SIO-7213 Waterborne High-Temperature Resistant Silicone Resin

(For Zinc-Rich Anti-Corrosion Coatings)

Overview:

SIO-7213 is a silicone resin emulsion developed specifically for high-temperature zinc-rich anti-corrosion coatings, suitable for formulating coatings that withstand temperatures from 200°C to 650°C. It is an environmentally friendly, two-component, high-performance coating that cures via self-crosslinking at room temperature. Compared to traditional inorganic zinc-rich primers, its neutral salt spray resistance is over three times higher, making it the preferred binder for high-temperature corrosion-resistant coatings.

Product Features:

- **Water-dilutable:** Low odor, free from toluene and xylene, compliant with environmental regulations.
- **Excellent stability:** High-speed dispersibility, resistant to acids, alkalis, heat, and centrifugation, with strong dilution stability.
- **Superior film-forming properties:** Rapid surface drying at room temperature with excellent wetting and leveling performance.
- **Versatile compatibility:** Can be combined with spherical zinc powder, flake zinc powder, or zinc-aluminum alloy powder to produce high-temperature zinc-rich anti-corrosion coatings.
- **Self-drying:** Achieves surface hardness within 24 hours at room temperature.
- **Thick application:** Resistant to chalking or peeling under high temperatures.

Technical Specifications:

Performance Indicators	Units	Values	Test Method/Standard
Appearance	-	Milky white liquid	Visual Inspection
Emulsifier Ion Type	-	Nonionic	-
pH (20°C)	-	8~9	pH Test Paper
Solid Content	wt%	35	ASTM D1630
Kinematic Viscosity	Cp	10~20	Brookfield
Density	kg/l	1.02~1.11	ASTM D4052
Curing Conditions	-	Self-drying at room temperature, achieving hardness within 24 hours	-

Applications:

- Used with spherical zinc powder, flake zinc powder, or zinc-aluminum alloy powder to produce high-temperature zinc-rich anti-corrosion coatings.
- Suitable for industries with stringent corrosion resistance and high-temperature demands.

Usage Recommendations:

1. **Mixing Proportions:** Weigh SIO-7213 and zinc powder in a 2:1 ratio by weight. Gradually add zinc powder to SIO-7213 while stirring continuously. After all zinc powder is added, continue stirring for approximately 10 minutes. Filter the prepared coating using a 120-mesh nylon screen and apply directly to pre-treated metal surfaces.
2. **Surface Preparation:** All surfaces to be coated must be clean, dry, and free of contaminants. Surface treatment and assessment should comply with international standard ISO8504.
3. **Coating Thickness:** Recommended single-layer application dry film thickness is 10-20μm. For thicker coatings, apply two layers with a total thickness of 30μm.
4. **Environmental Conditions:** Relative humidity should not exceed 85%, and the substrate temperature should be at least 3°C above the dew point. Measurements should be taken near the worksite.

Formulation Highlights:

1. **High-temperature Resistance:** Long-term resistance to 200-650°C, with short-term resistance up to 800°C.
2. **Outstanding Salt Spray Resistance:** A 15μm coating can withstand 1500-2000 hours of neutral salt spray.
3. **Room-Temperature Drying:** Eliminates the need for baking, allowing fast and easy application.
4. **Simple On-site Operation:** Two components mix and disperse quickly, forming a coating with strong adhesion.
5. **Excellent Interlayer Adhesion:** Performs well as a primer when combined with other coatings.

Packaging and Transportation:

- **Packaging:** 50kg plastic drum.
- **Storage:** Store in a ventilated, cool place above 0°C and below 40°C. Handle as non-hazardous goods for transportation.

Shelf Life:

- Store in a sealed container for up to 6 months.
- Each product label specifies a "Best Before" date. Storing beyond this date does not guarantee usability; additional testing is recommended to ensure quality.