

## *about micron testing ...*

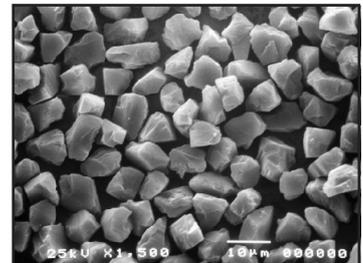
As you may be aware of when testing different micron powders, you often times get different cut rates. This mostly has a direct relation to quality of the diamond powder and more specifically, the quality of crystal structure and the PSD (particle size distribution).



LANDS Superabrasives has been micronizing diamond for 20 years and through the LANDS Superabrasives milling system the company is actively producing one of the most consistent crystal shapes within a micron powder in this industry. But differences in cut rate or finish can also be caused by another non-production factor, namely the testing method for the grading of the micron powder. The different testing machinery used throughout our industry does vary some, ranging from laser diffraction machinery, microscopic work, the Coulter Counter as well as other conventional comparison methods.

The standards in the industry can be quite strict in terms of acceptable means, medians, largest particles, d90's etc, but when you set a standard without mentioning a testing procedure and more importantly the testing machinery used, it leads to a wide interpretation of standards.

The LANDS QC lab at our facilities in Antwerp utilizes both a Malvern Mastersizer 2000 laser machine (latest technology) and I.A. (image analysis), which still generates more accurate microscopic pictures. Both systems have a distinct advantage and LANDS uses both for different size ranges. Besides this, LANDS Superabrasives has developed its own quality standards which are even tighter than any other standard in the world today.



### ***MALVERN LASER DIFFRACTION ANALYZER***

For our material below 4 micron, we use the laser machinery, which uses laser lights to determine the size of the crystal based on the degree at which the laser reflects off the crystal. The reason we use the Malvern machine is because unlike the other laser machinery, the Malvern 2000 uses both the red and the latest blue laser light technology which makes it possible to measure particles down to 0,02 micron with the best sensitivity and maximum reliability. This is an accurate reading, but doesn't take into consideration different crystal shapes, agglomeration or flakes and splinters. Since a microscope cannot clearly and accurately measure particle shape below 4 micron, the laser machinery is more accurate for these sizes.