

Unifrax Isofoam™/Foamfrax™ Insulation is a monolithic insulation system developed by Unifrax Corporation. Isofoam/Foamfrax Insulation is a three-component system of specially conditioned bulk soluble or ceramic fibres, binder, and foaming agent.

The Isofoam/Foamfrax installation process combines the bulk fibre material with the binders in a patented mixing mechanism. Within the mixing chamber, the fibres and binders are combined to create a homogeneous foam/fibre mixture. The Isofoam/ Foamfrax installation machinery propels this mixture through a feed hose and nozzle, and the material is then gunned onto the target surface. The proprietary Isofoam/ Foamfrax binder system and patented installation method completely encapsulate the fibres with the foaming binder, significantly reducing airborne fibre levels during installation. Isofoam/Foamfrax Insulation is available in three fibre grades :

- Isofoam™ Fibre,
- Foamfrax™ Grade I Fibre,
- Foamfrax™ Grade II Fibre.

Isofoam/Foamfrax Insulation is easily installed at the job site by trained contractors using the special Isofoam/ Foamfrax installation machinery. The interlocking network of fibres provides a strong, uniform monolithic structure having excellent thermal insulating properties, very low heat storage, and excellent resistance to thermal shock. Isofoam/Foamfrax Insulation is unaffected by most chemicals except hydrofluoric acid, phosphoric acid, and concentrated alkalis.

Isofoam/Foamfrax Insulation is used to insulate metal, refractory (LOR) or ceramic fibre (FOF) surfaces at temperatures up to 1300°C. It can be installed at rates in excess of 2.5 m³/hour and is used in a wide range of furnace lining and other insulating applications. A principal application of Isofoam/Foamfrax Insulation is to upgrade the efficiency of partially deteriorated furnace linings. The rapid application of a few centimetres of Isofoam/ Foamfrax Insulation onto the existing hot face surface extends the furnace lining life and improves furnace efficiency. Isofoam/Foamfrax Insulation can also be installed as a full-thickness system by using stainless steel anchors which are embedded within the Isofoam/ Foamfrax Insulation to retain the furnace lining.

GENERAL CHARACTERISTICS

Isofoam/Foamfrax Insulation has the following outstanding characteristics:

- Speed and ease of installation
- Low rebound during installation
- Low thermal conductivity
- Low thermal shrinkage
- Low heat storage
- Excellent thermal shock resistance
- Good chemical resistance
- Good sound absorption



Isofoam/Foamfrax Installation



Isofoam/Foamfrax Equipment

TYPICAL APPLICATIONS

- Furnace linings (reformers, boilers, kilns, heat treatment furnaces, etc.)
- Vessel Linings:
 - Incinerators, Flues, Ducts and Stacks
- Furnace refractory upgrades
 - Lining over Refractory (LOR)
 - Fibre over Fibre (FOF)
- Low mass kiln car decks
- Ladle preheat stands
- Backup for high-density gunned refractories
- Boiler tube wall insulation
- Furnace lining maintenance (gunning gaps, cracks and voids)

Any new and/or special use of these products, whether or not in an application listed in this datasheet, must be submitted to our technical department for their prior written approval.

Information contained in this publication is for illustrative purposes only and is not intended to create any contractual obligation.

The Isofoam/Foamfrax Technology is protected under the following U.S. Patents: 4,978,252, 5,131,590 and 4,768,710

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TYPICAL PRODUCT PARAMETERS

	Isofoam Fibre	Foamfrax Grade I Fibre	Foamfrax Grade II Fibre
Colour (Fired)	Bluish-White	White	White
Melting Point	1500° C	1760° C	1760° C
Maximum Operating Temp. Limit (1)	1260° C	1175° C	1300° C
Installed Wet Density	256 kg/m ³	256 kg/m ³	256 kg/m ³
Installed Fired Density	128 kg/m ³	128 kg/m ³	128 kg/m ³
Loss On Ignition (LOI)	0.75%	0.75%	0.75%
Moisture (At Installation)	50%	50%	50%
Shrinkage (24 hrs. at Operating Temp.)	< 3%	< 3%	< 3%

(1) Dependent upon operating conditions.

The maximum operating temperature limit is determined by irreversible linear change criteria, not melting point.

TYPICAL CHEMICAL ANALYSIS

	Isofoam Fibre	Foamfrax Grade I Fibre	Foamfrax Grade II Fibre
MgO	19-24%		
Al ₂ O ₃		42-50%	29-31%
SiO ₂	74-79%	50-58%	53-55%
ZrO ₂			15-17%
Trace Elements	0-4%		
Average Fibre Diameter (microns)	1.8-2.8	1.5-2.5	1-2

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 your nearest Unifrax Engineering Department.

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Handling Information

A Material Safety Data Sheet has been issued describing the health, safety and environmental properties of this product, identifying the potential hazards and giving advice on handling precautions and emergency procedures. This must be consulted and fully understood before handling, storage or use.



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Further information and advice on specific details of the products described should be obtained in writing from a Unifrax Corporation company (Unifrax Benelux, Unifrax España, Unifrax France, Unifrax GmbH, Unifrax Italia, Unifrax Limited).

Unifrax maintains a continuous programme of product development and reserves the right to change product specifications without prior notice. Therefore, it remains at all times the responsibility of the customer to ensure that Unifrax materials are suitable for the particular purpose intended.

Similarly, insofar as materials not manufactured nor supplied by Unifrax are used in conjunction with or instead of Unifrax materials, the customer should ensure that all technical data and other information relating to such materials has been obtained from the manufacturer or supplier. Unifrax accepts no liability arising from the use of such materials.

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