Ultralite Insulating Firebricks (UIFB) -
Technical Data Sheet

In response to increasing market demands for ultra-lightweight and highly insulating refractory products – and following extensive research and development – Mantec Refractories, a division of Mantec Technical Ceramics Ltd, presents its **Ultralite Insulating Firebricks (UIFB)** as the latest addition to the Ultralite family of insulation products.

Manufactured using a combination of Mantec's advanced microporous refractory technology and its unique **patent pending** engineering expertise, Ultralite insulating firebricks are now probably the **LIGHTEST FIREBRICKS**, for their classification, in the world today and have been specifically engineered to deliver even greater energy savings for customers compared to other leading comparable products.

Not only are Ultralite Insulating Firebricks almost **HALF THE WEIGHT** and **HALF THE DENSITY** of comparable products on the market – confirmed by recent independent testing – but they also offer superior thermal insulation and mechanical properties.

Mantec offers a standard insulating firebrick **UIFB-26** as well as an alternative higher strength version **UIFB-26HS,** both of which meet the requirements of ASTM C155 for group 26 applications requiring a temperature rating of 1400°C / 2552°F.

Both strength variants of Ultralite Insulating Firebricks - **UIFB-26** (standard) & **UIFB-26HS** (high strength) - are available in 2 standard sizes:

230mm x 114mm x 64mm / 9" x 4 ½" x 2 ½"
230mm x 114mm x 76mm / 9" x 4 ½" x 3"

Applications for Ultralite Insulating Firebricks:

The main application for Ultralite Insulating Firebricks is as a primary hot face refractory lining in kilns and furnaces or in other areas requiring high temperature insulation. They can also be used as secondary back-up insulation behind other hot face linings.

The main industrial sectors where Ultralite Insulating Firebricks would make an impact are traditional ceramics, refractories, iron & steel, petrochemical, aluminium and glass production.

Advantages of Ultralite Insulating Firebricks:

- Probably the lightest insulating firebrick on the market today within its classification
- Almost half the weight and half the density of other industry standard Group 26 insulating firebricks
- Lower thermal mass - considerable overall weight savings possible inside a kiln or furnace
- Lower thermal conductivity, lower heat storage - superior all-round thermal performance
- Higher strength
- High Mullite composition - stable against chemical attack, suitable resistance in reducing atmospheres
- Thinner wall constructions are possible for the same energy efficiency of other products
- Patent pending technology
- Ease of handling due to their lightness

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Main Properties		Units	UIFB-26	UIFB-26HS
Classification Temperature		°C (°F)	1400 (2552)	1400 (2552)
Determination of Refractoriness ASTM C24-09 (13)		PCE Value (°C / °F)	>36 (>1804°C / 3279°F)	>36 (>1804°C / 3279°F)
Density (ASTM C134-84)		Kg/m³ (lb/ft³)	500 (31.21)	640 (39.95)
Modulus of Rupture (ASTM C93-84)		MPa (psi)	1.3 (189)	2.8 (406)
Cold Crushing Strength (BS EN 1094-5)		MPa (psi)	1.5 (218)	2.9 (421)
Permanent Linear Change (BS EN 1094-6) after 12 hours at 1400°C (2552°F)		%	+ 0.06	+ 0.06
Reversible Linear Thermal Expansion (BS1902: Section 5.14/1:1992)		Maximum %	+ 0.7	+ 0.7
Refractoriness Under Load at 0.05 MPa / 7 psi (BS EN ISO 1893:2008)	0.5%	°C (°F)	1434 (2613)	1454 (2649)
	1.0%	°C (°F)	1468 (2674)	1488 (2710)
Thermal Conductivity (ASTM C201/182)	200°C (392°F)	W/m K (BTU in/hr ft² °F)	0.185 (1.28)	0.225 (1.56)
	400°C (752°F)	W/m K (BTU in/hr ft² °F)	0.200 (1.39)	0.240 (1.67)
	800°C (1472°F)	W/m K (BTU in/hr ft² °F)	0.235 (1.63)	0.265 (1.84)
	1000°C (1832°F)	W/m K (BTU in/hr ft² °F)	0.255 (1.77)	0.275 (1.91)
	1200°C (2192°F)	W/m K (BTU in/hr ft² °F)	0.273 (1.89)	0.285 (1.98)
Specific Heat Capacity at 1000°C (1832°F)		kj/kg K	1.21	1.21
Determination of Resistance to Carbon Monoxide (BS EN ISO 12676:2003) after 200 hours at 500°C (932°F)			Classification 1	Classification 1
Chemical Composition	Al_2O_3	%	67.65	67.65
	SiO_2	%	28.91	28.91
	Fe_2O_3	%	0.44	0.44
	TiO_2	%	0.65	0.65
	CaO	%	0.18	0.18
	MgO	%	0.26	0.26
	Na_2O	%	0.55	0.55
	K_2O	%	0.93	0.93
	Alkalis	%	< 2	< 2
Mullite Composition		%	75.4	75.4

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