



Silfluo SILZ-HT53

High-Temperature Anticorrosion Ceramic Coating

Description

Silfluo SILZ-HT53 is a two-component, polysilazane-based high-temperature anticorrosion coating containing heat-resistant ceramic fillers, ultrafine powders and plasticizing fillers. During high-temperature curing, the coating converts toward an inorganic Si-C-N ceramic composite structure, forming a dense, wear-resistant and anticorrosive layer on high-temperature metallic substrates.

Applications

- Boiler parts, petrochemical furnaces, hot-blast furnaces, chimneys, flues and exhaust pipes.
- High-temperature devices, sensors, metallurgical equipment, molds and casting equipment.
- Electric-heating elements, tanks, enclosures, heat exchangers and radiators.
- Small appliances, cookware and high-temperature chemical or metallurgical components.

Applicable Substrates

High-temperature alloy steels including 310S and 316 stainless steel. Coating performance and temperature resistance remain limited by the substrate and curing atmosphere.

Applicable Temperature

Recommended service temperature: -30 to 800°C. Available data reports long-term service around 900°C under suitable conditions, a 1000°C/24 h coating test, air-cured temperature resistance up to 700°C and a maximum of 1300°C after an appropriate nitrogen curing process. Substrate and curing-atmosphere limitations must be verified.

Basic Product Data

Item	Typical Value	Test Method
Coating Appearance	Black-gray	Visual
Component Type	Two-component	Not specified
Mixed Density (g/cm ³)	1.78-1.95	Measured

Coating Performance

Test Item	Performance Indicator	Test Method
Condition in Container	Uniform; no lumps or sediment	Visual
Mixed Color	White / gray	Visual
Mixed Viscosity	25-38 s	GB/T 1723-1993

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Technical Data Sheet



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Test Item	Performance Indicator	Test Method
Adhesion	Grade 0	GB/T 9286-1998
Pencil Hardness	≥8H	GB/T 6739-2006
Artificial Aging Resistance	30 d: no rust, powdering, cracking or discoloration	GB/T 1865-2009
Neutral Salt Spray Resistance	≥1000 h: no blistering, rust spots or peeling	GB/T 10125-2021
High-Temperature Test	1000°C / 24 h: no peeling or cracking	GB/T 30873-2014

Construction Parameters

Item	Parameter	Item	Parameter
Coating Solids (%)	>85	Curing Temperature	260°C in air
Theoretical Coverage (m ² /kg)	8-15	Curing Time	60 min
Dry Film Thickness (μm)	10-40*	Working Time	12 h
Thinner	Alkanes, esters, ethers, etc.	Maximum Temperature	1300°C after validated nitrogen cure
Flash Point	<22°C (solvent flash point)	Recommended Service Temperature	-30 to 800°C
Storage Temperature	5-35°C	Shelf Life	6 months

Special Notes

Use mixed coating within 12 hours. The data table lists a 10-40 μm dry-film range, while the application note recommends keeping the dry film at or below 35 μm; use 35 μm as the conservative limit unless a thicker film is validated. Nitrogen curing conditions are application-specific.

Standard Application Procedure: Surface Cleaning -> Roughening -> Cleaning and Drying -> Component Mixing -> Spray/Scrape Application -> Curing

Application Instructions

1. Roughening: Grind or sandblast the substrate to remove rust, dust and dirt. Target Sa 2.5; minimum St 3 with no mill scale (GB/T 30790.4-2014).
2. Cleaning: Remove residual oil and dust with a suitable cleaner or degreaser, then ensure that the substrate is dry.

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3. Component Mixing: Mix the two components thoroughly at the project-specific ratio and filter through a 180-mesh screen. No universal mixing ratio is provided in the available data.
4. Coating Application: Spray with a 1.0 mm nozzle for laboratory work, or apply by a validated scraping process.
5. Curing: Standard air curing is listed as 260°C for 60 minutes. Air-cured systems are reported up to 700°C; a validated nitrogen cure is required for the stated 1300°C maximum.

Safety and Storage

1. Store in a dry, cool and well-ventilated area away from heat and ignition sources. Keep containers tightly closed and handle them carefully.
2. Maintain the storage temperature between 5°C and 35°C. Shelf life is 6 months in the original, unopened and tightly sealed container under the recommended conditions.
3. Store both components in their original, tightly sealed containers and prevent cross-contamination.
4. Do not return dispensed, mixed or contaminated material to the original container. Dispose of unused material in accordance with local regulations.
5. Material beyond its shelf life may be used only after it passes an appropriate inspection.

Packaging

Available in 1 kg, 2 kg, 5 kg and 25 kg pails.

Special Note

The information above is based on currently available technical data, laboratory knowledge and practical experience. Because application conditions are outside our control, Silfluo warrants only the quality of the supplied product. Users must determine suitability through their own formulation and application tests and verify applicable local requirements. Contact Silfluo for application guidance.

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