

WDS[®] Shape

Characteristics

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

WDS[®] Shape is not flammable and meets the requirements acc. to DIN ISO 4102 for fire protection class A1. It can be used up to a maximum application temperature of 950 °C.

Application

Tried and tested applications for WDS[®] Shape include insulation of data storage media system, insulation of laboratory instruments, electric grills especially in glass ceramic grills

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

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

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

- Electronic devices
- Measurement equipment

Form of delivery

1. Prefabricated to drawings or specification

2. Standard sizes:

- 1000 * 650 * X

3. Standard thicknesses (X):

- 10 mm, 15 mm, 20 mm, 25 mm, 30 mm
- 35 mm, 40 mm, 45 mm, 50 mm
- Tolerances acc. to DIN ISO 2768
→ Tolerance class "c", coarse.



Restrictions on application

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

The moisture sensitivity of WDS[®] Shape can be greatly improved or eliminated altogether by suitable surface treatment (e.g. PE film, aluminum foil, or liquid coatings)

Shelf life

WDS[®] Shape, if properly stored, has an unlimited shelf life. WDS[®] Shape must be handled and stored in dry conditions. WDS[®] Shape is resistant to diffusion by atmospheric humidity (water vapor).

Composition

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

Electrical resistance

Panel unhardened	
Stored under dry conditions	> 2000 MO

Thermal shock resistance

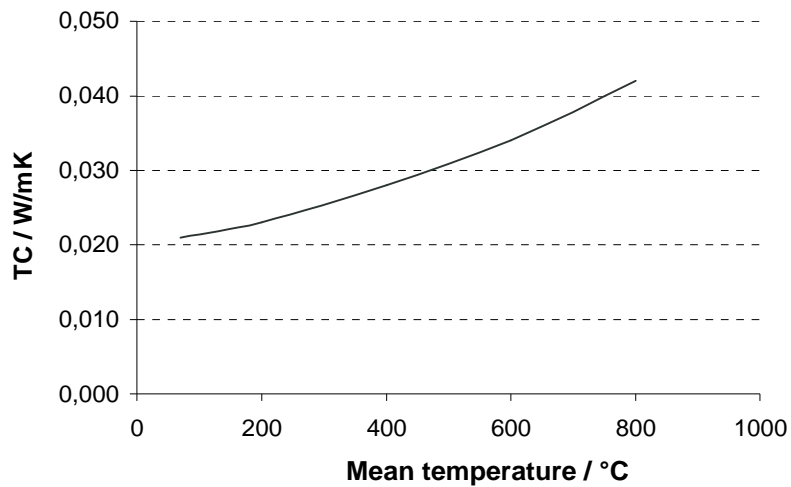
WDS[®] Shape is insensitive to high and low temperature thermal shocks..

Product data

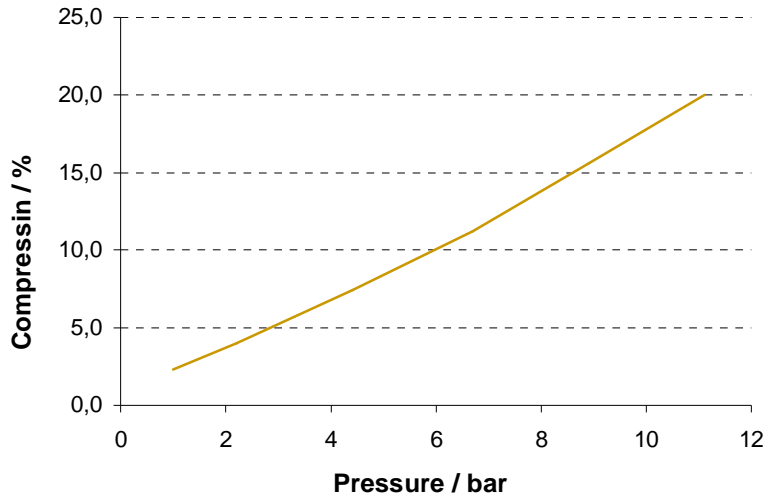
Properties	Comments	Standards	Units	Values	
Color				White	
Bulk density			kg / m ³	300-350	
Heat resistance			°C	950	
Low-temp. compression strength		DIN 53421	N / mm ²	1.1	
Low-temp. flexural strength		DIN 53423	N / mm ²	0.13	
High-temp. compression strength	at 700 °C	DIN 53421 51067,Teil2	N / mm ²	1.8	
Shrinkage	950 °C / 12 h, one side temperature application		%	0.4	
Linear shrinkage / long term	Temperature at all sides	900 °C	%	1.3	
		950 °C	%	2.4	
		1000 °C	%	8.1	
Compression (at 1 bar / room temp)			%	2.3	
Specific heat capacity	RT up to 800 °C		kJ / kgK	0.8	
Thermal conductivity		DIN 51046	70 °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

*The above data are only intended as a guide and should not be used in preparing specifications

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



Compression behavior



Safety directions

WDS[®] Shape is not a hazardous material as defined in EU directive 91/155/EEC.

The fibers used for mechanical reinforcement of WDS[®] Shape are not respirable as defined by WHO.

Please also follow our material safety data sheet.

WDS[®] Shape 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:

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