

# isoplan®

## Innovative, environmentally friendly insulation materials.

### Material profile

Special high-performance biodegradable, mineral and ceramic fibres are the basic material used to manufacture isoplan® products. When combined with appropriate fillers and binders, the result is high continuous temperature resistance which leads to low heat conductivity and very good insulation properties.

The organic binding agents escape in the temperature range between 300° C and 400° C and a sintering process takes place (isoplan® 750/1000 at about 600° C, isoplan® 1100 at about 750° C), which guarantees long-term material strength in high-temperature applications. The discolouration of the material associated with this disappears again at higher temperatures. It is advisable to enclose the material when it is being used for insulation applications in unsupported or vibrating systems.

### Application areas

The very high application temperature limits and the low heat conductivity properties determine the application areas for isoplan® as an insulation material and flat gaskets. The following list includes a number of typical examples of the many possible uses:

- Steel industry
- Foundries
- Industrial furnace and boiler manufacturing
- Hearth flaps, fireproof doors
- Heating and drying equipment
- Machine and equipment manufacturing
- Electrical equipment
- Glass industry

### Good for people and the environment

Frenzelit has obtained certification that the company complies with the requirements of both ISO/TS 16949 and ISO 14001. This means complete transparency in all areas and therefore gives our customers a high degree of security.

Do you have any questions about your application? The gasket information service will help you:

[gaskets@frenzelit.de](mailto:gaskets@frenzelit.de)



creating  
hightech  
solutions

GASKETS

TECHNICAL TEXTILES

EXPANSION JOINTS

INSULATION

NEW MATERIALS

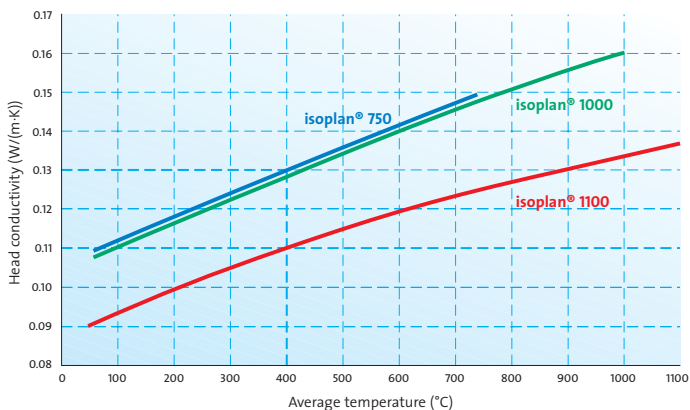
# Technical information about isoplan®

## Insulation materials and flat gaskets made from isoplan®

isoplan® products have a homogeneous material structure and are suitable not only for high-temperature insulation applications but also to provide sealing against inert gases up to 500 mbar.

When isoplan® is used as an insulation material, surface pressure levels of 10 N/mm<sup>2</sup> should not be exceeded. Higher surface pressure can be exerted in applications as a flat gasket in high-temperature ranges.

## Heat conductivity – the property that counts

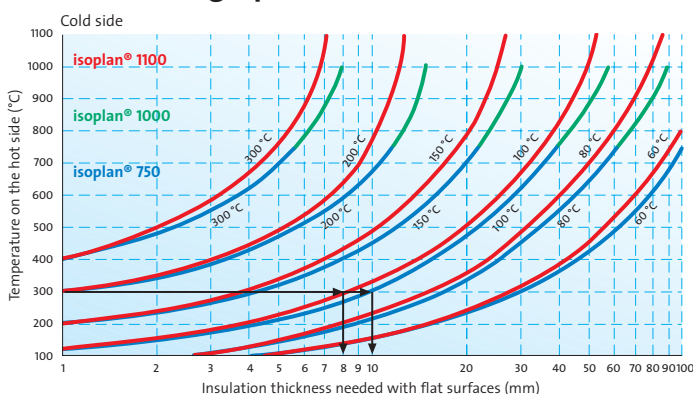


The key criterion for evaluation of an insulation material apart from high temperature resistance is heat conductivity. The heat conductivity level indicates the heat (in watts) that flows through a material 1 m thick with a surface area of 1 m<sup>2</sup> and with a temperature difference between the surfaces of 1 Kelvin (unit: W/(m·K)).

The lower this figure, the better the insulating properties a material has.

The changes in the heat conductivity level can be seen in the graph – they are taken from the test reports issued by the heat insulation research institute, Munich.

## Insulation graph



With the help of the curves in this graph, the insulation thickness needed for a specific product at defined temperatures on the "hot" and "cold" side of a flat surface can be determined.

In the example shown, the thicknesses required are 8 mm for isoplan® 1100 and 10 mm for isoplan® 750 and isoplan® 1000.

## Material characteristics

General information		isoplan® 750	isoplan® 1000	isoplan® 1100		
Temperature limit		750 °C	1000 °C	1100 °C		
Colour		white	white	white		
Tolerance in thickness		± 10 %	± 10 %	± 10 %		
Physical properties		Standard	Unit	Value*	Value*	Value*
Sample thickness 5.0 mm						
Density	DIN 28 090-2	[g/cm <sup>3</sup> ]	0.94	0.94	0.91	
Tensile strength	DIN 52 910	[N/mm <sup>2</sup> ]	longitudinal	3.5	4	4
			transverse	1.5	2	2
Compressibility	ASTM F 36 K	[%]	≤ 25	≤ 25	≤ 25	
Recovery	ASTM F 36 K	[%]	≥ 25	≥ 30	≥ 30	
Loss on ignition	DIN 52 911	[%]	17	17	17	
Decrease in thickness	1h/800 °C	[%]	≤ 2.5	≤ 7.5	2.5	
Shrinkage by surface	1h/800 °C	[%]	longitudinal	≤ 2	≤ 2	≤ 2
			transverse	≤ 2	≤ 2	≤ 2
			Heat conductivity at 400 °C	[W/(m·K)]	0.13	0.13

\* Modal value (typical value)

## Product Data

- Dimensions in mm: 1000 x 1000
- Thicknesses in mm: 1.5/2.0/3.0/4.0/5.0/6.0/8.0/10.0
- Further dimensions and thicknesses are available on request

## Packaging

Products with the standard dimensions of 1 000 x 1 000 mm are packaged in corrugated board cartons containing 100 kg each. The product name, thickness number of sheets and weight are indicated clearly on the carton.

## Warranty exclusion

In view of the variety of different installation and operation conditions and application and process engineering options, the information given in this prospectus can only provide approximate guidance. There is as a result no basis for warranty claims.

GASKETS

TECHNICAL TEXTILES

EXPANSION JOINTS

INSULATION

NEW MATERIALS

Frenzelit-Werke GmbH & Co. KG  
 P.O.Box 11 40 · 95456 Bad Berneck · Germany  
 Phone: +49 9273 72-0 · Fax: +49 9273 72-221  
 info@frenzelit.de · www.frenzelit.com

 **Frenzelit**

creating  
 hightech  
 solutions