

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:

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

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

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

