

Recycling Issues & Micro-Abrasive Blasting Technology

Micro-abrasive blasting is unique from other forms of blasting (grit or bead) in that it is only capable of cycling abrasive media through the system one time. Once the media has been propelled through the nozzle it cannot be reclaimed and reprocessed into material that is suitable for use a second time. Three changes take place that make recycling impossible:

- The blasting process causes the media to break down very quickly.
- When the media is exposed to air it will readily absorb moisture.
- Pieces of the substrate get mixed in with the abrasive, resulting in contamination.

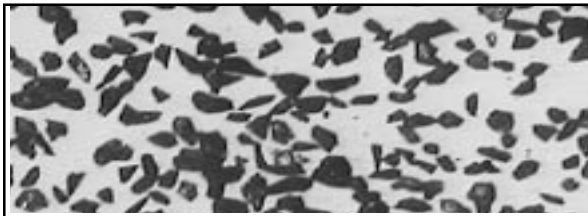
The combination of these effects will bring the micro-abrasive blasting process to a halt.

Media is chosen for a specific micro-abrasive blasting application because of its physical properties. Typical cutting abrasives are very hard with sharp edges. This "hardness" also tends to make them relatively brittle. As the particles strike the surface of the work piece, it will fracture, breaking down considerably. As a result, the spent media consists of smaller particles and very fine powder. The change in particle size distribution causes the cutting force of the particles to change. It becomes impossible to maintain a consistent, reliable blast process when the abrasive characteristics of the media change dramatically.

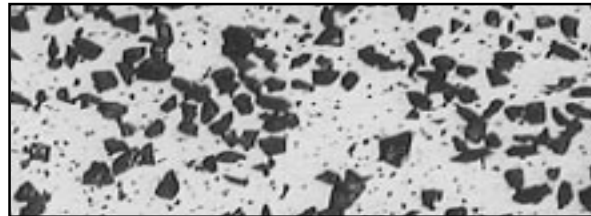
Moisture is the single greatest enemy of micro-abrasive blasting. This process requires both the air supply and media to be very dry. The blasting process propels the abrasive into the ambient environment where it readily pulls moisture out of the air. After the particles are pulled from the work station into the dust collector, they absorb more moisture. When the media is finally removed from the chamber it is very clumpy. These clumps will not flow properly through the system, reducing flow or stopping it completely.

The process of micro-abrasive blasting involves removing small amounts of surface material from the work piece. These fragments of the base material are pulled out of the work station with the spent abrasive. The sizes of the remnant base material particles are roughly the same as the abrasive particles, making it virtually impossible to separate the two. These particles have entirely different physical properties and will contaminate the work piece if reused. The abrasive action of "recycled" media will be completely different than virgin material.

No matter what you have been told, recycled micro-abrasives will not have the same characteristics as unused media. They cannot be processed or treated by any means to effectively renew their original characteristics. At Comco, we use only virgin materials in our abrasives, assuring our customers of consistent, predictable results in all of their micro-abrasive blasting applications.



New 25 Micron Media



Recycled 25 Micron Media