Data Bulletin
Precision Plated CBN and Diamond Grinding Wheels.

Cuttermasters Precision Plated wheels are the best plated grinding wheels money can buy, they have been produced to a run out tolerance of .0015 and so they are the most concentric wheels available in this category. They have a .012 radius on the plated corners so there is more media and plating on the corner for superior corner life and plating adhesion to prevent pealing.

Wheels Come in 6 inch X ¾ with 1.25 bore standard for tool grinders and the Darex M3,4, and 5 Drill sharpeners and 8 inch x 1 inch face width with a .625 or 5/8 bore for 8 inch bench grinders.

CBN is far superior for grinding steel tools than diamond which has a carbon affinity causing it to breakdown when there is heat present.

CBN Cubic boron nitride

Cubic boron nitride (CBN or c-BN) is widely used as an abrasive. Its usefulness arises from its insolubility in iron, nickel, and related alloys at high temperatures, whereas diamond is soluble in these metals to give carbides. Polycrystalline c-BN (PCBN) abrasives are therefore used for machining steel, whereas diamond abrasives are preferred for aluminum alloys, ceramics, and stone. When in contact with oxygen at high temperatures, BN forms a passivation layer of boron oxide. Boron nitride binds well with metals, due to formation of interlayers of metal borides or nitrides. Materials with cubic boron nitride crystals are often used in the tool bits of cutting tools. For grinding applications, softer binders, e.g. resin, porous ceramics, and soft metals, are used. Ceramic binders can be used as well. Commercial products are known under names "Borazon" (by Diamond Innovations), and "Elbor" or "Cubonite" (by Russian vendors). Similar to diamond, the combination in c-BN of highest thermal conductivity and electrical resistivity is ideal for heat spreaders. Contrary to diamond, large c-BN pellets can be produced in a simple process (called sintering) of annealing c-BN powders in nitrogen flow at temperatures slightly below the BN decomposition temperature. This ability of c-BN and h-BN powders to fuse allows cheap production of large BN parts.

As cubic boron nitride consists of light atoms and is very robust chemically and mechanically, it is one of the popular materials for X-ray membranes: low mass results in small X-ray absorption, and good mechanical properties allow usage of thin membranes, thus further reducing the absorption.

Cuttermasters CBN and Diamond wheels generally outlast other wheels by 2 or three times (hundreds of hours).

There are literally hundreds of these wheels in use in the market today and they are all happy customers. It is likely that a Cuttermasters CBN or Diamond wheel may be the last wheel you ever need to buy.

Jeff Toycen
President
Cuttermasters