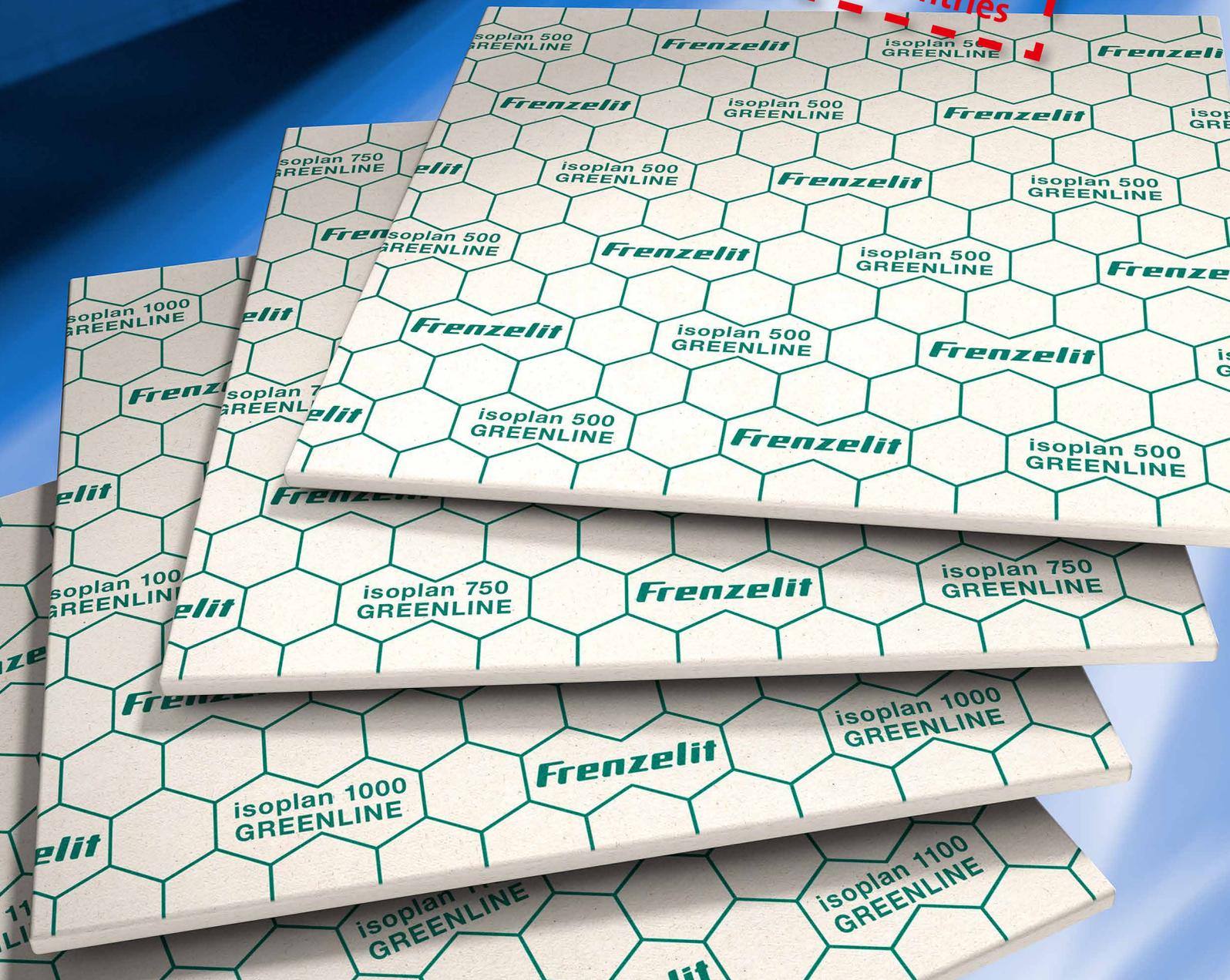


# isoplan® GREENLINE

Innovative, eco-friendly  
insulation materials.

