

ELPLUS NT-111

High Voltage Anti-Flashover Insulator Coating

Issue Date: July 2026

Version: V2.1

1. Product Overview

ELPLUS NT-111 is a single-component, room temperature vulcanizing (RTV) anti-flashover coating developed specifically for power systems and transmission/distribution networks. Once cured, this product forms a long-lasting protective film on the insulator surface featuring "Superhydrophobicity" and "Self-cleaning transfer capability". It effectively suppresses leakage current on insulator surfaces under harsh climates, heavy salt fog, industrial dust, and chemical pollution environments, preventing arcing and flashover accidents, and significantly enhancing the reliability and safety of the power grid.

2. Core Features

- **Excellent Hydrophobicity and Migration:** Moisture forms independent water droplets on the coating surface rather than a continuous conductive water film. The active ingredients within the coating continuously migrate to the surface, rapidly restoring the hydrophobic state even when covered with contaminants.
- **Outstanding Electrical Insulation:** Possesses extremely high dielectric strength and volume resistivity, effectively cutting off leakage current channels.
- **Weather and Aging Resistance:** Features excellent UV resistance, ozone resistance, and extreme temperature tolerance (-50°C to $+200^{\circ}\text{C}$). It does not crack or chalk after long-term outdoor exposure.
- **International Standard Benchmarking:** Tracking and erosion resistance meets and exceeds the IEC 587 Class 1A 4.5 test standard.
- **Application Convenience:** Single-component packaging, ready to use upon opening. Can be applied via spraying or brushing with exceptionally strong adhesion.

3. Applications

- High-voltage/extra-high-voltage ceramic and glass insulators in substations.
- Suspension and tension insulators for transmission and distribution lines.
- Protection of power equipment in heavily polluted industrial areas and coastal heavy salt fog areas.
- Insulation protection of power facilities within railway catenary systems, petrochemical plants, and heavy steel structures.

4. Typical Technical Properties

Properties	Typical Data	Test Method
Appearance	Gray/Red uniform viscous liquid	Visual
Cure Type	Single-component RTV cure	-
Solid Content	≥ 70 %	GB/T 2794
Tack-free Time	15 - 30 minutes	25°C, 50% RH
Full Cure Time	24 - 48 hours	25°C, 50% RH
Adhesion to Porcelain	5B (Highest rating)	ASTM D3359
Tensile Strength	≥ 1.5 MPa	ASTM D412
Elongation	≥ 150 %	ASTM D412
Dielectric Strength	≥ 20 kV/mm	ASTM D149
Volume Resistivity	≥ $1.0 \times 10^{14} \Omega \cdot \text{cm}$	ASTM D257
Tracking Resistance	Class 1A 4.5 (Pass)	IEC 60587
Hydrophobicity Transfer	< 48 hours (under standard contaminants)	IEC TS 62073
Operating Temp.	-50°C to +200°C	-

5. Application Instructions

- Surface Preparation:** Before application, ensure the insulator surface is completely dry, free of grease, floating dust, and other loose dirt. It is recommended to clean with a dedicated cleaner or high-pressure water gun and dry completely.
- Stirring:** As the product contains functional fillers, slight settling may occur after long-term storage. After opening, please stir the coating evenly using a pneumatic mixer or manual tools.
- Application Method:**
 Spraying (Recommended): Airless spray equipment is recommended. Keep the spray gun at a distance of approximately 20-30 cm from the insulator surface.
 Brushing: Suitable for small-area repairs or environments with high winds where spraying is unsuitable.
- Thickness Requirement:** The recommended dry film thickness should be controlled between 0.35 mm ~ 0.50 mm to achieve optimal anti-flashover performance and service life.
- Weather Conditions:** Application is recommended in clear weather with a relative humidity below 85% and an ambient temperature between 5°C and 40°C. Application is strictly prohibited during rain, heavy fog, or when there is condensation on the insulator surface.

6. Packaging & Storage

- **Packaging:** Standard packaging is 20 KG / iron drum. 1 KG / can sample packaging is available for customer R&D testing.
- **Storage Conditions:** Please store in a cool, dry, well-ventilated warehouse away from fire sources and direct sunlight. The recommended storage temperature is 5°C ~ 30°C.
- **Shelf Life:** Under unopened and standard storage conditions, the shelf life is 6 months from the date of manufacture.

7. Health & Safety

- Wear appropriate protective equipment (e.g., safety goggles, gas mask, protective gloves, and work clothes) during application.
- The application area should be well-ventilated to avoid prolonged inhalation of volatile gases.
- In case of accidental contact with skin or eyes, rinse immediately with plenty of water and seek medical attention if necessary.
- For detailed safety information, please refer to the Safety Data Sheet (SDS/MSDS) of this product.

Technical Support & Contact

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