



# Technical Data Sheet

## REF-78

### **PRODUCT DISCRIPTION:**

REF-78 is an advanced energy saving high emissivity thin film spray applied ceramic coating specifically formulated to be applied to boiler tubes and refractory hot face surfaces to re-radiate heat. The efficiency is accomplished by increasing the re-radiated component of emissivity.

The coating is a high solids system which can be applied to a dry film thickness of .006 to .012 (150-300 micron). Containing no VOC (volatile organic compound) content, REF-78 creates a sprayed on thermal barrier coating that can be applied to refractory and metal substrates and is also used to insulate and rigidize ceramic fiber insulations.

Due to its organic composition REF-78 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 REF-78 becomes a durable ceramic coating that will provide radiant heat reflection and will withstand refractory service temperatures to 2200° F (1204° C).

### **PHYSICAL PROPERTIES**

Color	Grey
Finish	smooth
Maximum service temperature	2,200° F (1204° C)
Emissivity	0.92 at 1000° F (538° C)
Bond Strength	2,250 psi
Tensile Strength	2,410 psi

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 severe cyclic conditions
- Corrosion/Erosion resistant
- Thermal barrier
- Extends the life of refractory
- Prevent refractory particle dusting
- Resist gases, oils, solvents and most acids
- Non-toxic and odorless
- Adheres to carbon steel, refractory and organic surfaces
- Good mechanical bonding
- High emissivity

## INDUSTRIES

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

## USES

- Stacks
- Kilns and rotary kilns
- High heat ducts and piping
- Burners
- Furnace refractory lining
- Incinerators
- Fired heaters
- Fiber ridgidizer
- Gas fired boilers

## SPECIFICATION DATA

Components	Double
Dry time between coats @ 50% R.H., 70° f	1 hour
Volume solids	96%
Theoretical coverage @ 1 mil. D.F.T.	600 sq.ft./gal.
Thinning liquid	NA
Surface temperature during application	50° F – 200° F
Weight per gallon	14.2 lb.
Storage temperature	33° - 100° F (0.5° - 38° C)
Shelf life (before mixing)	1 year

## **SURFACE PREPARATION**

Surfaces to be coated must be dry and free of all chlorides, weld splatter, oil, dirt, grease, liquor and all other contaminants. Round off all rough welds and sharp edges. Clean refractory to ensure a solid surface will be coated.

Do not apply to “green” refractory. Refractory must be cured before applying REF-78

## **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.

**WARNING!** Do not thin REF-78 as poor film characteristics may occur.

Application to hot surfaces (+200° F, 93° C) tends to promote dry spray and may cause blistering to occur. REF-78 normally dries by ambient air drying. If the temperature is below 70° F (93° C) and the humidity is high slower drying will occur. Low temperature oven or heat drying may be used to accelerate the drying time. Do not exceed 200° F (93° C) during first two hours of accelerated drying.

REF-78 should be applied in minimum of two coats of 1.5 to 2 mils per coat. Each coat must dry to the touch before additional coats are 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 before subsequent coats are applied. Moderate heating can be applied between coats if required.

## **EQUIPMENT**

Conventional or airless spray is recommended. Adjust pressure as needed. Hold gun 10” to 12” from the surface at right angles. Lap each pass 50%.

## **MIXING**

Use mechanical agitation for pre-mixing and also during application. A disperser mixer capable of achieving 3,000 rpm and fitted with a 4” blade is recommended for proper mixing. All components should be mixed until smooth and uniform in consistency.

During application a standard paint (air or electric) agitator mixing system can be used. During application, adjust the mixing speed to allow for material suspension without cavitation.

It is recommended to screen the material after mixing and before application.

## **CURING**

Let set to dry for at least 24 hours after application is complete.

Cure 2 hrs at 180f. to 200f.

Cure 2 hours at 350f. to 400f.

Cure 1 hour at 400f. to 500f.

## **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.

