



## Technical Data Sheet

### XP61-C

#### **PRODUCT DISCRIPTION:**

XP61-C is an advanced high emissivity, thin film, spray applied ceramic boiler coating that has been specifically formulated to provide external corrosion and abrasion resistance while increasing thermal efficiency. Efficiency is accomplished by increasing thermal transfer of the process tubing while also retarding tenacious slagging and scaling.

XP61-C is a high solids coating system that can be applied to a dry film thickness of 6 to 20 mils (300 to 500 microns) on both carbon and stainless steel tubes. The coating is non flammable and non reactive and has no VOC (Volatile Organic Compound) content.

XP61-C can be easily applied and bonds well to properly prepared metal substrates. Due to its (water soluble) organic composition, XP61-C is very stable and will neither outgas nor cause skin irritations like many other high temperature coatings.

Working properties of the coating exhibit an extended shelf life prior to exposure to air. Upon curing XP61-C becomes a durable ceramic coating that will provide protection of boiler furnace tubing and other steel substrates to 1800° F (982° C).

XP61-C is also used and recommended for over-coating (sealing) industrial thermal sprayed coatings. A .004 to .008 (100-200 micron) thickness of XP61-C will provide increased thermal protection while sealing porosity and enhancing thermal sprayed coating surface characteristics.

#### **PHYSICAL PROPERTIES**

Colors	Green
Finish	Sheen
Maximum service temperature	1800° F (982° C)
Bond Strength	2,860 psi
Tensile Strength	2,912 psi
Viscosity	10.27 cSt

Note: Physical properties were determined on specimens prepared under laboratory conditions using applicable ASTM procedures. Actual field conditions may vary and yield different results; therefore data is subject to reasonable deviation.

## CHARACTERISTICS

- Resistant to 1800° F (982° C)
- Resistant to severe cyclic conditions
- Corrosion/Erosion resistant
- Non insulating
- Reduces slagging
- Resist gases, oils, solvents and most acids
- Non-toxic
- Adheres to carbon steel, stainless steel, refractory and organic surfaces
- Good mechanical bonding
- High emissivity

## INDUSTRIES

- Power Plants
- Refineries
- Chemical Facilities
- Cement Plants
- Pulp and Paper
- Steel Processing
- Waste to Energy Plants

## USES

- Boiler water wall tubes
- Superheater and reheater tubes
- Nose arch and slope tubes
- Sootblower lanes and wall blowers
- Stacks
- Kilns
- High heat ducts and piping
- Radiant furnace tubing

## SPECIFICATION DATA:

Components	Single
Dry time between coats @ 50% R.H., 70° f	1 hour
Volume solids	86%
Theoretical coverage @ 1 mil. D.F.T.	600 sq.ft./gal.
Thinning liquid	None
Metal temperature during application	50° F – 150° F (10° C - 66° C)
Weight per gallon	14.2 lb
Storage temperature	33° - 100° F (0.5° - 38° C)
Shelf life	1 year
Cure conversion temperature begins at:	+ 400° F (204° C)

## **SURFACE PREPARATION**

Surfaces to be coated must be dry and free of all chlorides, weld splatter, oil, dirt, grease, liquor and all other contaminants. Thermal sprayed coatings must be clean and the surface must be free of corrosive elements. Newly applied thermal spray can be coated without additional surface preparation.

Before coating metal tubing or other substrates, round off all rough welds and sharp edges. Abrasive blast to achieve a NACE 1/ SSPC-SP5 (white blast) specification. Garnet or other hard sharp materials are recommended for abrasive blasting. A 3 mil (75 surface profile) is recommended.

## **APPLICATION INSTRUCTIONS**

Surface temperature must be a minimum of 5° F (3° C) above the dew point. Do not apply to steel temperatures below 50° F (10° C).

\*Do not exceed dry film thickness recommendations.

XP61-C is normally sprayed but if applied by brush mechanically mix container every 5 minutes during application to assure proper particle suspension.

**WARNING!** Do not thin XP61-C with any thinner as poor film characteristics may occur.

Application to hot surfaces (+200° F, 93° C) will promote dry spray and may cause blistering to occur. XP61-C normally dries by ambient air drying. If the temperature is below 70° F (93° C) and the humidity is high, slower drying may occur. Low temperature oven or induced heat drying may be used to accelerate drying time. Do not exceed 200° F (93°C) during accelerated drying.

XP61-C should be applied in minimum of three (3) coats of 2-3 mils per coat. Applications in erosive/corrosive environments require a minimum of 12 mils (300 microns) be applied. Each coat must completely dry for a minimum of one hour before the second coat is applied. If heat cure is used (to accelerate drying) assure that the temperature does not exceed 200° F (93° C)

If thicker coating is required allow each coat to completely dry for a minimum of one hour above 50 deg. F. (10°) before applying additional coats. Moderate heating can be applied between coats if required.

## **CURING REQUIREMENTS**

After application allow the coating to ambient air dry above 50 deg. f. or 10 deg. C for minimum 24 hours.

Cure for 90 minutes at 180 deg. F. to 200 deg. F. (82C to 93C)

Cure for 1 hour at 300 deg. F. to 350 deg. F. (149C to 177C)

Cure for 1 hour at 425 deg. F. to 460 deg. F. (218C to 238C)

XP61-C is formulated to be cured in a boiler or furnace during normal start up procedures. When curing the coating in a boiler it is recommended that the boiler be “low fired” for 1.5 to 2 hours before starting normal boiler start up procedures.

## **EQUIPMENT**

Conventional or airless spray is recommended. It is recommended that only experienced industrial coating applicators be used to apply the coating. It is important to adjust pressures and spray patterns as required to eliminate “runs, sags, or excessive thickness build up within the tube membranes.

## **MIXING**

Use mechanical agitation for mixing and during application. Mix the coating until smooth and uniform in consistency. NOTE: Continuous mixing is required during coating application to assure that proper particle suspension is maintained in the slurry.

While spraying, adjust agitator mixing speed to allow for proper material suspension without cavitation. It is recommended to filter or screen the material before application.

## **CLEAN-UP**

All equipment should be cleaned with water before the coating dries.

## **CAUTION**

Consult Material Safety Data Sheets and container label caution statements for any hazards in handling this material.