Silfluo Polysilazane SILZ-150

Description:

This product uses polysilazane as the film-forming substance and is a solvent-free, room-temperature self-curing product. The main reactions involved in curing are the hydrolysis and oxidation of Si-NH-Si. Simultaneously, the Si-NH-Si bonds readily react with the -OH groups on the substrate surface, resulting in excellent adhesion. Adding appropriate catalysts to the resin can further promote the reactions of Si-H and Si-NH-Si, forming a three-dimensional cross-linked structure after curing, endowing the material with excellent mechanical properties. It has a pencil hardness higher than 5H and does not yellow. It is suitable for insulating coatings, wear-resistant and fire-retardant coatings, outdoor hydrophobic self-cleaning and anti-aging coatings, and skin-friendly antibacterial paints. After curing, it forms covalent bonds with the substrate, significantly improving the mechanical strength of the coating through chemical bonding. The Si-N bonds readily react with hydroxyl-containing substances, allowing it to be used as an amine curing agent. It can also modify hydroxyl-containing resins to improve temperature and weather resistance, such as phenolic resins, epoxy resins, alkyd resins, and acrylic resins.

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℃ and short-term high-temperature applications up to 600℃. The coating's temperature resistance will vary depending on the substrate's temperature resistance, and it is resistant to thermal shock and cold shock (Note: Different substrates require different products).

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 1721-79
Solid Content (120±2℃)	＞98%	GB/T 1725-2007
Density (g/mL)	0.88±0.1	GB/T 6750-2007
Adhesion	≥6H	GB/T 6739-2006
Neutral Salt Spray Resistance	0 级	GB-T 9286-1998
Hardness (pencil)	＞500h	GB-T 10125-2021
Hydrophobic Angle	＞100°	GB/T 26490-2011

Artificial Aging Resistance	30d No rust, no powdering, no cracking, no discoloration	GB-T 1865-2009
Dielectric Strength (V/mm)	≥105	ASTM-D149
Resistance (Ωm)	≥1012	GB/T 35856-2018

Construction basic parameters

Item	Parameters:	Item	Parameters
Coating Solids Content (%)	>90	Volatility	Solvent is volatile
Theoretical Coverage (m²/kg)	6～8	Curing Temperature (℃)	Room temperature
Dry Film Thickness (μm)	20～50	Curing Time (h)	>24
Working Time (h)	4	Maximum Instantaneous Temperature (℃)	600
Thinner	Aromatics, lipids, ethers, etc.	Recommended Operating Temperature (℃)	-30 to 400
Flash Point (℃)	<22 (solvent flash point)	Storage Temperature (℃)	0-30

Special Notes:

This product is a single-component self-curing product. Once opened, the coating should be used within 4 hours. For longer application intervals, ensure all tools are clean to prevent adhesion. It is recommended to apply in one coat, with a dry film thickness not exceeding 50μm; otherwise, coating performance will decrease.

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: After spraying, the coating should be surface dry in 2 hours, touch dry in more than 3 hours, and completely dry in more than 24 hours at room temperature.

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. The storage temperature should be maintained between 5℃ and 30℃. The shelf life is 6 months.
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.

Packaging

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