

### Product Description

Lockwell CHI-X is a next-generation water based, single pack, high temperature resistant insulating paint. It is designed to efficiently insulate the substrate to which it is applied, at up to 450°C constant substrate temperature. It is a high-solids, thin-film insulating coating that can be used internally or externally and is non-flammable. Lockwell CHI-X version uses a unique water based silicone binder. It is applied to a substrate between 7-40°C and then baked by putting the equipment back into operation (minimum of 250°C for 24 hrs). 2mm is the recommended minimum to reduce the surface temp to a level at which additional Lockwell CHI-X variants can then be applied as required for additional insulation levels or surface temperature reduction.

### Features

- Excellent thermal insulation
- Eliminates CUI, and enables easy corrosion inspection.
- Non-hazardous
- No toxic vapours
- Minimal odour
- Reduces energy consumption and touch hazards
- Withstands constant substrate temperatures up to 450°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 0.5mm thickness

### Application Area

- Defence
- Power Plants
- Refineries
- Fire trucks
- Food Processing Plants
- Pipe insulation
- Industrial and Manufacturing Facilities
- Hot surface touch Protection

### Typical Wet Properties

Material Property	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	~75%
Theoretical Coverage	0.5mm thick = 0.65L over 1m <sup>2</sup> .
Max thickness per coat	0.5mm DFT (0.65mm WFT)

### Technical/ Performance Data

Heat conductivity at 20°C	0.001-0.003 (W/mK)
Minimum Surface Temp for application	7°C
Skin Time (substrate and ambient temp dependent)	~45min @ 25°C & 50% RH
Recommended minimum recoat window (substrate and ambient temp dependent)	12 hours
Maximum Recoat Window	NA
Elongation, ASTM412-C	>30%
Pull-off adhesion (Most substrates)	1-1.5 MPa
Constant Service Temperature	-60 to 450°C
Peak Service Temperature (Short Duration – Max 2 hrs)	600°C
Water vapour permeability	0.001 mg/mhPa
Reflectance (ASTM E 903.12)	>84%
Solar reflective index (ASTM E 1980.11)	100%
Application temp range	7-40°C (special procedure for >90°C)
Shore A Hardness	>30

For other properties that may be of interest contact your distributor.

### Typical Wet Properties

#### COLOURS

Standard white. If colour is required, the cured coating can be overcoated with a regular acrylic or urethane top coat, or similar. 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.

#### PACKAGING

Standard 20L, 10L & 5L Pails. Other sizes may be available on request.

#### SYSTEM SPECIFICATION

##### Surface Preparation

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 recommended; a "mist coat" wherever possible. The primer should be a watered down version of Lockwell CHI-X. The amount of clean water to add depends on the temperature of the substrate. Generally, start with 50-90% Lockwell CHI-X 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 1-2mm for pipes and processing plant. The thicker the product the better the insulation properties. Use 1mm DFT = RSI-1 Insulation value.

**Number of Coats**

Apply the product in no more than 0.65mm WFT coats (0.5mm DFT).

**Top Coat**

Most common house paints, aliphatic urethanes, etc. can be painted over the C-Coat 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, or one of our other clear top-coats (contact us for more information).

**TYPICAL SERVICE LIFE**

Life expectancy for the Lockwell CHI-X 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 Guideline****Introduction**

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 17-27thou 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 form small cured pockets within the drum. If this is occurring and the tip is blocking regularly, we recommend straining it through a 30-

**Lockwell CHI-X****Thin film ceramic insulation coating (Xtreme)**

60mesh strainer prior to spraying. Generally, machine and gun filters should be removed.

If the tip is still clogging, a 30mesh 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 only occurs after baking at >250°C for >24hrs. To minimise overall cost, we recommend using 1-2mm thickness of Lockwell CHI-X to reduce the surface temperature to a level that can be withstood by other variants, which can be applied over the baked Lockwell CHI-X coating.

**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 10°C) is not recommended. This material must be protected from frost.

**Additional Information - Disclaimer**

The information provided herein, especially recommendations for the usage and the application of our products, is based upon our knowledge and experience. Due to different materials and equipment used, as well as varying working conditions and environments beyond our control we strictly recommend carrying out intensive trials to test the suitability of our products with regard to the required processes and applications. This data sheet is provided free of charge and we do not accept any liability with regard to the above information or with regard to any verbal recommendation, except for cases where we are liable of gross negligence or false intention.