BCA Abrasive Grains

High performance ceramic grain for universal use

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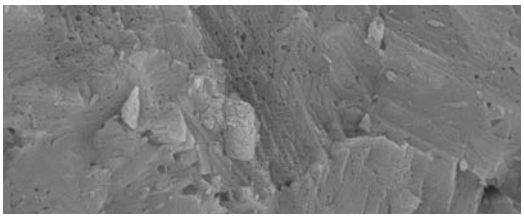
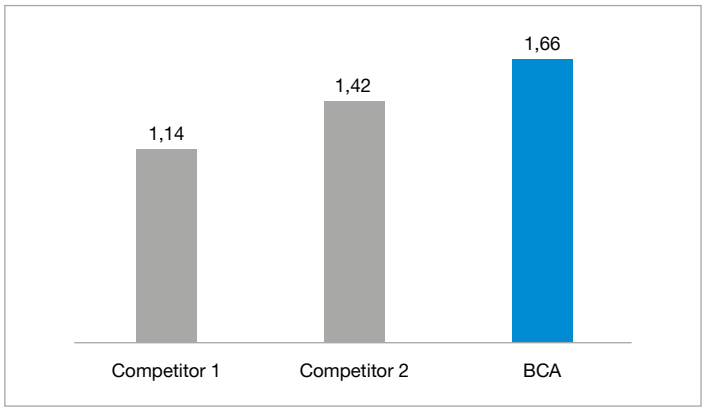
Case Study:
BCA Abrasive Grains

BCA is a blue ceramic alumina abrasive grain. It is a composite material consisting of microstructured alpha alumina and rare earth alumina platelets. The grain combines unique self-sharpening properties with a high hardness and toughness.

Test:
BCA and two blue (non-seeded) ceramic grains of well-known producers from Europe and the USA have been tested in three different applications: pendular grinding, plunge grinding and cutting.



Self-sharpening edges for highest performance

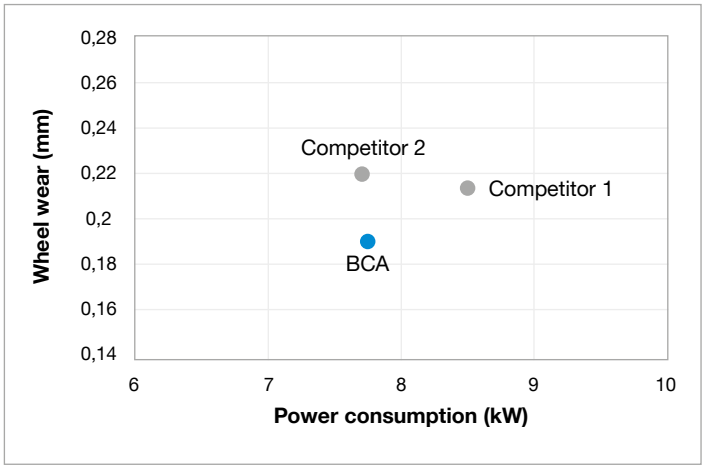


G-ratio: volume of material removed divided by volume of wheel wear

Pendular grinding application with resin bonded wheels:

- 400 × 20 × 203,2mm
- 75% ceramic grain (F46/F54), 25% white fused alumina
- High speed steel (64 HRC) workpiece

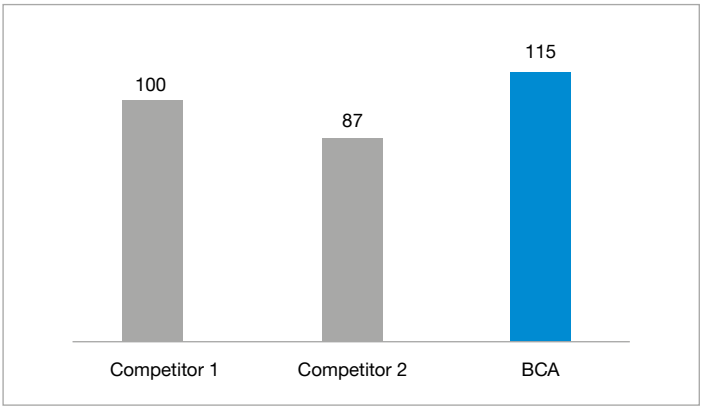
Grinding wheels produced with BCA have a significantly higher G-ratio as wheels produced with the two competitive grains.



Plunge grinding application with vitrified bonded wheels:

- 400 × 20 × 203,2mm
- 100% ceramic grain (F80)
- Low alloyed cold work steel workpiece

When operated via the same parameters as the competitive ceramic grains, BCA combines a low power consumption with a low wheel wear. The grinding wheel produced with BCA generates a lower heat input to the workpiece and therefore minimizes the risk of burning.



GA-ratio: cross-sectional area of cut / consumed wheel surface

Small, thin cut-off wheel:

- 125×1×22,23mm
- 100% ceramic grain
- Stainless steel AISI 304 (1.4301) workpiece
- Aged for one week under warm, damp conditions

BCA provides a higher ratio and thin cut-off wheels produced with BCA will therefore give the end user a notably higher performance and longer tool life.

Conclusion

Both these three tests and feedback from the market show that the versatility and high performance of BCA provides a unique combination on the market achieving excellent performance and economic efficiency. Grains looking similar from a color and sieving perspective, can provide remarkably different results in the application.

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