

## Permacorr Thermal Ceramic Insulation Coating

**Ceramic Insulation Coating blocks infrared-based radiant heat transfer with high density layers of hollow ceramic particles and very thin air boundary layers instead of relying on low density mass to reduce the speed of heat transfer.**

### BENEFITS:

- Thermal insulation at low thickness (1-3mm)
- Greatly reduces condensation
- Visual inspection of coated surfaces
- Fast cure and recoat time
- Easy to apply on irregular surfaces
- Low VOC & Washes with water
- Easy to repair with brush or small sprayer

**SURFACE PREPARATION:** Clean, dry and free of dust or oil-based contaminants. Prep to NACE 1-3 (SSPC SP 5-6) when possible. Flash rusting may occur when applied on ferrous steel on 1<sup>st</sup> and 2<sup>nd</sup> coats if primer is not used. Scuff or etch aluminum or stainless steel with vinegar and/or 120 grit sandpaper or scotchbright pad. If not scuffed or abraded, oxidized (old) aluminum surfaces may require an etching primer to ensure adhesion. Overall, use good coating practice to ensure a stable surface to apply coating.

**PREPARATION AND PRIMERS:** Primers are recommended on ferrous steel surfaces with some exceptions, subject to industry practice. Aluminum or stainless steel does not require primers. Without a primer on ferrous steel, expect flash rusting on the 1<sup>st</sup> and possibly 2<sup>nd</sup> coats. Heat resistant primers for hot applications should support temperatures at least 20% over expected surface temperatures. Primers must be fully cured before applying or unevacuated solvents can cause adhesion failure. High pressure waterblast surface prep and surface tolerant primers are commonly used for marine applications. High temperature primers such as Tikkurila, Dampney, High-Temp, International and PPG primers are acceptable when directions are followed to ensure adequate curing time before applying Ceramic Insulation Coating.

**TOPCOATS:** Acrylics, epoxies, urethanes and other products are generally compatible. You must ensure Ceramic Insulation Coating is fully cured to remove all water before top coating, ideally for 48 hours. This coating is not designed for immersion and topcoating with a urethane or waterproof topcoat is necessary to prevent adhesion loss. Use appropriate topcoats for situations where acrylic-based coating will not stand up to conditions. Examples: Use epoxy topcoats for caustic or acidic exposure. Use urethanes or washable acrylic topcoats when washability, cleanliness, or stain resistance are issues.

<b>BASE:</b>	Water-based Acrylic Latex
<b>COLORS:</b>	Standard white, Grays or Custom Acrylic Tints
<b>WET WEIGHT:</b>	5.1 lbs per gallon (0.63 Kg/Liter)
<b>DRY WEIGHT:</b>	0.035-0.036 lbs sq. foot at 20 mils DFT    0.17-0.18 kg/sq. meter at 0.50 mm DFT.
<b>DENSITY, g/cc:</b>	0.55 (5.1 lbs/gallon)
<b>VISCOSITY, PU:</b>	133
<b>PRACTICAL COVERAGE:</b>	45-50 square feet/gallon at 20 mils (0.5mm) dry film thickness (DFT).
<b>VOLUME SOLIDS:</b>	81-83%
<b>MVT, PERMS:</b>	10.5 – ASTM E96
<b>TRANSMISSION:</b>	4.14 Grains/hr/SF

<b>TENSILE STRENGTH, PSI:</b>	23.46 – ASTM D 2370
<b>ELONGATION:</b>	3.43 – ASTM D 2370
<b>THERMAL CONDUCTIVITY:</b>	0.1167 W/mK (ThermTest, Inc.)
<b>EMISSIVITY:</b>	0.15
<b>TRANSMITTANCE:</b>	0.00
<b>FLAME SPREAD:</b>	IMO Resolution MSC 307 (88) (2010 FTP Code) Annex 1: Parts 5 & 2. Notified Body: Warrington Certification Ltd. Certificate #164.112/1121/WCL MED0347TE
<b>FIRE RESISTANCE:</b>	Classed as a “fire retardant”.
<b>VOC CONTENT:</b>	0.06 lbs/gal. (7.6 grams/liter)
<b>UV DURABILITY:</b>	12-20 years
<b>APPLICATION THICKNESS:</b>	For best thermal results, apply multiple layers of 10-12 mils to improve density of ceramic layering. However, up to 20-24 mils wet film thickness can be applied subject to ambient and surface temperatures and humidity. At high surface temperatures, apply thin coats of 5-12 mils to ensure moisture evacuation. In very dry conditions apply 10-12 mils wet film thickness (WFT) to prevent “skimming” or drying of the surface and preventing effective evacuation of water from the coating.
<b>SERVICE TEMPERATURE LEVELS:</b>	Thin Insulation Coating can maintain sustained temperatures up to 400F (204C). However, it is recommended that applications be limited to surface service temperatures up to 350F (177C). This provides a safety margin below 400F, this coating’s upper service temperature limit.
<b>STORAGE:</b>	Do not allow coating to freeze. Shelf life is reduced at higher temperatures: 3-4 months at 50C-55C (122F-132F) versus 1 year at 40F-90F (4C-32C). Store at a warmer temperature prior to use.
<b>RECOMMENDED EQUIPMENT:</b>	Airless spray system. A small siphon sprayer is appropriate for limited areas. Brushing or rolling is an exercise in futility.
<b>PUMP RATIO:</b>	33:1 or bigger, 3,000 psi
<b>HOSE SIZE:</b>	3/8” or larger for first 50’. 1/2” for above 50’. No more than a 3’ whip.
<b>TIP SIZE:</b>	0.017 to 0.019 for very fine texture, 0.021 – 0.026 for normal, 321 for complex geometry, 521 to 631 for large flat areas
<b>APPLICATION:</b>	<p><b>SURFACE TEMPERATURE:</b> At least 50F (10C) for adhesion and 60F (15C) for curing. After application is completed, the curing process requires 72 hours as the acrylic polymers cross-link and harden. Allow 8-12 hours before exposing to wet conditions.</p> <p><b>APPLICATION:</b> Apply at ambient temperature range of 50F-139F (15C-59C) with a initial “tack coat” of 10 mils (0.010” / 0.25mm) to eliminate possible sagging on vertical surfaces and allow to dry thoroughly before applying a next coat. Total thickness per day at ambient temperatures should be limited to 40 mils / 0.040” / 1mm to ensure full drying and moisture evacuation of coating.</p> <p><b>HOT APPLICATION:</b> Ideally, coating can be applied on surfaces up to 250F (121C) at thin coats of 5-8 initially and then 8-10 mils or 0.25mm thicknesses are applied and allowed to dry. Surface temperatures higher than 250F are realistically considered higher risk and subject to lower service lifespan. No more than a total of 0.080” / 2mm per day should be applied on hot service applications. When bringing coated equipment back into service, heat up as gradually as possible.</p> <p><b>APPLICATION SAFETY:</b> The water-based acrylic latex ceramic coating releases water vapor at the time of application. There is no fire hazard from open flames or welding. Wear an approved dust mask and do not breath vapor released during application.</p> <p><b>REPAIR:</b> Sand or wire wheel to remove. High pressure waterblast for large areas. Use small spray gun, brush, roller or trowel knife to fill in. Apply 0.5mm or 20 mil layers to avoid “mud cracking”.</p>

