

Isofrax® 1260C Fiber

Introduction

Isofrax® Thermal Insulation from Unifrax is a revolutionary new fiber that utilizes a unique, patented silica-magnesia chemistry to solve a variety of demanding, high-temperature application problems. Isofrax 1260C Fiber is the product of a long-term research and development effort by Unifrax to produce a fiber which has the high-temperature performance characteristics required in many applications at temperatures up to 1260°C/2300°F and also meets European and German regulatory requirements. Isofrax 1260C Fibers provide:

- High-temperature stability
- Low thermal conductivity
- Low heat storage
- Thermal shock resistance
- Low weight

Isofrax 1260C Fiber exhibits excellent chemical stability and resistance to attack from most corrosive agents. Exceptions include hydrofluoric acid, phosphoric acid and strong alkalis. Isofrax 1260C Fiber also provides superior wetting resistance to molten aluminum alloys at high temperatures.

Product Forms

Isofrax 1260C Fiber is available in several product forms. The standard Isofrax 1260C Fiber can be utilized in high-temperature applications that require a longer fiber which provides additional strength to the finished product. Standard Isofrax 1260C Fiber provides several advantages to the vacuum former, including reduced forming times, lower product densities, and improved drying times due to the lower weight of the finished product.

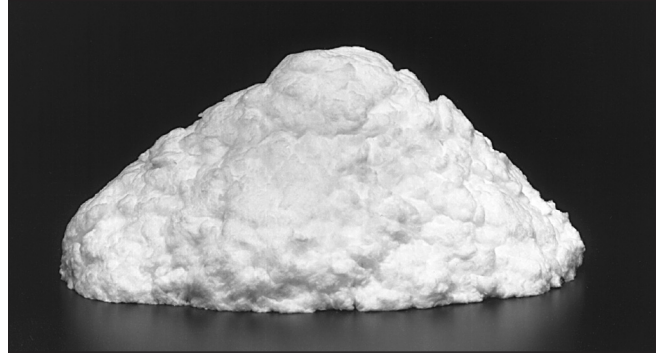
Isofrax 1260C Chopped Fiber was engineered to provide the vacuum former with a material which allows formation of complex shapes, a smooth surface finish and improved product details. These two grades of fiber have been developed to provide vacuum formers with an appropriate fiber for a wide range of finished product forms.

Isofrax 1260C LD Fiber is specifically designed for the most demanding vacuum forming applications. This lower diameter material can be used to increase density and improve thermal conductivity of vacuum cast shapes.

Isofrax High Index Fiber is a material which has a reduced amount of shot or unfiberized material. This high index fiber can be a good reinforcement material for automotive brake linings or can be used as a mechanical thixotrope in fire-resistant coatings.

Applications

Isofrax 1260C Fiber is currently used in the manufacture of many high-temperature product forms such as felts, boards, papers, and vacuum cast shapes. This product can also be used as a high-temperature fill or packing material in a



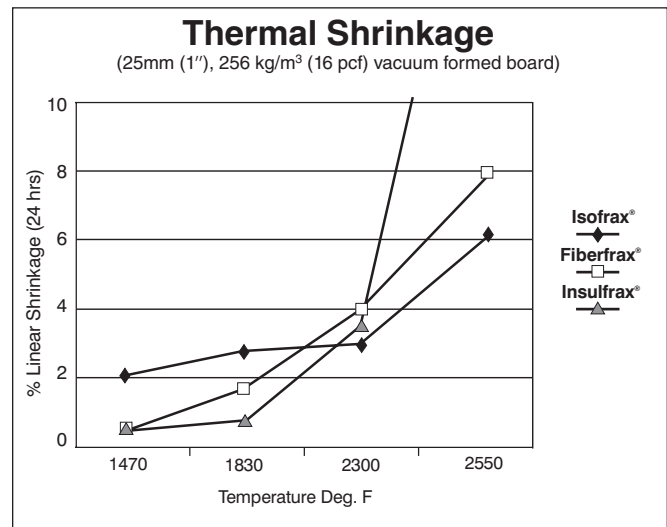
variety of applications, such as refractory expansion joints, furnace base seals, tube seals, and for packaging around burner tiles. Additional applications for Isofrax 1260C Fiber include:

- Reinforcement or fillers in friction materials and composites
- Thixotropic agents in coatings and adhesives

Typical Product Properties

Color	Bluish White
Melting Point	>1500°C (2730°F)
Temperature Grade	1260°C (2300°F)
Recommended Operating Temperature ¹	1260°C (2300°F)
Specific Gravity	2.37 g/cm ³

Isofrax 1260C Fiber has a temperature rating of 1260°C, but can withstand short-term temperature excursions above 1260°C with moderate shrinkage. It is this safety margin which allows Isofrax to be used in many demanding applications. The following graph illustrates the shrinkage characteristics of vacuum formed boards using Isofrax 1260C Fiber and other high-temperature fibers:



Refer to the product Material Safety Data Sheet (MSDS) for recommended work practices and other product safety information.

Typical Product Parameters

Isofrax 1260C Fiber is produced on Unifrax's SEF furnaces, which utilize a proprietary mechanical spinning process and the latest process control technology. This state-of-the-art manufacturing technology results in the following typical product parameters for Isofrax 1260C Fiber:

Parameter	Isofrax 1260C Fiber	Isofrax 1260C LD Fiber	Isofrax 1260C High Index Fiber
Chemical Analysis (%)	SiO ₂ – 70 to 80 MgO – 18 to 27 Trace Elements – 0 to 4	SiO ₂ – 70 to 80 MgO – 18 to 27 Trace Elements – 0 to 4	SiO ₂ – 70 to 80 MgO – 18 to 27 Trace Elements – 0 to 4
Average Fiber Diameter (microns)	4.0 to 5.0	2.0 to 3.0	2.0 to 3.0
Fiber Index (%) ²	40 to 50	40 to 50	70 to 95+
Packaging	40 lb. bags	40 lb. bags	25 lb. bags

Data are average results of tests conducted under standard procedures and are subject to variation. Results should not be used for specification purposes. For additional information about product performance or to identify the recommended product for your application, please contact the Unifrax Application Engineering Group at 716-278-3888.



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Insulating Value

The following table summarizes the insulating characteristics of Isofrax 1260C Fiber (note that this analysis is based on 256 kg/m³ (16 pcf) vacuum formed board produced with Isofrax 1260C Fiber):

Insulation Thickness	25mm (1")	51mm (2")	102mm (4")	203mm (8")
Hot Face	Cold Face (°C/°F)	(°C/°F)	(°C/°F)	(°C/°F)
650°C (1202°F)	(150/301)	(103/218)	(71/161)	(52/126)
870°C (1598°F)	(205/401)	(142/287)	(98/207)	(68/154)
1100°C (2012°F)	(267/511)	(187/368)	(128/262)	(87/189)

All heat flow calculations are based on a surface emissivity factor of 0.90, an ambient temperature of 80°F (27°C) and 0 mph (km/h) wind velocity, unless otherwise stated.

Health and Safety Information

Isofrax Thermal Insulation from Unifrax, according to Directive 97/69/EC, possesses a fiber chemistry within the regulatory definition of a "man-made vitreous (silicate) fiber with random orientation with alkaline oxide and alkaline earth oxide content greater than 18% by weight." Isofrax fibers have been tested pursuant to EU protocol ECB/TM/26, Revision 7, Nota Q, Directive 97/69/EC, with results that are below regulatory thresholds. As a result, Isofrax Thermal Insulation does not require additional labeling, further testing or special handling practices. In addition, Intratracheal Instillation Biopersistence Testing per the German Hazardous Substance Ordinance has been

conducted on Isofrax fibers with results that are below German regulatory thresholds. Refer to the product Material Safety Data Sheet (MSDS) for recommended work practices and other product safety information.

Notes:

- (1) The recommended operating temperature of Isofrax 1260C Fiber is determined by irreversible linear change criteria, not melting point.
- (2) Fiber Index is measured using the conical elutriation method.

