C-COAT™ TIP - THERMAL INSULATING PLASTER

TDS: C-COAT 100F - FERROUS NF PLASTER

Doc. No.: TIC.TDS.100F-003.V2010.2023

PRODUCT DESCRIPTION

C-COAT 100F – FERROUS NF PLASTER is a water-based thermal insulating barrier, energy preservation plaster developed for to block heat transfer over ferrous types of surfaces within the recommended application temperatures.
C-COAT 100F consists of high-temperature acrylic binders with solid and vacuum micro-spheres. The combination of the glass/ceramic distribution and sizes of micro-spheres is designed, to fill as much of the volume as possible, results in C-COAT 100F exceptional insulating properties.
Material is resistant to UV radiation. It contains fungus and mould inhibitors.

NOTE*: Please pay attention that performance of C-COAT 100F thermal insulating coating material is application, environment and temperature dependent.

** For first-time users, consult us direct or your local distributor before use.*

PROPERTIES

- ✓ Excellent thermal insulating non-flammable material.
- ✓ Providing significant energy savings.
- ✓ Cost effective, with long-term savings and short payback.
- ✓ Reduces cooling energy costs.
- ✓ Non-toxic, water-based, low VOC, UV resistant.
- ✓ Reduces or eliminates CUI.
- ✓ Mould, surface bacteria and moss resistant.
- ✓ Excellent resistance to dirt retention.
- ✓ Moisture resistant.
- ✓ Breathable (will not function as a vapour barrier).
- ✓ Easy to apply in difficult areas.
- ✓ Applied with brush or roller or airless paint sprayer.
- ✓ Space saving.
- ✓ Paintable with High Temperature water-based topcoats.
- ✓ Easy cleanup.
- ✓ 5 Years* Manufacturer's Warranty.

**Manufacturer's Warranty details available on our website* https://C-COAT.com.au

APPLICATION AREAS

Energy Savings at homes and commercial properties
- Roofing and facade protection
- A/C energy reduction
- Indoor comfort improvements
- Maintenance cost reduction

Energy Savings at Industrial Plants
- Power plants
- Chemical plants
- Food processing plants
- Oil and gas plants
- Marine and offshore oil platforms

Automotive Industry
- Trucks and buses heat-blocking systems
- Transport and storage containers

Defence and Space
- IR and heat-blocking systems

Fire and Smoke Protection
- Surface fire protection as NF modification

OHSA and Insurance Industry
- Hot surfaces protection with "Safe to Touch" effect

Sound Dampening
- Reduction in sound at particular frequencies

TYPICAL PROPERTIES

Packaging	The tight sealed plastic pail
Packaging volume	20 Lit – Standard pail and 5, 10 Lit optional
Colour	"C-COAT WHITE" C(0.0.1); D(0.0.1); L(0.0.6)
Formula base	Water-based styrene acrylic dispersion
VOC (volatile organic compounds)	3.0 [g/Lit] (Test Method DMS 0033: 2016)
	13.0 [g/Lit] Green Building Council AU
Weight	0.56 [kg/Lit] (±3%)
Elongation	Above 50% (ASTM412)
Hardness Shore "A"	55 - A/15:64 (ISO868:2003)
Density	290 kg/m3 (ASTM D 1622-98)
Elasticity of the coated film (Band Test)	5.0 (DSTU ISO 1519)
Thermal conductivity (*see our published modelling)	Tested: 0.035 [W/mK] (ASTM C 518-10)
	Equivalent*: 0.00037 - 0.0012 [W/mK]
R Value equivalent*	0.5 mm equiv. to R.3 (130mm of glass-wool)
	1.0 mm equiv. to R.4 (200mm of glass-wool)
Solar reflective index	104.85% (ASTM E 1980:11)
Vapour permeability	<2% (DSTU EN 1062-3:2015)
Pull of strength (adhesion) concrete	1.09 [N/mm] (DSTU ISO 4624)
Pull of strength (adhesion) steel	0.81 [N/mm] (DSTU ISO 4624)
Pull of strength (adhesion) brick	1.33 [N/mm] (DSTU ISO 4624)
Combustibility	Non-Flammable AU - AS1530.3 (Spread of Flame - 0, Smoke - 4) EU - PN-EN 13823, ISO 11925 - (B-s1, d-0)
Application temperature*	+7°C to +60°C (for higher temp's use priming)
Operating temperatures*	From -40°C to +100°C (Peak @+120°C for not more than 1 hours)
Drying time at + 20°C in humidity ≤80%	60 min to touch
Storage and transportation temperature	+5°C to +45°C
Resistance to temperatures -40°C to +100°C	No changes after full cure
Application method	Airless sprayer, brush, roller
Abrasion resistance	High
Shelf-life of the material in pail	Up to 24 months from the DOM
Product service life	Thermal properties >10 years.
	Physical properties >20 years
Protecting surface from corrosion formation	500 hours ASTM B117-02 equal to 10 years' life expectancy
Top coating	Water based solutions - Please contact supplier
Theoretical coverage (add waste and over-spray about 5-10%)	0.5mm DFT thickness = 0.7Lit/m2
	1.0mm DFT thickness = 1.4Lit/m2
Recommended thickness per layer	0.5 - 1.0mm DFT
	0.7 - 1.4mm WFT (vertical surface - horizontal surface

