SIO-9116 Acrylic Modified Anti-Graffiti Polysilazane Resin

Product Description

SIO-9116 is a **single-component acrylic modified polysilazane resin** developed through acrylic modification technology. The modified polysilazane exhibits excellent toughness, hardness, adhesion, and yellowing resistance, while providing outstanding hydrophobicity, anti-graffiti, and self-cleaning properties.

The acrylic modification significantly improves the water resistance, moisture resistance, and mildew resistance of polysilazane coatings while maintaining the inherent advantages of polysilazane materials, including high hardness, abrasion resistance, weather resistance, temperature resistance, and high optical transparency.

The cured coating can withstand **180° bending without cracking**, with excellent flexibility and adhesion performance (**cross-cut adhesion rating: 0**). It is widely applicable in automotive coatings, adhesives, electronic sealing materials, flooring coatings, and specialty textile auxiliaries.

SIO-9116 is suitable for various substrates, including: Stainless steel, Glass, Cast iron, Aluminum alloys, Titanium alloys, High-temperature alloy steels, Glass-ceramics, Ceramic materials, Photovoltaic glass panels, Various fiber-based materials.

Coating Properties

Test Item	Performance
Color and Appearance	Light yellow to colorless transparent liquid
Solid Content (120 ± 2℃)	>50%
Density (g/mL)	0.89 ± 0.02
Pencil Hardness	5H
Adhesion	Grade 0
Neutral Salt Spray Resistance	>2000 h
Water Contact Angle	105°–110°
Artificial Weathering Resistance	30 days without rusting, powdering, cracking, or discoloration
Dielectric Strength (V/mm)	$\geq 10^5$
Volume Resistivity (Ω·m)	$\geq 10^{13}$

Basic Application Parameters

Item	Specification	Item	Specification
Coating Solid Content (%)	>50	Volatility	Solvent evaporates rapidly
Theoretical Coverage (m^2/kg)	10–35	Curing Temperature (℃)	Room temperature – 150
Dry Film Thickness (μm)	10–80	Curing Time (h)	>24 / <0.5
Pot Life (h)	3–6	Maximum Short-Term Temperature Resistance (℃)	400
Diluent	Esters, Xylene, Ethers	Recommended Service Temperature (℃)	-30 to 300
Flash Point (℃)	26 (solvent flash point)	Storage Temperature (℃)	0–30

Special Notes : SIO-9116 is a single-component curing product. After opening, the coating material should be used within 6 hours.

For longer intervals between coating operations, application tools should be cleaned properly to prevent material curing and solidification on equipment.

It is recommended to complete coating application in a single spray pass. The dry film thickness should not exceed **100 μm**, otherwise coating performance may be affected.

Standard Application Process

Surface Cleaning → Surface Roughening → Cleaning and Drying → Application → Curing

Application Instructions

1. Surface Roughening Treatment

Before coating application, the substrate surface should be mechanically polished or sandblasted to remove rust, dust, oil contamination, and other impurities.

Surface preparation has a significant influence on coating performance. The recommended surface preparation grade is **Sa 2.5**, with the minimum requirement of **St 3 without oxide scale** according to **GB/T 30790.4-2014**.

2. Cleaning

Use an appropriate cleaning agent or degreaser to remove residual oil, dust, and contaminants remaining after surface roughening.

3. Substrate Drying

Before coating application, ensure that the substrate surface is completely dry and clean.

4. Coating Application

For laboratory spraying, a 1.0 mm spray nozzle is recommended to achieve better coating appearance and uniformity.

After curing, the coating exhibits certain hydrophobic and oleophobic properties; therefore, repeated coating application is not recommended.

5. Curing

After spraying:

- Surface dry time at room temperature: approximately **30 minutes**
- Touch dry time: > **2 hours**
- Fully cured time: > **24 hours**

Accelerated curing is also possible:

- 150℃ × 20 minutes

Storage Conditions

1. Store according to applicable chemical storage regulations. The storage environment should be dry, cool, well ventilated, and away from heat sources and ignition sources. Containers must remain tightly sealed and handled carefully.
2. Recommended storage temperature: 5℃–30℃. Shelf life: 12 months.
3. Any remaining product after opening must be resealed tightly and stored properly.
4. Mixed or diluted unused coating material should not be returned to the original container. Dispose of waste according to local regulations.
5. Products beyond the shelf life may only be used after quality verification confirms that they meet the required specifications.