

MPCI Product Data Sheet

Revision Date: January 2006

PRODUCT DESCRIPTION

Thermablock™ Nano Coating is a two part silsesquioxane/titanate coating developed as a high temperature coating. The original development of this coating was for tactical aircraft used by the US Air Force. This coating strongly adheres to various substrates including titanium, steel, aluminum and thermoset polymer composites. Abrasion resistance is provided by the incorporation of nanometer sized alumina particles. This significantly improves hardness and durability over standard alumina filled coatings.

SUBSTRATES AND SURFACE PREPARATION

General

Surfaces must be clean and as dry as conditions permit. Employ adequate methods to remove dirt, dust, oil, and all other contaminants that could interfere with adhesion of the coating. Pitted and corroded substrate may require decontamination with a salt remover solution in water to prevent post application corrosion at the interface.

Carbon Steel

Immersion: SSPC-SP5

Insulated (recommended): SSPC-SP10

Insulated (minimum): SSPC-SP6

Surface Profile: 2.5 – 3.0 mils

Limited Access: SSPC-SP11 is a suitable preparation method for small and hard to access areas or when sandblasting is prohibited.

Stainless Steel

Same as Carbon Steel.

Galvanized Steel

General: surface preparation should not remove the protective galvanize plating. Clean surface per SSPC-SP1.

Aluminum

Same as Galvanized Steel.

Concrete

Prepare in accordance with SSPC SP-13.

Previously Painted Surfaces

Lightly sand or abrade to roughen and degloss the surface. Existing paint must attain a minimum 5B rating in accordance with ASTM D3359 "X-Scribe" adhesion test.

Mixing

Power mix part A separately. Part A will settle. Strong agitation is required to separately re-disperse the mix. Then combine with Part B and power mix.

DO NOT MIX PARTIAL KITS.

Thermablock™ Nano

Abrasion Resistant Coating

APPLICATION EQUIPMENT

Spray Application (General)

This is a high solids coating which may require one to two coats to achieve recommended film thickness. The following spray equipment has been found suitable and is available from manufacturers such as Binks, DeVilbiss and Graco.

Conventional Spray

Pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, 0.070" I.D. fluid tip and appropriate air cap.

CLEANUP AND SAFETY

Cleanup

Use isopropyl alcohol, MEK, or acetone. In case of spillage, absorb and dispose per local regulations.

Safety

Follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workplace safety precautions. Wear appropriate Personal Protective Equipment.

Caution

Flammable materials – keep away from sparks and open flames. All electrical equipment and installations should be made and grounded in accordance with the National Electric Code. In areas where explosion hazards exist, workmen should be required to use non-ferrous tools and wear conductive and non-sparking shoes.

PACKAGING, HANDLING & STORAGE

Shipping Weight: 1 Gallon Kit – 16 lbs

5 Gallon Kit – 77.5 lbs

Storage Temperature & Humidity: Store indoors at 32°F to 100°F, at ambient Relative Humidity

Thermablock™ NANO

Attributes	
Property	Comments
Thermally Insulating	Maintains greater than 200°F temperature differential after 10 minutes at 954°F at 1/4-inch thickness. Thermal conductivity has been measured at 0.15 W/m°K at 560°F
Withstands High Temperatures	No breakdown observed when exposed to hydrocarbon fire
Fire Resistant	No smoking with direct flame at 1800°F No burning with direct flame at 1800°F
Durable	Withstands thermal cycling
Ease of Application	Applicable by sprayer, roller or brush (unlike ceramic coatings)
Compatible with Multiple Substrates	Can be coated on metals, plastic, fiberglass composite, as well as other typical substrates
Field Repairable and Re-applicable to itself	Can be touched up in the field Directly re-apply over an existing coat
Chemical Resistant	Resistant to petroleum products Resistant to acids Resistant to bases
Thermal Expansion Compatible	Compatible with metals and other substrates Comprehensive testing in process under USAF Contract
Abrasion Resistant	Resists fly ash abrasion
Quick Application	No special application equipment required
Smooth	Coating is smooth upon proper application

APPLICATION CONDITIONS				
Condition	Material	Surface	Ambient	Humidity
Normal	60-85°F	60°F	60-90°F	20-95%
Minimum	50°F	50°F	50°F	20%
Maximum	100°F	90°F	110°F	95%
CURING SCHEDULE				
Surface Temp.	Dry to Recoat	Dry to Topcoat	Final Cure	
50°F-100°F	1 hr to 24 hrs	3 hrs	3 days	

DISCLAIMER. To the best of our knowledge the technical data herein is true and accurate on the date of publication. It is subject to change without prior notice. No warranty of current accuracy is given or implied. We guarantee this product conforms to MPCCI's quality control. User must contact MPCCI to verify correctness before specifying or ordering. No other warranty or guarantee of any kind is made by MPCCI, express or implied, statutory, by operation of law, or otherwise, including merchantability and fitness for a particular purpose.