SiO-516 Solvent-Free Heavy-Duty Anti-Corrosion and Anti-Stain Silicone Resin

(Polysiloxane Topcoat)

SiO-516 is a two-component, room-temperature curing system that dries quickly at room temperature. It features excellent aging resistance, high and low-temperature resistance, easy cleaning, anti-staining, high hardness, wear resistance, color and gloss retention. Suitable for high-durability heavy-duty anti-corrosion systems, it offers exceptional chemical resistance and UV resistance, combined with long-lasting anti-stain and anti-graffiti properties. This allows traditional three-layer heavy-duty anti-corrosion systems to be simplified into a two-layer system: epoxy primer (epoxy zinc-rich primer) + heavy-duty anti-stain silicone resin topcoat, suitable for C5 and higher corrosion-resistant environments. Packaged in A and B components.

The heavy-duty anti-stain silicone resin coating can replace fluorocarbon paints, which decompose into highly toxic gases like phosgene and fluorolefin during high temperatures and combustion, posing health risks. In contrast, heavy-duty anti-stain silicone resin is fluorine-free and does not produce toxic gases when exposed to high temperatures and combustion, making it the best alternative to fluorocarbon resins.

Performance Features

- High gloss, high fullness
- High hardness, high adhesion
- High wear resistance, anti-staining
- Anti-oxidation, aging resistance
- Pollution resistance, solvent resistance
- Acid, alkali, salt, and detergent resistance
- Odorless, environmentally friendly, high cost-performance ratio

Performance Parameters

Test Item	Reference Standard	Indicator
Cross-Hatch Adhesion	GMW14669	0 grade after 168 hours
Surface Hardness	Mitsubishi Pencil	Greater than 4H after 168 hours
Gloss (60 degrees)		Greater than 96
High Humidity Test	GMW14669	No change after 240 hours
Fuel Resistance	GMW14333-A	No change (Grade 2)
Cyclic Corrosion Test	GMW14669	No change (Grade 9, <3mm)
Scratch Resistance After High Humidity	GMW14729	5N force penetration after 144 hours
Filiform Corrosion	GMW15287	No change, no filament formation
Rub Resistance	GMW14669	No haze or adhesion
Restricted Substances	GB/T30512	Well below standard for lead, cadmium, etc.

Test Item	Reference Standard	Indicator
Low Humidity Impact Resistance	ESOw3	No cracks, no peeling
Detergent Resistance	GMW143334	No swelling, gloss, or color change (Grade 2)
1-Year Aging/96h Humidity/Adhesion	GMW14873/14829	Gloss retention 85, polish retention 92
Wash Scratch Resistance	GMW14865	Equivalent to control sample

Application Scope

Suitable for formulating color paints, widely used on stone, plastic, metal, paint, walls, and floors. Common applications include automobiles, high-speed trains, airplanes, mobile phones, interior and exterior walls, display screens, appliances, and other decorative surfaces. Especially suitable for car paint surfaces, wheel hubs, amusement facilities, display signs, anti-graffiti interior and exterior walls, high-grade floor paints, electroplated plastic parts, household appliances, and decorative panels.

Main Parameters

Combination & Ratio	Appearance	Solid Content (wt%)	Specific Gravity (g/cm³)	Viscosity @25°C (cps)
SiO-516 A/B	Main Resin A: Colorless to light yellow transparent liquid	>98	1.00-1.20	150-550
A/B = 1.4/1	Hardener B: Light yellow transparent liquid	>98	0.92-1.00	300-1500

Curing Conditions

Recommended room temperature curing: surface dry within 2 hours at 25°C, optimal performance after 7 days. To speed up curing, low-temperature baking is recommended: 80-100°C for 15-30 minutes, with optimal performance achieved after 7 days. Refer to application experiments for specific conditions.

Usage Instructions

1. **Paint Preparation**: Add pigments, fillers, leveling agents, wetting agents, defoamers, and other additives to component A and mix thoroughly before combining with component B. Use a diluent (recommended ETB) to thin the resin as needed. The amount of diluent should be determined based on actual requirements.
2. **Application Method**: Apply by spraying. Clean the substrate thoroughly, remove oil and rust, and increase substrate roughness to improve adhesion. Control the coating thickness to 30-50μm. Use the mixed product within 0.5 hours or use a two-component spray gun.
3. **Curing Conditions**:

- Natural drying at room temperature: surface dry in 2 hours, 4H hardness in 7 days.
- Low-temperature baking: 80-100°C for 15-30 minutes to accelerate surface drying.
- Achieve maximum hardness and optimal performance after 7 days.
- Choose the appropriate drying temperature based on solvent evaporation rate. For solvents with high boiling points and slow evaporation rates, bake at 80-100°C to speed up solvent evaporation. Residual solvent will significantly affect the hardness and adhesion of the coating.

4. **Coating System**: As an excellent topcoat, silicone resin anti-corrosion coatings can be paired with primers and intermediate coatings to form a classic heavy-duty anti-corrosion system. Common schemes include:

    - **Steel Structure System**: Epoxy zinc-rich primer (80μm one layer) + silicone resin topcoat (70μm one layer).
    - **Bridge System**: Epoxy zinc-rich primer (80μm one layer) + silicone resin topcoat (100μm one layer).
    - **Outdoor Building System**: Epoxy sealer primer (25μm one layer) + silicone resin topcoat (40μm one layer).

Precautions

1. After pouring out the resin, wipe the excess from the container opening, tighten the cap, and store in a cool place.
2. Clean brushes, spray guns, and other equipment with diluent immediately after use.
3. Strictly avoid open flames and ensure good ventilation during application.
4. The product has a slight odor and may cause mild irritation to skin and eyes. In case of contact, rinse immediately with plenty of water and seek medical attention if necessary.
5. Exercise caution when applying at ambient temperatures below 15°C or relative humidity above 75%.
6. Store in 200KG drums in a cool, dry place away from light. The storage temperature should be 5-25°C, and the packaging should remain intact. The shelf life of both the main agent and the curing agent is 12 months. Protect the curing agent from moisture, and use it up once opened.

Important Disclaimer

The technical consultation and information provided by our company, whether in oral, written, or test report form, are for user guidance only and do not constitute a guarantee. We do not warrant that a specific product is suitable for a particular purpose. Users must test the product and formulation to ensure suitability for their processes and applications before use. Our company guarantees only the consistency of product quality.