



# 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 <sup>3</sup>	4.510
Melting point	°C	2.900
Hardness (Mohs scale)	*)	9.5
Hardness (Knoop scale), HK 0.1	N/mm <sup>2</sup> *)	2.600
Thermal expansion (20-1000 °C)	K <sup>-1</sup> *)	$6.6-8.1 \cdot 10^{-6}$
Thermal conductivity (at room temperature)	W/m · K *)	100
Electrical resistivity (at room temperature) (at 1000 °C)	$\Omega$ cm *) $\Omega$ cm *)	$9-15 \cdot 10^{-6}$ $60 \cdot 10^{-6}$
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 <sub>3</sub> + H <sub>2</sub> O <sub>2</sub> , H <sub>2</sub> SO <sub>4</sub> (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 <sub>2</sub> O <sub>3</sub>	< 2.5 %
O	< 2.5 %
N	< 0.8 %
Fe	< 0.3 %

Additional particle sizes on request.