Technical Data Sheet

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Silfluo Polysilazane PA151

Description:

Polysilazane PA151 is methylhydrosilazane which is a polymer with a main chain composed of Si-N bonds. Due to its unique structure, it can be transformed into SiCNO, SiCN, or silica ceramics under high-temperature conditions, making it an important precursor for the preparation of Si-C-N ceramics. The Si-H bonds provide active sites for hydrosilylation, which can be used to modify resins containing unsaturated olefins. The Si-N and Si-H 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 their 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:

Coating formulations differ depending on the substrate. Within a certain range, adjustments can be made according to the different application conditions of the substrate. Applicable Temperature: Maximum withstand temperature 500℃, can be used continuously at 350℃. Coatings compounded with heat-resistant nanofillers can withstand direct erosion from flames or high-temperature airflows. The temperature resistance of the coating will vary depending on the temperature resistance of the substrate. It is resistant to thermal shock and cold shock (Note: Products for different substrates will vary).

The main characteristics of the PA151 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
Viscosity (Ford Cup 4)	35-50s	GB-T 1723-1993
Quality Specifications	≥95%	Q/YX 10-2023
Solid Content ((120±2)℃)	＞98%	GB/T 1725-2007
Density (g/mL)	1.05±0.01	GB/T 6750-2007
Relative Molecular Mass	＞8×104	GB/T 27843-2011
Hardness (Pencil)	≥6H	GB/T 6739-2006
Adhesion	Level 0	GB-T 9286-1998
Salt Spray Resistance	＞500h	GB-T 10125-2021

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Construction basic parameters

Item	Parameters:	Item	Parameters
Coating solids content	The varnish has a high viscosity; 50% dilution is recommended before application.	Volatility	Solvent is volatile
Theoretical coverage (m^2/kg)	12～28	Curing Temperature (℃)	180-250
Dry film thickness (μm)	10±5	Curing Time (h)	1
Working time (h)	24	Maximum Instantaneous Temperature (℃)	500
Thinner	Aromatics, lipids, ethers, etc.	Recommended Operating Temperature (℃)	-30 to 300
Flash Point (℃)	<22 (solvent flash point)	Storage Temperature (℃)	0-30

Special Notes:

This product is a single-component thermosetting product. Once opened, the coating should be used within 24 hours. For extended application intervals, ensure application tools are thoroughly cleaned to prevent adhesion. It is recommended to apply in one coat, with a dry film thickness not exceeding 15μm; otherwise, coating performance will degrade.

Standard Application Procedure: Surface Cleaning → Roughening → Cleaning and Blowing → PA151 Treatment → Curing

Procedure Description:

1. Surface Roughening: Before coating, grind or sandblast the substrate surface to remove rust, dust, dirt, etc. Surface 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: In laboratory spraying, a 1.0 caliber spray gun provides better appearance and uniformity. The cured coating has some hydrophobic and oleophobic properties; therefore, repeated coating is not recommended.
6. Curing: After spraying, allow the surface to dry for 10 minutes, then cure at 180℃ for 60 minutes (for coatings below 400℃), or at 250℃ for 60 minutes (for coatings above 400℃).

Safety and Storage

1. Must be stored according to national regulations. The storage environment should be dry, cool, and well-ventilated, away from heat and fire sources. Packaging containers must be kept tightly sealed and handled with care.
2. Storage temperature should be maintained between 5℃ and 30℃. Shelf life is 12 months.
3. Unused paint after opening must be tightly sealed and stored.
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.