

WDS[®] Lambdaflex[®]

Characteristics

WDS[®] Lambdaflex[®] is a microporous insulation material with an extremely low coefficient of thermal conductivity, i.e. with very good insulating properties. WDS[®] Lambdaflex[®] consists of inorganic silicates. The main constituent is fumed silica, the other components are opacifiers for minimizing infrared radiation and reinforcing glass fibers.

WDS[®] Lambdaflex[®] (core material) is not flammable and meets the requirements acc. to DIN ISO 4102 for fire protection class A1.

WDS[®] Lambdaflex[®] is heat sealed in a close-fitting 15 µm PA/PE laminated film for purposes of flexibility. It can be used up to a maximum application temperature of 1000 °C.

Application

Tried and tested applications for WDS[®] Lambdaflex[®] include back-up insulation in the steel and non-ferrous metals industry.

In these applications, WDS[®] Lambdaflex[®] fulfills several functions, such as:

- Precisely controlled energy emission
- Reduction of weight and volume
- Increase of heat retention
- Increased effective volume

WDS[®] Lambdaflex[®] is also successfully used as insulation material in the following areas

- Heat treatment systems for metals
- Heat treatment systems for glass
- Fire protection equipment
- Electronic devices
- Metrology and instrumentation
- Plant construction parts
- Parts in the automotive industry
- Chimneys, pipes and diesel exhaust systems

Form of delivery

1. Standard sizes:

- 500 mm * 250 mm * X
- 500 mm * 500 mm * X
- 1000 mm * 500 mm * X



2. Standard thicknesses (X):

- 3 mm, 5 mm, 7 mm, 10 mm
- Tolerances acc. to DIN ISO 2768
→ Tolerance class "c", coarse.

3. Complex geometries and special formats available on request

Restrictions on Applications

WDS[®] Lambdaflex is sensitive to all liquids that can wet it, such as water, oil, petroleum spirit, since they can destroy the pore structure.

For the aforementioned reasons, care should be taken not to damage the cover film before or during installation. Damage or cut edges must therefore be protected with an AI adhesive tape.

Shelf life

WDS[®] Lambdaflex[®], if properly stored, has an unlimited shelf life.

WDS[®] Lambdaflex[®] must be handled and stored in dry conditions.

WDS[®] Lambdaflex[®] is resistant to diffusion by atmospheric humidity (water vapor).

Composition

Silicon dioxide	SiO ₂	approx. 50 %
Zirconium silicate	ZrSiO ₄	approx. 45 %
Others		approx. 5 %

Electrical resistance

Panel unhardened	
Stored under dry conditions	> 2000 MO

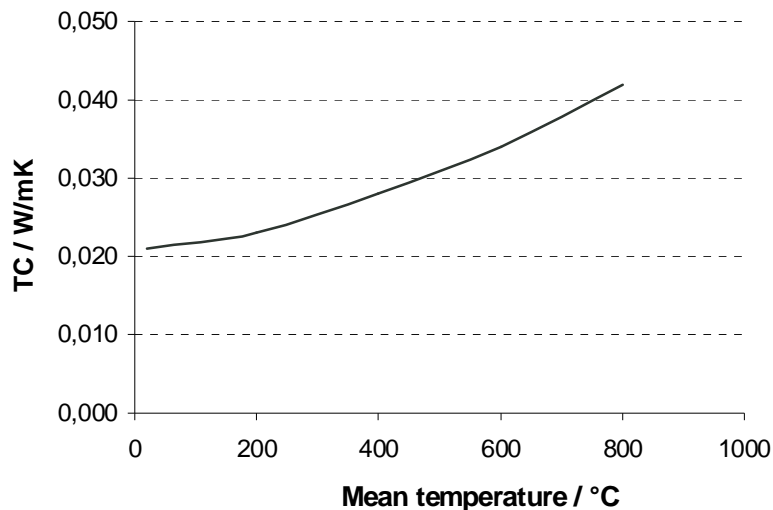
Thermal shock resistance

WDS[®] Lambdaflex[®] is insensitive to high and low temperature thermal shocks.

