thickness (μm)	20–70	Curing Time (h)	>18
Working Time (h)	4	Maximum Instantaneous Temperature ($^{\circ}C$)	500
Thinner	Aromatics, esters, ethers, etc.	Recommended Operating Temperature ($^{\circ}C$)	-30 to 350
Flash Point ($^{\circ}C$)	<22	Storage Temperature ($^{\circ}C$)	5–35

Special Notes:

This product is a one-component self-curing material. Once opened, use it within 4 hours. If application is interrupted, keep all tools clean to prevent unintended curing and adhesion. Apply one coat where possible, and keep the dry-film thickness at or below 70 μm ; thicker films may reduce coating performance.

Standard Application Procedure: Surface Cleaning → Roughening → Cleaning and Blowing → SILZ-150 Treatment → Curing

Instruction Manual

1. Roughening: Before coating, grind or sandblast the substrate surface to remove rust, dust, dirt, etc. Roughening significantly affects the coating effect; optimal Sa2.5, minimum St3 (no oxide scale) (GB/T 30790.4-2014), so please pay close attention.
2. Cleaning: Use a specialized cleaner or degreaser to remove residual oil, dust, etc., from the roughened surface.
3. Substrate Drying: Ensure the substrate surface is dry and clean before coating.
4. Coating Mixing: This product is a single-component product. Take an appropriate amount and filter through a 120-mesh sieve as needed.
5. Coating Application: For best appearance and uniformity, use a 1.0mm nozzle spray gun in the laboratory. The cured coating has some hydrophobic and oleophobic properties; therefore, repeated application is not recommended.
6. Curing: At room temperature after spraying, the coating is surface-dry in approximately 30 minutes, touch-dry after more than 2 hours and fully dry after more than 18 hours.

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Packaging

In 1kg, 2kg, 5kg, 25kg pail.

Safety and Storage

1. Must be stored according to national regulations. The storage environment should be dry, cool, well-ventilated, and away from heat and fire sources. The packaging container must be kept tightly closed and handled with care.
2. Keep the storage temperature between 5°C and 35°C. Shelf life is 12 months in the original, unopened and tightly sealed container under the recommended storage conditions.
3. Unused paint after opening must be sealed and stored immediately.
4. Unused mixed paint cannot be recycled and should be disposed of according to local regulations.
5. Products exceeding their shelf life can only be used after passing inspection.

Special Note:

The information provided above is entirely based on our knowledge gained in laboratories and in practice. The use of the product is generally beyond our control, therefore we only guarantee the quality of the product itself. To comply with local regulations, the product may be adjusted accordingly, and we reserve the right to modify the instructions without further notice. Users should consult our New Materials Division for specific guidance on the applicable performance of the product, based on their own needs and specific applications.

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