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COLOUR

The original colour is "C-COAT WHITE" (similar to RAL9016). If colour is required, the cured coating can be coated with regular acrylic paints, water-based top coats, etc. Ensure that the thickness of C-COAT is such that the surface temp is reduced below the maximum temp of the topcoat. Painting* over C-COAT may adversely affect its performance. C-COAT can be tinted to suit; however, adding coloured tints to the product may reduce thermal efficiencies (reflectivity), particularly darker pigments. Under high temperatures over the limit specified the exposure colour of the coating could take on a yellowish tinge.

*Subject to selected colour: The higher the TSR (Total Solar Reflectance value) the better the Performance.

SURFACE PREPARATIONS

Remove all grease, oil, dust and other contamination from all surfaces to be coated.

Galvanised steel, stainless and aluminium substrates:
The surface must be rinsed with acetic solution in water or with soapy water before using C-COAT. This washing should ensure that all oils and protective substances are removed from the surface so it is ready for application.

Carbon steel – Minimum clean to Sa2 or Recommended Sa2½ to ISO8501-1
To improve adhesion, create porous oxide layers and increase the durability of the protective coating, the surface of non-ferrous metals must be cleaned, degreased and electrochemically or chemically oxidised before painting.
We strongly recommend using a C-COAT Primer for metal surfaces.
(If other brands of primers are used pay attention to application and surface temperatures.)
Ensure that all of the damaged substrate surfaces are either repaired, including light grinding to remove scratches for better adhesion of the coating, or replaced before applying the coating

Cleaning method WJ2.5: – Very thorough high-pressure water jetting which makes use of ultra-high-pressure water that is nonabrasive. Surface must be cleaned to a matte (dull, mottled) finish which, when viewed without magnification, is free of all visible oil, grease, dirt, and rust except for randomly dispersed stains of rust, tightly adherent thin coatings, and other tightly adherent foreign matter. The staining or tightly adherent matter is limited to a maximum of 5% of the surface NACE 5/SSPC 12 1995. After water jetting treatment, it is necessary to rapidly dry the surface. Otherwise, the remaining non-visible moisture will begin the corrosion process. C-COAT Primer for Metal must be applied on dry surface as soon as possible after treatment.

PRIMING SURFACE with C-COAT PRIMER

NOTE: For ambient temperatures substrate just do a mist coat of C-COAT and allow drying for about 30 minutes or more before applying the first full coat.
A relevant temperature C-COAT Primer Coating is generally only required for substrates above 60°C. Select the C-COAT Primer Coating based on the substrate and temperature limits.

RECOMMENDED THICKNESS

Contact your distributor for the recommended coating thickness based on the application, insulating value required and environmental conditions. Request the Calculation Form for your application or refer to Application Graphs published as the application thickness guide.

Generally it is about 0.5-3.0mm for roofs, facades, and 1.0-3.0mm for pipes and process plant parts depending on desired results.

APPLICATION GUIDELINES

The C-COAT 100F is a single pack application and can be applied using any airless sprayer capable of maintaining a pressure of at least 100bar (1500psi) with 35:1 ratio or greater (i.e. GRACO Ultramax II 795 or better). A 523 tip is recommended for most applications, although it will spray through 17-27 thou (1 millimetre is about 39.37 thou) tips of various fan widths.

Remove any skinned product on the surface of the drum before mixing and place in suitable container. Thoroughly mix the product using a jiffy mixer at no more than 80-150rpm.

Add up to 3% by volume of water to improve consistency only if the product has started to lose moisture and consistency. More may be added in hot, dry conditions to assist with spray ability and maintaining consistency in the hopper/pail.
Talk to your distributor for advice.

If the product has been subjected to low temperatures it may freeze and hence the warranty is void so we recommend not using the product.

Spray pressure should be maintained between 800-1200psi. Any higher and cracking of the finished film may occur due to damage of the microspheres.
If the coating is applied too thick, "alligator" cracking can occur.

CURE TIME

Drying and curing times are determined under controlled temperatures and relative humidity below 85%, and at average of the DFT range for the product.

Substrate temperature	10 °C	15 °C	23 °C	40 °C
Touch dry surface	5.5 h	3 h	2.5 h	1.5 h
Walk-on-dry minimum	24 h	18 h	12 h	8 h
Dry to over coat	24 h	18 h	12 h	8 h
Dried, cured for service	4 d	3 d	24 h	18 h
Full (polymerisation) cure	21-30 days			

Touch-dry Surface: The state of drying when slight pressure with a finger does not leave an imprint or reveal tackiness.
Walk-on-dry: Minimum time before the coating can tolerate normal foot traffic without permanent marks, imprints, or other physical damage.
Dry to overcoat, minimum: The recommended shortest time before the next coat can be applied.
Dried and cured for service: Minimum time before the coating can be permanently exposed to the intended environment/medium.
Full (polymerisation) cure: Full performance achieved.

