

### TECHNICAL DATA SHEET

#### CharCoat CTI

#### PRODUCT DESCRIPTION

CharCoat CTI is an easy to apply ceramic beaded coating designed to insulate the substrate to which it is applied. It is a high solids, thin-film insulating coating that can be used internally or externally and is non-flammable. The Standard version includes anti-corrosion additives for steel but is a great all-rounder for all substrate types, including stainless steel!

The combination of the ceramic beads and the distribution of sizes to fill as much of the volume as possible means that it has exceptional insulation properties. This is not just a reflective paint, it does insulate, with testing to date showing R3 equivalence at 0.5mm DFT! It provides both reflective AND insulation performance, in a fraction of the thickness of other common insulation materials.

#### PROPERTIES

- Excellent thermal insulation
- Eliminates CUI, and enables easy corrosion inspection.
- Non-hazardous
- No toxic vapours
- Minimal odour
- Can be applied to surfaces up to 90°C with normal application
- Withstands constant substrate temperatures up to 210°C
- Seamless
- Flexible at low temperatures, can withstand constant temp of -60°C
- Excellent UV resistance
- Easy to apply in difficult areas with brush or roller
- Can provide energy savings of 50% or more at as little as 1mm thickness

#### APPLICATION AREAS

- Roof Insulation
- Defence
- Power Plants
- Refineries
- Fire trucks
- Cold Storage Facilities
- Food Processing Plants
- Shipping containers
- Hot water systems
- Pipe insulation
- Industrial and Manufacture Facilities
- Hot surface touch protection
- Worker comfort in sheds

#### COLOURS

Standard white. If colour is required, the cured coating can be overcoated with a regular acrylic house paint, urethane top coats, etc. Ensure that the thickness is such that the surface temp is reduced below the maximum temp of the top coat. For larger orders we may be able to arrange tinting prior to delivery, but pastel colours are recommended. Adding colour to the product may reduce thermal efficiencies, particularly dark pigments.

#### TYPICAL WET PROPERTIES

Material Properties	Value
Density, cured (kg/L)	0.38-0.41
Density, wet (kg/L)	0.47-0.59
Mix ratio (by volume)	Single Pack
Solids (mixed) by volume	~80%
Theoretical Coverage	0.5mm thick = 0.65L over 1m².
Max thickness per coat	1.0mm DFT (1.2mm WFT)

#### TECHNICAL DATA

Heat conductivity at 20°C	0.001-0.003 (W/mK)
Min Surface Temp for appl	7°C
Skin Time (substrate and ambient temp dependent)	~45min @ 25°C & 50% RH
Recommended minimum recoat window (substrate & ambient temp dependent)	24 hours
Maximum Recoat Window	NA
Elongation, ASTM412-C	>50%
Pull-off adhesion (Most substrates)	1-1.5 MPa min
Constant Service Temp	-60 to 210°C
Peak Service Temperature (Short Duration – Max 2 hrs)	250°C
Water vapour permeability	0.01 mg/mhPa
Reflectance	>83%
Application temp range	7-150°C
Shore A Hardness	>10-20

Please contact us for other properties.

#### PACKAGING

Standard 20L Pails. Other sizes may be available on request.

#### SYSTEM SPECIFICATION

Remove all grease, oil, dust and other contamination.

Steel – Clean to Sa2 to ISO8501-1 minimum

Concrete & Ceramic – Remove dust, oils, grease and other contaminants. Dampen the substrate before application.

Wood – Remove dust, resins and other contaminants from the surface.

Plastic & Plasterboard – Sand surface, dust and degrease as required.

#### Primer

Generally, a primer is only required for substrates above 60°C. The primer should be a watered down version of CTI. The amount of clean water to add depends on the temperature of the substrate. Generally, start with 50-90% CTI in water. Too lumpy means not enough water, bruising means too much water. Do trial patches to determine the correct mix.

For ambient substrate temps, just do a mist coat and allow to dry for 30min or more before applying the first full coat.

#### **Recommended Thickness**

Contact your distributor for the recommended thickness based on the insulation value required. Generally, 0.5mm DFT is used for basic house and shed insulation, and 1mm minimum for pipes and processing plant. The thicker the product the better the insulation properties.

#### **Number of Coats**

Apply the product in no more than 1.2mm WFT coats (1.0mm DFT).

#### **Top Coat**

Most common house paints, aliphatic urethanes, etc. can be painted over the CTI to give the required colour/impact resistance. If the product is to be used in an exposed environment, particularly where water ponding may occur, a waterproof topcoat is recommended.

#### **TYPICAL SERVICE LIFE**

Life expectancy for the CTI is >15years for most applications.

#### **MAINTENANCE**

Being a brushable coating, any minor touch-ups or maintenance is simple. Just clean the surface of dust, grease and oil and other contaminants and re-coat the affected area.

#### **APPLICATION GUIDELINES**

The coating is single pack 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 tips of various fan widths.

Remove any skinned product on the surface of the drum before mixing. Thoroughly mix the product using a jiffy mixer at no more than 300rpm.

Add up to 3% by volume water to improve consistency if the product has started to lose moisture and consistency. More may be added in hot, dry conditions to assist with sprayability and maintaining consistency in the hopper/pail.

If the product has been subjected to low temperatures it may freeze and hence for small cured pockets within the drum. If this is occurring and the tip is blocking regularly, we recommend straining it through a 30-60 mesh strainer prior to spraying. Generally, machine and gun filters should be removed. If the tip is still clogging, a 30 mesh machine filter should prevent further clogging.

Spray pressure should be maintained between 500-1200psi, 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 and Recoat Time**

Development of a full cure may take up to 7 days. Material maybe recoated after 24 hours at 20-25°C temperatures, less at higher temperature substrates.

#### **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 for handling. Storage at low temperatures (below 5°C) is not recommended. This material must be protected from frost.

Disclaimer: The above data, particularly the recommendations for the application and use of Charcoat Passive Fire Protection 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 to carry out sufficient tests in order to ensure that Charcoat Passive Fire Protection 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 (Charcoat Coatings) and thickness (Charcoat Firestop Products) of all Charcoat Passive Fire Protection products. Charcoat Passive Fire Protection is not liable for installation or faulty installation. It is always the responsibility of the installer / purchaser to guarantee and certify the installation of materials.