For  
EU-countries



GASKETS

TECHNICAL TEXTILES

EXPANSION JOINTS

INSULATION

NEW MATERIALS

 **Frenzelit**

creating hightech solutions

# isoplan® - insulation materials for exacting requirements

isoplan® is used as insulation board in temperatures ranging up to 1,100 °C <sup>(1)</sup> and as gaskets for inert gases up to an internal pressure level of 500 mbar.

isoplan® products are based on special, biosoluble mineral fibres and/or biosoluble high-temperature Alkaline Earth Silicate (AES) wools. In combination with appropriate filling and bonding agents, they guarantee resistance to consistently high temperatures.

## isoplan® - processing advantages

isoplan® has special advantages thanks to its easy and fast processability using standard cutting, sawing and punching equipment. The extremely flexible material combination means that thin isoplan® can be adapted to existing geometries dry, and in moistened state even at thicknesses of up to 10 mm.

## isoplan® - application advantages

The coordinated raw material blend and the defined process technology lead to extremely low thermal conductivity, with very good, consistent heat insulation properties. isoplan® materials are also suitable for acoustic soundproofing.

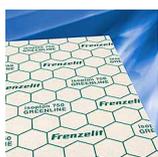
High application temperature limits and low thermal conductivity levels enable isoplan® to be deployed as an insulation material in many different application areas. isoplan® is used for low-pressure gaskets as well. The applications range in this context from maintenance, repair and upkeep to OEMs: steel industry, melting and pouring equipment, industrial furnaces and boiler manufacturing, chimney flaps, fire protection doors, heating and drying equipment, machine and equipment manufacturing, electrical equipment and the glass industry.



### isoplan® 500 GREENLINE

#### The problem solver at temperatures between 300 °C and 500 °C

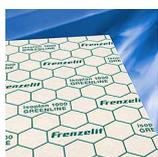
Material combination: functional fibre combination with biosoluble mineral fibres and temperature-resistant fillers, for minimised strength loss in the 300 - 500 °C range.



### isoplan® 750 GREENLINE

#### Eco-friendly standard insulation material

Material combination: biosoluble mineral fibres and fillers.



### isoplan® 1000 GREENLINE

#### Eco-friendly insulation material for high temperatures

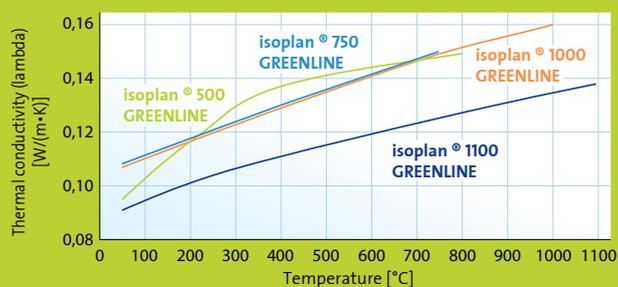
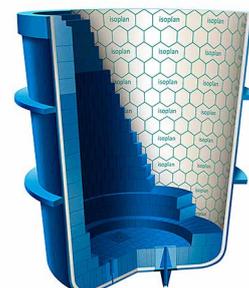
Material combination: biosoluble mineral fibres and temperature-resistant fillers.



### isoplan® 1100 GREENLINE

#### Eco-friendly insulation material for very high temperatures

Material combination: biosoluble high-temperature AES-Wool and fillers that withstand high temperatures.



## Thermal conductivity - the key criterion

Alongside high temperature resistance, thermal conductivity is the crucial criterion for the assessment of an insulation material. It indicates how much heat flows through a material between the surfaces.

The lower the level, the higher the insulation capacity of the material.

In insulation material applications, surface pressure levels of 10 N/mm<sup>2</sup> should not be exceeded.

Contact us if you have any questions about specification of how thick the insulation material needs to be.

