

HARCOAT CIC 1000

Ceramic Insulation Coating

Industrial Use

Version: T02/22

DESCRIPTION

Harcoat CIC 1000 is a Ceramic Insulation Coating which is specifically formulated to provide a seamless insulation barrier, to prevent or reduce condensation formation and to provide personnel protection to the ASTM 1057 skin touch test. Harcoat CIC 1000 can eliminate the need for conventional insulation and jacketing for process equipment and piping with temperatures operating up to 180°C/356 °F.



The coating acts as a thermal barrier, protecting interior temperatures against cold, warm, and humid exterior temperatures. The coating system allows for visual inspection and makes any future maintenance easy to identify.

Harcoat CIC 1000 is a waterborne, single component Ceramic Insulation Coating. Has high film build capability up to 1.5mm DFT in a single coat, resulting in improved process control efficiency, energy and cost savings.

RECOMMENDED USE

As a liquid applied insulation, a direct replacement for conventional insulation on hot process piping, steam lines, storage tanks, heat exchangers, pressure valves, boilers, HVAC and many more uses.

FEATURES AND BENEFITS

- High build acrylic ceramic filled insulation
- Thermal Insulation of hot and cold objects
- Excellent thermal insulation at low film thickness
- Stable thermal conductivity ($\lambda \approx 0.07$ W m⁻¹ K⁻¹)
- Up to 1500 microns in a single coat
- Application up to 180 °C/356°F
- Low VOC, high solids
- No more cold bridges
- Seamless unlike traditional insulation
- Prevents Corrosion Under Insulation (C.U.I.)
- Maintenance and inspection friendly
- Integrated in a protective coating system
- Prevents Condensation

PROPERTIES

CHARACTERISTIC	DESCRIPTION		
Appearance	Creamy Liquid		
Color	White	Contact us for the availability of colors	
Density(g/cm ³)@24 Mil DFT	0.41		
Drying Time	1 to 2 Hours at 70° F with Humidity <60%		
Flash Point	No Flash to Boil		
Maximum Surface Application Temperature	300° F/149° C		
pH	8.45-9.50		
Solids by Volume	80% ±4		
Specific Gravity	0.594		
Thickness	0.020"		
Viscosity	2,000-10,000 cps	Using Brookfield viscometer with #3 spindle at 12 rpm	
VOC	0.0099 lbs/gallon (1.186 g/l)		
Weight of Non-Volatiles	43%		
Weight per Gallon	5 lbs		
ENVELOPE	TEST METHOD	RESULTS	
Air Permeance	ASTM E-2178	0.0001 L/(s·m ²) at 75 Pa	(0.00002 cfm/ft ² at 1.56 lb/ft ²)
Flame Spread	ANSI/UL 723	0	
Smoke Developed	ANSI/UL 723	5	
Moisture Vapor Barrier	ASTM D-1653	0.0755	
Water Vapor Permeance (Desiccant Method)	ASTM E-96	207 ng/(Pa·s·m ²)	3.617 perms
Water Vapor Permeance (Water Method)	ASTM E-96	387 ng/(Pa·s·m ²)	6.779 perms
GENERAL PROPERTIES	TEST METHOD	RESULTS	
Accelerated Aging	ASTM G-53	200 Hour	Passed
Cross Hatch Adhesion	ASTM D-3359	100	
Density (g/cm ³)	ASTM D-792	0.41	
Elongation (Elasticity)	ASTM D-882	65%	
Emissivity	ASTM C-1371	0.88 initial 0.86 3 year	
Thermal Conductivity	ASTM C-177	0.07 W m ⁻¹ K ⁻¹	
Normal Emittance	ASTM E-408	.94	
Pull Adhesion (Method B-Concrete)	ASTM D-4541	1,447 kPa	209.9 psi
Pull Adhesion (Method B-Plywood)	ASTM D-4541	1,348 kPa	195.6 psi
Reflectivity	ASTM C-1549	0.83 initial 0.75 3 year	
Solar Reflectance Index	ASTM E-1980	96	
Tensile Strength (lb/in ²)	ASTM D-882	66.7	
Water Resistance	AATCC 127	No water leakage at 55 cm	

POT LIFE & STORAGE

Mix only 1 container at a time, just before the material is to be applied. Maximum working time per container is thirty minutes. If less than 1 container is needed for a project, pour out the required amount after mixing and then immediately re-seal the original container.

