ZIRCONIUM DIBORIDE POWDER

Zirconium Diboride (ZrB_2) belongs to the group of metallic hard materials. Beside having an extreme hardness, it is outstanding for its excellent electrical conductivity and good thermal shock resistance. In addition, it is corrosion resistant in contact with ferrous and nonferrous metal melts.

Zirconium Diboride

Properties

Product data		
Chemical formula		ZrB_2
Molecular weight	g/mol	112.84
Crystal structure		hexagonal
Density	kg/m^3	6.090
Melting point	°C	2.990
Hardness (Mohs scale)	*)	8
Hardness (Knoop scale), HK 0.1	N/mm^2 *)	1.800
Thermal expansion (20-1000 °C)	K^{-1} *)	$5.7\text{-}7.5 \cdot 10^{-6}$
Thermal conductivity (at room temperature)	W/m · K *)	100
Electrical resistivity (at room temperature)	Ω cm*)	$9.2 \cdot 10^{-6}$
Young`s modulus	MPa*)	450
Maximum application temperature, - oxidizing atmosphere - inert atmosphere	 °C °C	 800 2.400

*measured on dense shapes

Zirconium Diboride lump

Application

- Additive for carbon containing refractories (antioxidant)
- Component of engineered ceramic composites
- Electrode material
- Crucible material

Chemical resistance

HCl, HF	ingnorable reaction
HNO_3	poor reaction
Hot H_2SO_4	noticeable reaction
Alkali melts, carbonate melts, bisulfate melts	not suitable
Molten non-ferrous metals	no reaction

Chemistry (typical values)

Product data	
Grain size	- 400 mesh
Zr	> 76%
B	> 16%
C	< 1.5%
B_2O_3	< 1.0%
O	< 2.0%
N	< 0.3%
Fe	< 0.3%

Additional particle sizes on request.

PL/Zirconium Diboride/e - 08-2007

The management system has been certified according to DIN EN ISO 9001, DIN EN ISO 14001.

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