Silfluo SILZ-HT52

Description:

SILZ-HT52 is an ultra-high-temperature anti-corrosion ceramic coating formulated with polysilazane as the primary film-forming binder. It is compounded with high-temperature ceramic fillers, ultrafine functional powders, and plasticizing fillers. After high-temperature curing, the coating is converted into an inorganic ceramic composite layer.

During thermal conversion, a dense Si–C–N ceramic structure is formed, enabling the coating to tightly bond to metal substrates and provide exceptional resistance to ultra-high temperatures. The cured coating can withstand continuous service at temperatures up to 1000 °C without cracking, peeling, or discoloration. It exhibits excellent wear resistance, high density, and outstanding anti-corrosion performance under extreme operating conditions.

Applications

SILZ-HT52 is designed for severe service environments requiring ultra-high-temperature resistance and long-term corrosion protection. Based on polysilazane-derived ceramic conversion technology, the coating forms a dense inorganic ceramic layer after curing, providing reliable protection for metal substrates under extreme thermal loads.

Typical applications include ultra-high-temperature furnaces, metallurgical equipment, petrochemical cracking units, high-temperature reactors, exhaust and combustion systems, aerospace thermal components, and other equipment exposed to extreme heat, abrasion, and corrosive environments.

Technical Specifications

Test Item	Specification	Test Method
Appearance / Color	Gray or white	Visual inspection
Solid Content	> 85%	GB/T 1725-2007
Density	1.78–1.95 g/cm³	Measured
Pencil Hardness	≥ 8H	GB/T 6739-2006
Adhesion	Grade 0	GB/T 9286-1998
Neutral Salt Spray Resistance	After 800 °C exposure, 30 d no blistering or rust	GB/T 1771-2007
Mixed Viscosity	25–38 s	GB/T 26490-2011
Artificial Aging Resistance	3 d, no corrosion, chalking, cracking, or discoloration	GB/T 1865-2009
High-Temperature Resistance	1000 °C / 24 h, no peeling or cracking	GB/T 30873-2014

Application & Curing Parameters

Item	Value	Curing Condition	Requirement
Theoretical Coverage	8 – 15	High-temperature curing (260°C or	1 h

(m^2/kg)		500°C) in air	
Dry Film Thickness (μm)	10-40	Curing via temperature rise curve (under nitrogen)	Contact us for details
Pot Life (h)	12	Max Instant Temperature (°C)	1300
Diluents	Aromatics, lipids, ethers, etc.	Recommended Service Temp (°C)	-30 to 800
Flash Point(°C)	<22 (solvent flash point)	Storage Temp (°C)	0–30

Special Notes: This product is a two-component thermosetting product. Mixed coatings should be used within 12 hours. For longer application times, clean application tools thoroughly to prevent them from hardening. The dry film thickness should not exceed 35μm; otherwise, coating performance will decrease.

Standard Processing Procedure: Surface Cleaning → Roughening → Cleaning and Blowing → Spraying/Scraping → 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 two-component product. Take an appropriate amount of coating according to the mixing ratio and mix thoroughly. Filter through a 180-mesh filter before use.
5. Coating Application: For laboratory spraying, a 1.0-caliber spray gun will provide better appearance and uniformity.
6. Curing: Air curing has a maximum temperature resistance of 700℃, while nitrogen curing has a maximum temperature resistance of 1300℃ (please consult for nitrogen curing conditions).

Storage & Transportation

1. Store in accordance with applicable regulations. The storage environment should be dry, cool, and well-ventilated, away from heat and ignition sources. Containers must be tightly sealed and handled with care.
2. Recommended storage temperature: 10–30 °C. Shelf life: 6 months.
3. Reseal containers tightly after opening if not fully used.
4. Prepared but unused coating materials must not be recycled and should be disposed of in accordance with local regulations.
5. Products beyond shelf life may only be used after passing quality inspection.

Disclaimer

The information provided herein is based on laboratory tests and practical experience. As product use conditions are beyond our control, we guarantee only the quality of the product itself. Product specifications may be subject to modification to comply with local regulations without prior notice. Users should consult the supplier for application-specific guidance and suitability confirmation.

Packaging

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