TECHNICAL DATA SHEET

INFINIGUARD

Product Description: HVAC Coating – All metals, including galvanized steel
INFINIGUARD® is a two part hybrid silicon-ceramic coating designed to bond on the molecular level with all metal substrates. The resulting surface of the INFINIGUARD® coated substrate exhibits extreme protection against oxidation, microbial intrusion, chemical corrosion, and ultra-violet degradation. Furthermore, it demonstrates an increased flowrate of both liquid and gaseous substances across its surface versus a non-coated metal surface, and can be applied on electrical equipment and control panels.

Suggested Uses:
Mild steel, medium carbon steel, stainless steel, copper, aluminum, galvanized steel, and electrical equipment.

Surface Preparation:
INFINIGUARD® must be applied over a sound, clean surface free from oil residue, residual grease, silicon residue, coil cleaner residue, and dirt/dust build-up. Caribbean Energy Solutions suggests a mild chemical cleaner, such as our INFINIGUARD® PREP Commercial Cleaner/Degreaser, that is easily rinsed off leaving no chemical residue. Electronic control boards shall be misted with denatured alcohol and gently wiped with a microfiber cloth to remove any residue (under no circumstances shall INFINIGUARD® PREP or water be applied directly to electronic control boards). After the equipment to be treated with INFINIGUARD® has been thoroughly rinsed with clean, non-reclaimed water it should be blown dry using an electric air blower to remove any excess standing water between the fins and from the coils, as well as the flat interior surfaces of the unit.

Mixing of INFINIGUARD®:
INFINIGUARD® is a two-part coating that is pre-measured and pre-packaged under argon gas. Once opened and exposed to the outside atmosphere, the two components of the coating must be mixed and catalyzed at one time in their entirety. The components are packaged in two bottles labeled (A) and (B). Remove the caps and the heat seals from the two bottles and carefully pour the contents of (B) into the bottle of (A). As the contents are prepared in exact amounts for proper catalyzation to occur, it is vital to empty the entire contents of (B) into (A) and not spill any contents from (B) during the process. Replace the cap on the (A) bottle, stir for a period of 40 seconds and allow the (A) bottle to settle for 5 minutes before commencing application.

Application of INFINIGUARD:
INFINIGUARD® is to be applied by use of an HVLP commercial spray gun. The gun should be set for the application of a fine mist in order to properly penetrate the HVAC coil and fin assemblies. On thicker and denser coil and fin assemblies an electric fan facing away from the coil on the opposite side of the spray application can be used to help draw the flow of air and coating through the entire coil assembly.

Safety Requirements:
Protective eyewear, air purifying respirator and gloves are required when using INFINIGUARD®.

Clean Up:
Clean tools and equipment used to apply immediately after use with 100% pure isopropyl alcohol, 100% pure denatured alcohol, or acetone.

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Handleability, Mixing, and Application:
Pot Life: 30 days @ room temperature
Film Thickness: 2 mils thick wet, 0.5 mils thick dry
Curing Conditions: @ 70°F (21°C) and 70% R.H.
Dry Time: Touch between 2 to 4 hours if temperature is 70°F (21°C) and 70% R.H or greater. Cure time is contingent on temperature and humidity. The higher the temperature and humidity, the faster the cure time.

System Performance (Typical Data):
Salt Spray Test: 12,000 hours (ASTM B117)
Pencil Hardness: 6H (ASTM D3363)
Cross Hatch Adhesion: 5B (ASTM D3359)
Taber Abrasion Test: 94% more abrasion resistant than uncoated carbon steel (ASTM C501)
Mandrel Bend Test: Passed 1/8" (ASTM D522)
Food Contact Certification: Passed (US FDA 21 CFR 175.300)
Fungal Growth: No growth (ASTM G21)
Humidity Resistance: 2,000+ hours with no degradation (ASTM D2247)
Water Immersion: 2,000+ hours with no degradation (ASTM D870)
UV Resistance: 2,000+ hours with no deterioration (ASTM G154)
Cyclic Corrosion Resistance: 120 cycles humidity, salt air and drying (SAE J2334) resulted in: **NO COATING DAMAGE, BLISTERING, CRACKING, DELAMINATION OR LOSS OF COATING THICKNESS**
Weldability and Impact Strength: No reduction in weldability or weld mechanical properties (ASTM E8, ASTM E18, ASTM E23, API 1104)
Pressure Rating: Equals the pressure of the underlying substrate
Chemical Resistance: NACE TMO 185 Autoclave test three Phase: (1) GAS (CO_2, CH_4, H_2S) (2) ORGANIC (Toluene, Kerosene) Solutions, (3) INORGANIC: (Brine) Solutions 350ºF 96 hrs 8000psi - 250ºF 30 days 5000psi resulted in: **NO COATING DAMAGE, BLISTERING, CRACKING, DELAMINATION OR LOSS OF COATING THICKNESS**
Coefficient of Friction: 40% reduction compared to uncoated C65 carbon steel alloy using coarse alumina grit blasting (ASTM D1894)
Thermal Conductivity: At 2 mils thick (4 times thickness of dry film) thermal conductivity is greater than 5.0 W/mK (ASTM 5470)
Net heat exchange surface thermal properties improvement: Conductive thermal loss from coating is less than 1% of convective heat transfer gain for heat exchange surfaces treated
Gas Flow Friction Reduction: Up to a 38% lower pressure drop on average versus uncoated tubing
Temperature Rating: Oil: 450°F, Dry: 1200°F
Shelf Life without mixing: 1 year