



# TITANIUM DIBORIDE POWDER

Titanium Diboride (TiB<sub>2</sub>) 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 <sub>2</sub>
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 · 10 <sup>-6</sup>
Thermal conductivity (at room temperature)	W/m · K *)	100
Electrical resistivity (at room temperature) (at 1000 °C)	Ω cm *) Ω cm *)	9-15 · 10 <sup>-6</sup> 60 · 10 <sup>-6</sup>
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	< 0.5%
Fe	< 0.2%

Additional particle sizes on request.

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 products for a particular purpose.

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

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