# Material data

			isoplan® 500 GREENLINE	isoplan® 750 GREENLINE	isoplan® 1000 GREENLINE	isoplan® 1100 GREENLINE
REACH-listed SVHC fibre content <sup>(2)</sup>			none	none	none	none
Identification colour			white	white	white	white
Recommended application temperature			500 °C	750 °C	1,000 °C	1,100 °C
Maximum application temperature			1,050 °C	850 °C	1,050 °C	1,150 °C
Peak temperature (short-time)			1,100 °C	900 °C	1,100 °C	1,200 °C
Physical properties Sample thickness 5.0 mm	Test standards	Unit	Value*	Value*	Value*	Value*
Density	DIN 28 090-2	[g/cm <sup>3</sup> ]	1.01	0.93	0.94	0.91
Tensile strength longitudinal	DIN 52 910	[N/mm <sup>2</sup> ]	8.5	7.5	8	8.5
Tensile strength transverse	DIN 52 910	[N/mm <sup>2</sup> ]	4.1	3.4	3.7	3.5
Compressibility	ASTM F 36 K	[%]	10	7	8	9
Recovery	ASTM F 36 K	[%]	50	58	61	52.5
Loss on ignition	DIN 52 911	[%]	16	16	16	17
Thickness shrinkage	6 h / 800 °C	[%]	1.7	1.3	1.5	1.8
	6 h / 1,000 °C	[%]	7	-	7.6	-
	6 h / 1,100 °C	[%]	-	-	-	11.5
Area shrinkage	longitudinal / trans.	6 h / 800 °C	0.7	1	0.8	0.7
		6 h / 1,000 °C	3	-	1.9	-
		6 h / 1,100 °C	-	-	-	3.5
Thermal conductivity (400 °C avge. temp.)		[W/(m·K)]	0.14	0.13	0.13	0.11
* Modal value (typical value)						
<b>Product data</b> (Tolerances acc. to DIN 28091-1)						
Dimensions [mm]			1,000 x 1,000			
Thicknesses [mm]			2.0 / 3.0 / 4.0 / 5.0 / 6.0 / 8.0 / 10.0			
Further dimensions and thicknesses on request.						

## Information about product use:

<sup>(1)</sup> The organic content escapes causing a loss of strength in the 300 °C to 500 °C temperature range. The discolouration of the material associated with this disappears at higher temperatures and a sintering process takes place which guarantees the consistent strength of the material. Encapsulation of the material is advisable in the case of insulation applications in self-supporting or vibrating systems.

<sup>(2)</sup> isoplan® GREENLINE products comply with REACH and do not contain any SVHC-listed fibres. isoplan® GREENLINE products are an excellent alternative to products that are based on ceramic fibres.

If you have any application engineering questions, we will be delighted to answer them. Just contact:

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

# Good for people and the environment.

From research and development to our manufacturing operations and use of the product by the customer: quality assurance and a responsible approach to resources and the environment are a firm commitment we observe in everything we do throughout the life cycle of all products.

The Frenzelit gasket division has obtained certification that the company complies with the requirements of ISO 9001, ISO 14001 and ISO 50001. This means complete transparency in all areas and therefore provides a high degree of security - for the benefit of our employees, the environment and our customers.

## Quality management

ISO 9001

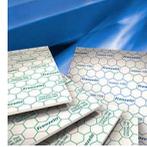
## Environment management

ISO 14001

## Energy management

ISO 50001

## Engineered by Frenzelit: Gasket materials / fibre-reinforced compounds

novapress®	novatec®	novafilon®	novaphit®	novamica®	novaform® Soft Compounds	novaplan®	isoplan®
							
200°C	250°C	260°C	550°C	1000°C	250°C	1000°C	1100°C
-100°C	-100°C	-200°C	-200°C	-200°C	-100°C	-100°C	-100°C
Elastomer-bonded fibre compound gaskets	Fibre-reinforced graphite gaskets	Modified and filled PTFE gaskets	Expanded graphite with/without stainless steel expanded metal insert	Phlogopite mica with/without stainless steel expanded metal insert	Technical films for insulation, sealing, acoustic applications, etc.	Soft layer/insert for heat shield applications and cylinder head gaskets	High-temperature insulation materials

GASKETS

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 **Frenzelit**  
creating hightech solutions