Silfluo SILZ-HT23

Description:

SILZ-HT23 is a high-temperature anti-corrosion nano-ceramic coating formulated with polysilazane as the primary film-forming binder. It is compounded with functional inorganic fillers including mica powder, titanium dioxide, phosphates, and inorganic silicon powders. After curing, the coating forms a dense, hard, and waterproof ceramic-like layer with excellent resistance to acids, salt spray, aging, and harsh environments.

The cured coating is capable of continuous long-term service at temperatures up to 600 °C, providing reliable protection for metal substrates exposed to severe thermal and corrosive conditions.

SILZ-HT23 is a novel organic–inorganic hybrid high-temperature coating system composed of high-temperature polymer materials, anti-corrosion pigments, ultrafine functional powders, and polymer dispersion technology. After curing, the fillers are densely packed within the polysilazane matrix, resulting in a coating with uniform appearance, moderate gloss, and no obvious macroscopic defects.

The formulation primarily utilizes ionic compounds that form covalent bonds with the substrate during curing, significantly enhancing mechanical strength and adhesion. Acid- and alkali-resistant raw materials ensure excellent chemical stability, while lamellar and rod-like filler structures improve UV resistance and crack resistance, enabling effective resistance to environmental degradation.

Applications

SILZ-HT23 has been widely applied in aerospace, petrochemical, metallurgy, power generation, and defense industries. Typical applications include chimneys and flue ducts, high-temperature steam pipelines, heat exchangers, high-temperature furnaces, desulfurization units, petrochemical cracking equipment, engine components, and exhaust systems.

Technical Specifications

Test Item	Specification	Test Method
Condition in Container	Uniform, no agglomeration	Visual inspection
Color	White	Visual inspection
Mixed Viscosity (Ford Cup No.4)	22–26 s	GB/T 1723-1993
Mixed Density	1.65–1.75 g/cm³	Measured
Mixing Ratio	A : B = 3 : 1	—
Adhesion	Grade 0	GB/T 9286-1998
Pencil Hardness	≥ 4H	GB/T 6739-2006
Chemical Resistance	5% NaCl 30 d / 5% H_2SO_4 14 d / 5% HNO_3 14 d, no corrosion	GB/T 9274-1988
Boiling Water Resistance	48 h, no change	GB/T 1733-1993

Neutral Salt Spray Resistance	30 d, no blistering, cracking, or rust	GB/T 10125-1997
Artificial Aging Resistance	30 d, no rusting, no chalking, no cracking, slight color change	GB/T 1865-2009
Thermal Shock Resistance	600 °C (1 h) → water quench, >5 cycles, no visible cracking	GB/T 30873-2014

Special Note: This product is a two-component, high-temperature curing product. Once opened and mixed, please use within 12 hours. During longer application intervals, ensure application tools are thoroughly cleaned to prevent them from hardening.

Standard Processing Procedure: Surface Cleaning → Roughening → Cleaning and Blowing → SILZ-HT23 Treatment → Curing

Instruction Manual

1. Roughening: Before applying methylhydrosilazane, 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 special cleaning agent 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; shake well before use and filter through a 120-mesh filter.
5. Coating Application: For best appearance and uniformity, use a 0.5-1.0 mm nozzle spray gun in laboratory spraying. 6. Curing: After spraying, allow to dry to the touch in 10 minutes, then cure at 250±10℃ for 0.5±0.1 hours.

Storage & Transportation

1. Store in accordance with national 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: 5–30 °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.

Packaging

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