

Health & Safety Information

CFX COLD FRONT – Chemical Heat Sink Compound

This material is a complex Magnesium Aluminium Silicate, which functions as a hydrophilic colloid. It is refined from naturally occurring U.S. minerals and compounded with water to produce a viscous gel. This dispersion is slightly alkaline.

Cold Front is used primarily as a heat barrier or heat sink material.

The following data is all of the current information available:

| | |
|------------------------------|---------------------------------|
| Specific Heat | N/A |
| Density | 66lbs/cubic ft. |
| Thermal Conductivity | 33(est.) BTU/hr/sq.ft/deg. F/ft |
| Heat Capacity | 98(est.) BTU/lb/deg. F |
| Maximum Operating Temp | 800°F |
| Toxicity | None |
| Flammability | None |
| Health Hazard | None to skin or breathing |
| Reactivity | None |
| <u>Special Precautions</u> – | None |

CFX contains no lead, mercury, cadmium or low melting point alloys

Calculation of Thermal Diffusivity (Alpha)

A local university assisted in the calculation of the thermal diffusivity (Alpha) using the following data; -

A nine lb. Mass of CFX was placed in a one gallon can (6½ dia x 7” high) was inserted into a preheated oven at 400°F. Ambient temperature was 72°F. A thermocouple was imbedded in the centre of the mass.

The temperature after 45 minutes was 90°F and rose 15 degrees F every 10 minutes. Final reading was 142°F at two hours. We believe that if the starting temperature was reduced to, say 50°F, a smaller amount of CFX would be required to accomplish the same result.

Given the above information, the chemical engineering department has assisted in computing an estimated alpha - or thermal diffusivity – by using graphical procedures and tables for this basic type of material:

$$\text{Thermal Diffusivity (Alpha)} = \frac{K (\text{Thermal Conductivity})}{\text{Density} \times (c) \text{ Heat Capacity}}$$

Where: K = 0.33 BTU/hr/sq.ft/degree F/ft (est.)
 Density = 66lbs/cu.ft
 C = 0.98 BTU/lb/degree F (est.)

$$\text{Alpha} = \frac{0.33}{66 \times 0.98} = 0.005$$