NOTE: The product is dry to the touch within a few minutes to an hour.
The coating reaches full insulating ability AFTER a cure time of approximately 21-30 days, which is dependent upon environmental variables, humidity, and number of coats used. Test of thermal performance should be performed after full cure. Thermal benefits will typically begin to be seen approximately 24 hours after application and will continue to improve as the cure time completes. Final cure is complete when thermal performance has reached a steady state. Cure time won't interfere with normal operations.

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TOP COAT

Most common acrylic paints, water-based urethanes and other water-based paints can be painted over the C-COAT 100F to give the required colour or additional impact resistance/hardness. If the product is to be used in an exposed environment, particularly where water pounding may occur, a waterproof topcoat is recommended, or one of our other topcoats.
Note that for fire-exposed applications, you can use our Intumescent Coating to protect the C-COAT coating.

CLEAN UP

Protecting the environment is important to the C-COAT team.
Clean up with water away from drains. Do not pour leftover coating down the drain. Unwanted volume should be kept in a sealed container and then disposed of via appropriate waste collection services. Empty containers should be left open in a well-ventilated area to dry out. Dispose of empty containers in accordance with local authority's guidelines. Always check with your local Council first.

TYPICAL SERVICE LIFE

Life expectancy for the C-COAT 100F is >10 years for most applications.

MAINTENANCE

Minor touch-ups or maintenance are simple. Just clean the surface of dust, grease and oil and other contaminants and re-coat the affected area with spray gun or brush.

For clean-up of a finished coated surafces, use soapy water and do not wash with high pressure water systems as this may damage to coat unless treated with specified topcoat resistant to required levels.

STORAGE AND HANDLING PRECAUTIONS

The product should be kept properly closed and stored indoors in a well-ventilated area under normal factory conditions.
Storage at room temperature (20-35°C) also provides a convenient viscosity when handling.
As the product is water-based the storage at low temperatures (below 10°C) is not recommended. This material must be protected from frost conditions.

HEALTH AND SAFETY

Please observe the precautionary notices displayed on the container.
Use under well-ventilated conditions. Do not inhale spray mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention must be sought immediately.

PRODUCT LIMITATIONS

Do not use as a final floor covering.

Do not install where long-term submersion in liquid or continuous exposure to liquids is a possibility.

Do not install over nontreated or damaged surfaces or surfaces in poor conditions, such as those with flaking paint, grease or other contaminants.

Do not allow application to be subject to rain or condensation for at least 72 hours after applying C-COAT as it may blister.

Do not allow application to be subject to freezing temperatures during the first 21-30 days after application or during transport.

Do not rely on visual measurement for coating thickness.

Always use a wet film thickness (WFT) and/or dry film thickness (DFT) gauge in several areas to ensure proper application thickness.

CAUTION

This product is for professional use only.

The applicators and operators must be trained, experienced and have the capability and equipment to mix/stir and apply the coatings correctly and according to C-COAT's technical documentation. Refer to C-COAT Applicators Training Manual.
Applicators and operators must use appropriate personal protection equipment when using this product.
This guideline is given based on the current knowledge of the product.

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**** R Value equivalent***

Heat resistance of C-COAT is performance depends on application, heat flux source and direction, enviromnetal conditions and temeprrature of substrate. "R value equivalent" is including performance of conductivity, convection and radiation/reflection efects.

Limitation of Liability

The liability on any claim except on those related to C-COAT's negligence are strict limited to the replacement cost, excluding shipping and installation cost, of any C-COAT product and where upon investigation by a suitable person appointed by C-COAT it is found that the product was faulty.
This liability is void if the product was used outside of the guidelines with C-COAT documentation or if the product was not stored correctly once it left C-COAT's control.
This liability does not extend to damage or loss either consequential or incidental damages resulting from the faulty C-COAT product.

Disclaimer: *The above data, particularly the recommendations for the application and use of C-COAT products, are based on the manufacturer's knowledge and experience.*
Due to different materials and conditions of application, which are beyond our control, we recommend in any case carrying out sufficient tests to ensure that C-COAT products are suitable for the intended purpose and applications. Therefore, any liability for such recommendations or any oral advice is expressly excluded unless we have acted willfully or by gross negligence. It is always the responsibility of the installer/ purchaser to guarantee correct preparation, DFT (C-COAT Coatings) and thickness of all C-COAT products, used primers and/or topcoats.
C-COAT Insulation Australia Pty Ltd or any our subsidiary cannot be held liable for installation or faulty installation.
It is always the responsibility of the installer/purchaser to guarantee and certify the installation of materials.

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