TITANIUM DIBORIDE POWDER

Titanium Diboride (TiB_2) belongs to the group of metallic hard materials. In addition to its high hardness, it is distinguished by an extremely high electrical conductivity, thermal stability and inertness to nonferrous metal melts.

Titanium Diboride powder

Properties

Product data		
Chemical formula		TiB_2
Molecular weight	g/mol	69.54
Crystal structure		hexagonal
Specific gravity	kg/m^3	4.510
Melting point	°C	2.900
Hardness (Mohs scale)	*)	9.5
Hardness (Knoop scale), HK 0.1	N/mm^2 *)	2.600
Thermal expansion (20-1000 °C)	K^{-1} *)	$6.6\text{-}8.1 \cdot 10^{-6}$
Thermal conductivity (at room temperature)	W/m · K *)	100
Electrical resistivity (at room temperature) (at 1000 °C)	Ω cm *) Ω cm *)	$9\text{-}15 \cdot 10^{-6}$ $60 \cdot 10^{-6}$
Young`s modulus	MPa *)	520
Maximum application temperature, - oxidizing atmosphere - inert atmosphere	 °C °C	 800 2.400

*) measured on dense shapes

Titanium Diboride lump

Application

- Component in special ceramic composites such as evaporation boats or crucibles
- Electrode material in aluminium electrolysis cells
- Component for refractories
- Grain refining agent in aluminium alloys

Chemical resistance

HCl, HF	no reaction
$HNO_3 + H_2O_2$, H_2SO_4 (hot)	noticeable reaction
Alkali melts, carbonate melts, bisulfate melts	not suitable
C	no reaction up to 2.200°C
Nonferrous metal melts, cryolite basic slags	no attack

Chemistry (typical values)

Product data	
Particle size	- 400 mesh
Ti	> 66%
B	> 29%
C	< 2.0%
B_2O_3	< 2.5%
O	< 2.5%
N	< 0.5%
Fe	< 0.2%

Additional particle sizes on request.

PL/Titanium Diboride/e-08.2007

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

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