PASTECOOL™

Passive Cooling Paint System

PasteCool® Coolguard Epoxy Radiation-Reflective Epoxy Primer (2K)

Product Overview

PasteCool® Coolguard Epoxy Radiation-Reflective Epoxy Primer is a waterborne epoxy primer specially designed for radiative cooling coating systems. It features high infrared reflectivity, reflecting the longer-wavelength near-infrared rays that pass through the topcoat. This allows a relatively thin composite coating system to reflect the full spectrum of solar radiation — including ultraviolet, visible, and near-infrared light. When used together with the radiative cooling topcoat, the system exhibits an extremely high solar reflectance and thermal emissivity, radiating heat effectively into outer space. The product also offers excellent chemical stability and outstanding corrosion resistance, protecting against acids, alkalis, and salts. It has high hardness, strong abrasion resistance, and excellent adhesion to inorganic substrates such as cement and metals.

Product Features

1. Excellent near-infrared reflection and radiative heat dissipation performance.
2. Outstanding chemical stability and corrosion resistance.
3. Strong adhesion to various surfaces including cement and metals.
4. Waterborne, environmentally friendly, and low-carbon.

Scope of Application

PasteCool® Coolguard Epoxy Radiation-Reflective Epoxy Primer can be used in combination with PasteCool® waterborne radiative cooling intermediate coats, topcoats, and clear coats. It is suitable for energy-saving and

temperature-reducing applications such as building energy efficiency, communication and data centres, grain storage facilities, petrochemical storage tanks, power equipment, cold chain logistics, new energy facilities. It is particularly recommended for metal substrate surfaces.

Application Guidelines

1. Surface Preparation: Remove dust, oil, and loose particles from the surface. Rinse with water and allow to dry naturally. Repair cracks and holes with cement mortar and sand smooth.
2. Application Methods: Rolling, brushing, or airless spraying. Stir the paint thoroughly before application and apply immediately after mixing.
3. Coating System and Number of Coats:

Coating Step	Coating Name	Number of Coats	Paint Consumption (m^2/KG per coat)
Primer	PasteCool® Coolguard Epoxy Radiation-Reflective Epoxy Primer	1	6-8
Intermediate Coat	PasteCool® Coolguard PU	2	6-8
Topcoat	PasteCool® Coolcoat PU	1-2	4-6
Clear Coat	PasteCool® Protector PU	0-1 (Optional)	8-10

4. Application Parameters

Coating Type	**Component A:B Ratio (by weight)**	**Recoat Interval (h)**	**Pot Life After Mixing (h)**	**Thinner Addition**
PasteCool® ERP-01	6.5:1	6-8	2	Adjust with water according to paint viscosity, generally ⩽10% of total paint
PasteCool® URP-02	5.5:1	4-6	2	
PasteCool® URT-03	25:1	4-6	2	
PasteCool® URC-04	4:1	4-6	2	

5. Cleaning: Clean all tools with water promptly during pauses or after application.
6. Application Conditions: Avoid application in humid or cold weather (temperature below 5 ℃ or above 35 ℃, relative humidity above 80%), as it may affect the coating performance. Ensure proper drying time between coats. Applying the next coat too soon may cause slow drying,

wrinkling, bubbling, and poor water resistance and adhesion. Ensure the work area is well-ventilated and dust-free. Avoid strong winds that may carry dust and affect the appearance.

Precautions

1. During spraying, stir the paint frequently to prevent pigment sedimentation and ensure uniform application.
2. Use the A/B mixture within 2 hours after mixing; do not use once gelled. If viscosity increases before gelling, add a small amount of water to adjust. Component B must be used up once opened.
3. Handle coated products carefully after application; avoid impact or scratches. If local damage occurs, repair with the same coating.
4. Inspect each layer after curing. If particles appear on the surface, sand before applying the next coat. Wet film thickness per coat should not exceed 150 μ m to prevent incomplete drying, bubbling, or cracking.
5. If recoat interval is extended, sand and clean the surface before recoating to ensure proper adhesion.
6. Protect freshly coated surfaces from rain and dust before surface drying. Waterborne polyurethane systems require over 7 days to reach full strength (extend to 14 days under low temperature or high humidity).
7. Maintain proper temperature and ventilation during application; avoid extreme weather conditions such as direct sunlight, rain, or high/low humidity that may affect curing quality.
8. Personal Protection: Operators must wear protective goggles, chemical-resistant gloves (nitrile or neoprene), respirators or supplied-air masks, work clothes, and safety shoes.

Packaging and Storage

1. Component A available in 10 L and 18 L containers.
2. Component B packed according to the A:B ratio of 6.5:1 by weight.
3. Store the product in a cool, dry, and well-ventilated place at 5~35°C, away from direct sunlight and freezing temperatures. Seal tightly to prevent moisture loss.
4. Component A Shelf life: 12 months from the production date.
5. Component B (Curing agent) Shelf life: 6 months

Technical Specifications

Parameter	Technical Index

Color	white
Condition in Container	Uniform after stirring, free of hard lumps
Fineness (μm)	≤50
Drying Time (23 ± 2 °C)	Surface dry: ≤4 h Through dry: ≤24 h