

**Technical Bulletin VG-003:
Tips on Abrasive Blasting**

There are many advantages to using VitroGrit®, and because it is still a relatively new abrasive blast media, there are still many more applications yet to be discovered!

- √ VitroGrit® features lighter weight, aggressive cutting with no heavy metals and no crystalline silica.
- √ VitroGrit® delivers a cleaner, whiter finish on steel in less time than slag abrasives.
- √ Customers switching to VitroGrit® report using at least 25% (and sometimes up to 50%) less abrasive than copper or nickel slags.

Savings, productivity, cleaner blasting and environmental responsibility – it's all possible by making the switch to VitroGrit®.

Following are some of the key differences of VitroGrit®, and how best to utilize them to your advantage:

1. Metering for Top Efficiency

It is very important that blasters stop and think before they begin blasting with VitroGrit®. It works best when it is metered very lean, so we recommend starting with the metering valve shut off completely. The pot tender should bring the feed rate up very slowly, only until the shrill whistle and blue color from the nozzle goes away. Because of VitroGrit®'s lighter color, it still may not be easily seen coming out of a blast nozzle. The best cutting efficiency from VitroGrit® blasting happens at a very “stingy” metering level.

Cleans Efficiently

**Steel • Aluminum • Stainless • Concrete
Fiberglass • Wood • Stone Surfaces**

2. Aggressive Action

The old adage...“finer is faster unless you need profile” certainly fits glass. What surprises most blasters is that the finer sizes of VitroGrit® can still deliver higher profiles than a quick visual check of the finish would reveal.

We recommend testing profiles with Press-o-Film™ (or other) on surfaces blasted under different conditions until you become more familiar with the aggressive cleaning power of VitroGrit®.

3. Uncommon Cutting Power

Blasters find best results when they let VitroGrit® do its cutting work for them -- be prepared to move your nozzle faster on most types of coatings and surfaces. Think of glass as a light and sharp abrasive. Even though VitroGrit® won't cut your skin when you vigorously rub it between your hands, it seems to work more to “cut” like a knife than a hammer in blasting. It feathers far better in spot blasting, saving unnecessary power tooling and touch up work. VitroGrit® produces white metal faster and cleaner than slags. Blasters accustomed to using slags will be surprised to see how faster they can get a cleaner finish. Like any new tool, a little creativity, a little planning, and some experimentation with blast pressures, distance, angles and blast patterns will give outstanding results.

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4. Unique Differences

No abrasive is perfect for all situations, and glass has its challenges as well. Because of its lighter weight, glass may cut slower at times on extremely hard surfaces that require more physical energy than cutting strength to clean, such as heat treated mill scale. Blasting hard mill scale with glass requires shifting to a finer grit size.

Conversely, softer or rubberized elastomeric coatings that tend to bounce heavier abrasives back clean faster and better with glass. Old brittle coatings tend to fly off with glass, since it cuts more like a knife than a hammer. VitroGrit[®] is a preferred abrasive for cleaning concrete surfaces as it does not imbed nor darken the surface as do slags.

5. Lower Pressure/Lighter Dust

Most blasters are used to the old advice... “the more pressure, the faster the abrasive works.” However, because glass is lighter, more pressure and especially too much abrasive works opposite... less is better! The lighter glass takes less pressure to accelerate the particles, so it works faster. The lower density of glass means that there are more glass grains to do the work for a given volume of abrasive.

We recommend you keep the pressure at the nozzle down to 90 or 100 psi to get the best productivity with VitroGrit[®]. If you’re blasting with VitroGrit[®] and your productivity is less than expected or you’re making too much dust, check your nozzle pressure and reduce the feed rate at the pot.

Another difference in blasting with glass is in the type of dust generated. With a Mohs hardness of 6, glass normally does not generate any more

dust than copper or nickel slag, which by the way are also a type of glass.

Blasters consistently report better visibility at the point of blasting because glass is a lighter color and travels faster away from the pressurized airflow than slags. Tests by KTA-Tator and the California Air Resources Board confirm that dust generation from blasting with glass is within acceptable industry standards.

After a period of blasting, differences start to show. If there is good dust collection (or, for outdoor blasting, just a light breeze), glass dust will evacuate the blast area much faster because it is lighter, producing a cleaner, more visible work area. On the other hand, without good air evacuation, the lighter glass dust tends to “hang” longer. And, with its lighter color and reflectivity, suspended glass dust particles show up more readily against a dark background (and conversely the dust is harder to see against a light background).

6. Superior Environmental Safety

Remember that the glass dust is a nuisance dust only. Standard worker safety measures (masks, clothing, hoods, etc.) must be used with glass media blasting just as with other media. There is no crystalline silica and no heavy metal in glass.

Although glass is mostly SiO₂ in its chemistry, the silica is amorphous. Technically, glass is a super-cooled liquid. Like trying to get whole peanuts back out of peanut butter, it is impossible to cause free or crystalline silica to form when glass is broken down to finer and finer particles.

In response to industrial hygiene problems caused by exposing workers to extraordinarily high levels of heavy metals present in abrasive

blasting with slag, many customers have switched to cleaner, safer VitroGrit[®]. Check out the NIOSH study referenced on TriVistro's web site.

7. Superior Finish

Surfaces blasted with VitroGrit[®] are noticeably whiter and cleaner — something that every coatings inspector likes to see. With little to no embedment and super low conductivity, VitroGrit[®] reduces problems with coating failures and flash rust. Its lack of heavy metals makes it the first choice for blasting near sensitive electronics or areas prone to react to ambient air dust containing metals.

Aluminum blasted with VitroGrit[®] shows a better profile without the warping or damage done by heavier abrasives. You can blast fiberglass, stainless steel, wood or concrete with little or no damage to the substrate. There is a grit size for each application recommended by TriVistro.

8. Faster, Easier Clean up and Disposal

When you are done blasting with VitroGrit[®], your blast area will look more like a sandy beach than a smelter slagheap. Because you used 25% to 50% less abrasive, your clean up time will go faster. Glass doesn't absorb water, doesn't bind up like concrete, and doesn't leave a grey residue on the blast area or clothing. The spent abrasive you do clean up is 25% lighter than slag, so your shoveling, sweeping and vacuuming go much faster.

When it's time to dispose of or recycle your spent abrasive, VitroGrit[®] has no heavy metals (we recommend testing any abrasive for total metals before blasting). Just think... if you shipped in

25% to 50% less abrasive, your disposal costs will shrink just as much.

9. Better Results with Water Blasting

Abrasives blasting with water, high and low pressure water jetting, water injection and wet ring blasting are becoming more common, and VitroGrit[®] meets these applications better than any other abrasive. Because of its lighter weight, water is less disruptive to the cutting speed of glass abrasive than it is to slags.

Two independent naval facility tests showed that in slurry blasting, glass lost only about 10% of its cutting speed while under the same conditions, copper and coal slag lost nearly 40% cutting speed.

Some customers using water rings think VitroGrit[®] actually cuts faster with water than dry. VitroGrit[®] is non-absorbent and sharp so it maintains its cutting power. VitroGrit[®] is non-metallic and clean so inherent challenges in water blasting — like runoff, clean-up and flash rust — are far less of a problem.

Discover for yourself the benefits, savings and cleanliness of blasting with VitroGrit[®].