Pyro-Bloc® Cerafiber® and Cerachem® Modules

Product Data Sheet

Product Description

Pyro-Bloc Modules feature exceptional thermal and physical properties. With classification temperatures of 1260°C (2300°F) and 1430°C (2600°F), Pyro-Bloc Modules feature excellent performance in high erosion applications and are manufactured using Morgan's market leading Cera® fibres that are a blend of high purity ceramic fibres and raw materials.

Pyro-Bloc Modules come standard with a Y-Anchor or M-Anchor system for an easy installation and affixing to furnace, boiler or kiln linings. Pyro-Bloc Modules exhibit outstanding insulating properties at elevated temperatures and have excellent thermal stability and retain their original soft fibrous structure up to its maximum continuous use temperature. Additionally, Pyro-Bloc Modules monolithic structure permits maximum module-module compression and easily conforms to irregular steel shell surfaces during installation.

Please review the best internal anchoring hardware options with your regional Morgan Advanced Materials Sales Representative and Applications Engineering team. Additionally, we recommend following the Pyro-Bloc Design and Installation Guidelines for either Y-Anchor or M-Anchor hardware.

Features

- Excellent thermal stability results in reliable and consistent thermal insulating performances
- Immune to thermal shock
- Binder or lubricant free
- Thermal stability
- Low heat storage
- High erosion resistance no damage up to 50 m/sec tested at 1260°C (2300°F) and 1430°C (2600°F)
- Excellent resistance to chemicals and pollutants, especially alkali metals
- Excellent tensile strength
- Good sound absorption

Applications

- Power generation especially HRSG stack and duct insulation
- Petrochemical and Refinery applications:
  - Ethylene Cracking Furnaces
  - Ammonia, Hydrogen and Methanol Reformers
  - Delayed Cokers and Refinery Heaters
  - Flare Stacks
- Industrial Furnace, Boiler and Heater linings
  - Iron & Steel
  - Ceramics

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Properties	Pyro-Bloc Modules Cerafiber / R Grade	Pyro-Bloc Modules Cerachem / ZR Grade
Colour	White	White
Classification Temperature, °C (°F), EN 1094-1 (2008)	1260 (2300)	1430 (2600)
Continuous Use Temperature, °C (°F)	1205 (2200)	1345 (2450)
Density, kg/m³ (pcf), EN 1094-1 (2008)	160, 192, 240 (10, 12, 15)	160, 192, 240 (10, 12, 15)
Specific heat capacity, kJ/kg•K, 1000°C (1832°F)	1.13 (0.27)	1.13 (0.27)
Loss of Ignition, LOI, %, EN 1094-1 (2008)		
2 hrs @ 800°C (1472°F)	<1	<1
Linear Shrinkage, %, after 24 hours, EN 1094-1 (2008)		
1000°C (1832°F)	1.6	0.6
1100°C (2012°F)	2.3	1
1200°C (2200°F)	3	1.6
1300°C (2372°F)	-	3.2
1400°C (2552°F)	-	3
Chemical Analysis, %		
Alumina, Al_2O_3	42-48	33-37
Silica, SiO_2	52-58	48-52
Zirconia, ZrO_2	-	13-17
Other	trace	trace

	Pyro-Bloc Modules Cerafiber / R Grade			Pyro-Bloc Modules Cerachem / ZR Grade		
Thermal Conductivity, W/m•K, ASTM C201						
Density, kg/m^3 (pcf)	160 (10)	192 (12)	240 (15)	160 (10)	192 (12)	240 (15)
200°C	0.06	0.06	0.06	0.07	0.07	0.06
400°C	0.11	0.1	0.1	0.11	0.1	0.1
600°C	0.17	0.15	0.15	0.14	0.15	0.13
800°C	0.26	0.22	0.19	0.24	0.22	0.18
1000°C	0.36	0.31	0.25	0.33	0.3	0.23
1200°C	0.49	0.41	0.34	0.44	0.41	0.3
Thermal Conductivity, BTU•in/hr•ft^2•°F, ASTM C201						
500°F	0.51	0.49	0.51	0.54	0.54	0.50
1000°F	1.04	0.92	0.88	0.95	0.92	0.83
1500°F	1.84	1.58	1.38	1.65	1.55	1.27
1832°F	2.50	2.15	1.73	2.29	2.08	1.60
2000°F	2.91	2.45	2.03	2.62	2.43	1.82
2200°F	3.41	2.87	2.33	3.09	2.85	2.07

Product Availability

Pyro-Bloc Modules are manufactured and available globally, but packaging, density and thickness availability will vary by region. Please contact your regional Morgan Advanced Materials - Thermal Ceramics representative to support providing specific packaging availability for your local business needs.

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