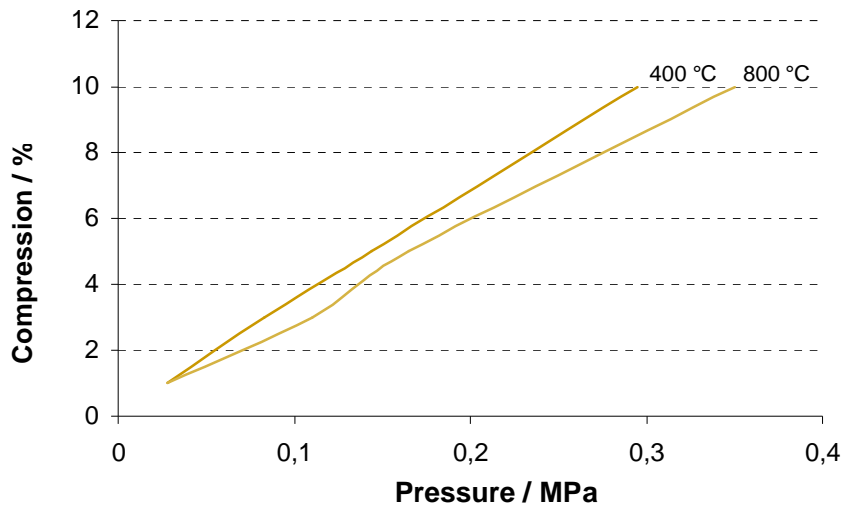
Product data

Properties	Comments	Standards	Units	Values	
Color	without film: White			White	
Bulk density			kg / m ³	300-430	
Thermal conductivity	At mean temp. of 20 °C and approx. 350 kg/m ³	DIN 51046	W / mK	≤ 0.021	
Heat resistance	Core material		°C	1000	
Low-temp. compression strength		DIN 51067 DIN 53421	N / mm ²	1.3	
Refractoriness under load	Load 0.05 N / mm ²	ASTM C 832			
			200 °C	%	- 0.26
			400 °C	%	- 0.35
			600 °C	%	- 0.59
			800 °C	%	- 2.47
Shrinkage	1000 °C / 12 h, temperature applied at one side		%	0.6	
Compression (density = 350 kg / m ³)	1 %		400 °C	800 °C	
	3 %		0.028 MPa	0.028 MPa	
	5 %		0.083 MPa	0.110 MPa	
	10 %		0.144 MPa	0.165 MPa	
			0.295 MPa	0.350 MPa	
Linear shrinkage / long term	Temperature applied at all sides				
		950 °C	%	1.9	
		1000 °C	%	4.8	
		1050 °C	%	10.5	
Specific heat capacity	RT up to 800 °C		KJ / kgK	0.8	
Thermal conductivity		DIN 51046			
	20 °C		W / mK	0.021	
	200 °C		W / mK	0.023	
	400 °C		W / mK	0.028	
	600 °C		W / mK	0.034	
	800 °C		W / mK	0.042	

Thermal conductivity as a function of mean temperature (DIN 52612)



Compression behavior



Safety directions

WDS[®] Lambdaflex[®] is not a hazardous material as defined in EU directive 91/155/EEC.
 The fibers used for mechanical reinforcement of WDS[®] Lambdaflex are not respirable as defined by WHO.
 Please also observe our material safety data sheet.
 WDS[®] Lambdaflex[®] does not liberate hazardous decomposition products and, as far as is known at present, does not cause any problems to human health.

The data presented in this leaflet are in accordance with the present state of our knowledge, but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this leaflet should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The recommendations do not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the product for a particular purpose.



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Please address all technical questions that affect quality and product safety to:

Porextherm Dämmstoffe GmbH
 Heisingerstrasse 8
 D-87437 Kempten

www.porextherm.com
info@porextherm.com



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 Zertifikat: 01 100 030449