碳化硼

BORON CARBIDE

碳化硼，是最硬的人造磨料之一，为灰黑色粉末晶体，其硬度仅次于金刚石，莫氏硬度为9.36，显微硬度为5400-6300kg/mm2, 比重为2.52g/cm3, 熔点约2450℃，耐高低温，与强酸强碱均不起化学反应。研磨效率极高，无磁性，是金刚石理想的代用材料。

碳化硼具有质量轻，吸收中子，半导体等特性，故还用于军事工业、核工业等。

碳化硼还广泛应用于耐火材料冶炼渗硼、离子注入、薄膜涂层以及各种硬质合金、宝石等材料的磨削、抛光、钻孔等加工，制造耐磨程度极高的磨具、精密测量元件、高精度喷嘴、密封环等。金属硼化物冶炼，如硼钢、硼合金等。

碳化硼在高科技领域、尖端技术上已显露出其优越的理化性能。

Boron carbide, a black crystal powder, is one of the hardest Man-Made materials, its hardness with Mohs hardness 9.36 and microscopic hardness 5400-6300kg/mm^2 is only near upon diamond, its density is 2.52g/cm^3 and melting point is 2450℃,The boron carbide possesses properties of endurance hi/low temperature, no reaction with either acids or alkalis, high grinding efficiency, no magnetism. It is a good replacement of diamond.

Boron carbide also possesses the special properties of light quality, neutron absorbing, semi-conductivity, etc., so it is used for armed forces and nuclear industry.

Boron carbide is widely applied as follows: boriding refractory, ion transfusion, film layer as well as grinding, polishing, drilling hard metal alloys, jewels, etc. Meanwhile, it is main material for the wear-resisting parts, precise meter-age element, precise spray nozzle, sealed washer, smelting boron steel, boron alloy, etc.

Boron carbide has showed many better properties of physics and chemistry in the hi-science/technology field.

碳化硼粒度分布及化学成份表 中国 GB2477-83：

<table>
<tr><td rowspan="2">粒度</td><td rowspan="2">基本尺寸
(μm)</td><td colspan="3">化学成份</td></tr>
<tr><td>总 B(%)</td><td>总 C(%)</td><td>纯度（%）</td></tr>
<tr><td>60#</td><td>250</td><td rowspan="7">77-80</td><td rowspan="10">17-21</td><td rowspan="7">96-98</td></tr>
<tr><td>70#</td><td>212</td></tr>
<tr><td>80#</td><td>180</td></tr>
<tr><td>90#</td><td>150</td></tr>
<tr><td>100#</td><td>150</td></tr>
<tr><td>120#</td><td>106</td></tr>
<tr><td>150#</td><td>90-75</td></tr>
<tr><td>180#</td><td>75-63</td><td rowspan="3">76-79</td><td rowspan="3">95-97</td></tr>
<tr><td>220#</td><td>63-53</td></tr>
<tr><td>F230</td><td>63-53</td></tr>
</table>

F240	63-50			
F280	50-40			
F320	40-28			
F360	28-20			
F400	20-14	75-78		94-95
F500	14-10			
F600	10-7			
F800	7-5	74-78		91-94
F1000	5-3.5			
F1200	3.5-2.5			
60#~150#	250-75	76-81		93-97
46#~120#	350-60			
-100mesh	<150			
-140mesh	<100			
-200mesh	<75			
-325mesh	<44			
-25μm	<25			
-10μm	<10			

Chart for grain size distribution and chemical composition of boron carbide CHINA GB2477-83

Grit No.	Basic Grain (μm)	chemical composition		
		Total B(%)	Total C(%)	Content B_4C （%）
60#	250	77-80	17-21	96-98
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80#	180			
90#	150			
100#	150			
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