

Alfibond® Products



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SDS Code US: RP220, RP250

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Features

- No organic binders
- 29 lb/ft³ (465 kg/m³) density
- Non wetting to aluminum
- Complex shape capability
- Low thermal conductivity and heat storage
- High resistance to thermal shock and molten aluminum attack
- Advanced vacuum forming technology produces unique insulating products

Product Description

Alfibond is a colloidal alumina post-treatment of our inorganic vacuum formed products. Our proprietary formulation increases the strength at the surface of the product. The combination of a hard outer shell and fibrous inner core results in high thermal shock resistance and high-velocity wear resistance. This material is an excellent choice for applications that have direct flame impingement or rapid thermal cycling.

Alfibond is completely non-wetting to molten aluminum and therefore makes a great choice for a variety of aluminum manufacturing applications such as floats, troughs, funnels and headers.

Alfibond 2100 is a versatile and economical insulation made from kaolin-based alumina-silica fibers.

Alfibond 2300 is a versatile formulation made from high purity alumina-silica fibers.

Alfibond 2100-H (Special) Die Casting Funnels are custom designed to enhance shot sleeve fill system applications. This unique combination of proprietary inorganic vacuum formed shapes with two proprietary chemical and erosion resistant treatments increase performance beyond traditional fill funnels available to the die casting industry. Alfibond 2100-H is a fibrous insulating material designed to inhibit crack propagation better than traditional fused-silica components.

Applications

- Burner Blocks
- Reaction Chambers
- High Velocity Ducts
- Foundry Ladles, troughs and headers
- Nozzle Tips
- Furnace Zone Partitions
- Floats and Stoppers
- Die cast funnels

Alfibond[®] Products


	Alfibond 2100	Alfibond 2300	Alfibond 2800	Alfibond A5
Physical Properties				
Color	white	white	white	white
Density, pcf (kg/m ³)	29 (464)	29 (464)	28 (448)	26 (416)
Continuous use limit, °F (°C)	1900 (1037)	2000 (1093)	2800 (1538)	2800 (1538)
Melting point, °F (°C)	3200 (1760)	3200 (1760)	3200 (1760)	3200 (1760)
Modulus of rupture after 24 hrs isothermal soak, Psi (Mpa)	250 – 300 (1.72 - 2.06)	275 – 325 (1.90 - 2.24)	275 – 325 (1.90 - 2.24)	250 – 280 (1.72 - 1.93)
Compressive strength after 24 hrs isothermal soak				
deformation 5%, psi (Mpa)	24 (0.16)	24 (0.16)	18 (0.12)	18 (0.12)
deformation 10%, psi (Mpa)	32 (0.22)	32 (0.22)	24 (0.16)	24 (0.16)
Permanent linear shrinkage, % after 24 hrs isothermal soak				
@ 1600°F (871°C)	1.5	0.9	–	0.1
@ 1800°F (982°C)	2.6	2.1	0.2	0.1
@ 2000°F (1093°C)	4.6	3.3	0.3	0.3
@ 2200°F (1204°C)	6.4	4.5	1.1	0.8
@ 2400°F (1316°C)	–	5.0	1.6	0.9
@ 2600°F (1427°C)	–	–	1.7	1.0
@ 2800°F (1538°C)	–	–	1.6	0.5
Coefficient of thermal expansion, in/in/°F	2.8	2.8	2.8	2.8
Specific heat, BTU/lb•°F (J/kg•K)	0.27 (1130)	0.27 (1130)	0.27 (1130)	0.27 (1130)
Chemical Analysis, %				
Alumina, Al ₂ O ₃	50	52	62	70
Silica, SiO ₂	49	48	38	30
Other	1	<1	<1	<1
Organic Material	none	none	none	none
Loss of Ignition, LOI	6 - 9	6 - 9	6 - 9	6 - 9
Thermal Conductivity, BTU•in/hr•ft²•°F (W/m•k) (ASTM C 201)				
Mean temperature @ 1000°F (538°C)	0.86 (0.12)	0.86 (0.12)	0.72 (0.10)	0.72 (0.10)
@ 1500°F (815°C)	1.23 (0.18)	1.23 (0.18)	1.01 (0.14)	1.01 (0.14)
@ 2000°F (1093°C)	1.77 (0.25)	1.77 (0.25)	1.44 (0.20)	1.44 (0.20)

Chemical Properties

Alfibond products listed above are chemically stable and withstand most corrosive environments. However, exposure to concentrated alkalis, Fe₂O₃, PbO, V₂O₅, as well as hydrofluoric, hydrochloric, and phosphoric acids will reduce their continuous use temperatures.

The values given herein are typical average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Therefore, the data contained herein should not be used for specification purposes. Check with your Morgan Thermal Ceramics office to obtain current information.