Store all coating materials in a dry place as close to room temperature as possible. Ideal storage temperature should be between 15°/59°F to 27°C/81°F. Keep cans sealed and out of the direct sun when not using. Warm up cold material to room temperature before using. Do not allow coating to freeze.

EQUIPMENT

Professional quality sprayer such as to GRACO 7900 or equivalent 3000 psi, at least 2 GPM and tip size based on the application.

CLEAN UP

Clean up immediately after use with fresh clean water. Discard clean up material according to local environmental regulations.

APPLICATION INSTRUCTIONS

Harcoat CIC 1000 is a single component coating. The coating needs to be stirred with a mixing paddle on slow speed in reverse mode.

Surface temperature must be a minimum of 3°/ 37.4°F, above the dew point. Do not apply to substrates at temperatures below 10°C/50°F. When applying Harcoat CIC 1000 to hot steel up to 180°C/356°F, multiple thin passes will be required.

- Tape up all areas that are not to be covered.
- Turn the pail upside down 8 hours prior to application. This will allow the coating to become softer and easier to mix.
- If surface is new galvanized, stainless, and aluminum metal, a light vinegar wash is required prior to application of CIC. This wash is to insure that all oils and protective compounds are removed from the surface.
- If the surface is older galvanized, stainless, and aluminum metal and somewhat dirty, a light pressure wash is recommended prior to the application of CIC.
- Make sure that all degraded substrates are either repaired or replaced prior to the application of CIC.
- For bare steel substrates, we recommend a good primer system.
- Use a mixing paddle to mix the coating before the application. Use counter clock wise direction in slow speed and stir the coating for about 45 seconds, until it becomes like a milkshake. Pay attention not to scratch the inner side of the pail and contaminate the material.
- The coating performs best when it is sprayed. But for small areas or touch ups, you can use a brush. For a demo, you can use a roller or a brush, if there is no other way.
- Allow each layer to dry if you are going to apply multiple layers.
- Use a probe thermometer to count the temperature after the application. Laser ones go through the coating and read wrong results.

DFT/WFT in a single pass	Minimum	Maximum
Dry Film Thickness	1000 micron / 40 mils	1500 micron / 60 mils
Wet Film Thickness	1250 micron / 50 mils	1875 micron / 75 mils
Coverage		
m ² /litre	0.80 m ² /litre / 32.59 SqFt/Gal	0.53 m ² /litre / 21.59 SqFt / Gal

Drying times (1000µm DFT)

Substrate Temperature at 50% RH	10°C / 50°F	24°C / 75 °F	32°C / 89 °F
Dry to Recoat, after Coat 1	24-32h	24h	12h
Dry to Recoat, after Coat 2	24-32h	24h	12h

Harcoat CIC 1000 can be recoated unlimited times, this allows to build up the thickness to achieve the required properties.

Primer

Substrate	Requirement
Carbon steel	Suitable primer required
Stainless steel	No primer necessary
Aluminum	No primer necessary

Precautions

This product is for use only by professional applicators in accordance with information in this Technical Data Sheet and the Material Safety Data Sheet (MSDS). Refer to this product's MSDS before using this material.

To our knowledge, all the technical information in this document is true and accurate at the date of publication of this technical data sheet and remain subject to modification without prior notice. The user can contact Neptune Coatings to verify the accuracy of the information before to specify the product or before to order it.

We warranty that our product are compliant with the standards of quality control established by Neptune Coatings. We don't accept any liability regarding the coverage ratio, the performances or any wound resulting from the use of the product. The responsibility of Neptune Coatings if any is limited to the replacement of the product. No other warranty is given by Neptune Coatings directly or indirectly, by legal route or otherwise, regarding the suitability of the product to a given application.