



Designed to Take the Heat

Rath Incorporated Microcal Boards *Contain No Asbestos*

Calcium Silicate Materials

MICROCAL is a new generation of asbestos-free, partially microporous calcium silicate boards for back-up insulation in a wide variety of industries. It is reinforced with special organic fibers in order to increase mechanical strength and machinability. Due to its properties, it can replace ceramic fiber refractories and high density calcium silicate materials.

MICROCAL is a lightweight material with very low thermal conductivity and low heat capacity. It contains **microporous and radiation-absorbing** fillers to form a new generation of insulation boards with the optimum combination of best insulation and compressive strength. This allows a better temperature control, lower heat loss, and lower cold face temperatures.

MICROCAL is easy to machine with regular woodworking tools (or SiC, diamond tipped).

Advantages

- ▲ Low thermal conductivity
- ▲ Excellent resistance against reduction
- ▲ Easy to machine (drill, cut, bevel, screw)
- ▲ Temperature stability
- ▲ Low heat storage
- ▲ High compressive strength
- ▲ No spalling
- ▲ Free of inorganic fibers
- ▲ Replacement for fibrous materials
- ▲ Fired (organic free) upon request

Typical Applications

- ▲ Back-up insulation in
 - Tunnel and shuttle kilns (ceramic industry)
 - Kiln cars (ceramic industry)
 - Heat exchangers
 - Cyclone systems (cement plants)
 - Smelters (molten metal industry)
- ▲ Laboratory equipment
- ▲ Appliance industry
- ▲ Dryers
- ▲ HIP
- ▲ Presses for plastic industry
- ▲ Exhaust pipes
- ▲ Steel industry

Upon request, MICROCAL can be fired and delivered organic free. Special sizes, board cuts, and CNC machined parts are manufactured upon request.



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Rath Microcal Boards		
	Unit	Microcal 1100
Classification Temperature	°C (°F)	1100 (2012)
Organic Content	%	3 - 4
Bulk Density (DIN 53420)	kg/m ³ (lb/ft ³)	250 (15)
Cold Compressive Strength at 5% compression (ASTM-C 165)	MPa (lb/in ²)	1.5 (219)
Cold Compressive Strength after firing 12 h @ 100°C below Classification Temperature	MPa (lb/in ²)	1.0 (146)
Hot Compressive Strength after firing 12 h @ 100°C below Classification Temperature	MPa (lb/in ²)	1.0 (146)
Specific Heat Capacity	J/g•°C (BTU/lb•°F)	0.92 (0.22)
Thermal Linear Change (ASTM / ISO) after firing 24 hours @ 50°C below Classification Temperature	%	-1.8
Coefficient of Thermal Expansion	1/°K (1/°F)	3 x 10 ⁻⁶ (1.67 x 10 ⁻⁶)
pH		10
Chemical Analysis	% CaO % SiO ₂ % Fe ₂ O ₃	44 46 0.2
Thermal Conductivity (DIN 52612; hot plate method) [W/m•K (* = BTU•in/ft ² h•°F)]		
@ 100°C	W/m•K (*)	0.065 (0.45)
@ 200°C	W/m•K (*)	0.070 (0.49)
@ 300°C	W/m•K (*)	0.075 (0.52)
@ 400°C	W/m•K (*)	0.085 (0.59)
@ 500°C	W/m•K (*)	0.095 (0.66)
@ 600°C	W/m•K (*)	0.100 (0.69)
@ 700°C	W/m•K (*)	0.105 (0.73)
@ 800°C	W/m•K (*)	0.110 (0.76)
Standard Size	mm (inch)	1250 x 500 (49.21 x 19.69)
Special Sizes up to	mm (inch)	1250 x 3000 (49.21 x 118.1)
Standard Thickness	mm (inch)	25, 40, 50 (1, ~1.5, 2)