

Glass Blasting Media

Multimedia blasting is the method of propelling media such as sand, soda, crushed glass, or corn cob at a surface with a high volume of air. You are able to remove a number of coatings from various surfaces by varying your media choice.

Blasting glass comes from the crushing of recycled glass containers. This ensures not only its availability widespread, but its use is beneficial to the environment since it helps to alleviate the stress posed on already overburdened landfill sites.

The best way to use glass as a blasting media is in a machine that is designed to handle different kinds of media blast. Unfortunately, pressure washers and regular sand blasters have their limitations and were not designed to handle various media. The ProBlast CRS is much more efficient and more effective than traditional pots. It is lightweight and portable and uses a smaller hose.

Glass has been sold as a blasting media for at least the last ten years, but many may not be aware of its many benefits. One of the main benefits of this media versus using high pressure water is that the dry surface can be re-sealed or re-coated immediately. This shortens project length which is beneficial to both customer and business owner alike. Glass does not contain heavy metals, is free of chlorides and other salts, and is neutral to the environment.

Crushed glass is most common form of blast media used. Its angular grain shape is very effective even at lower pressures. On the MOH hardness scale it has a rating of 5.5-6, where diamond has a rating of 10. It is most often used as an alternative to silica sand. The use of silica sand is already being banned in many places. Silica sand generally contains 90%-95% crystalline silica and the International Agency for Research on Cancer has concluded that, "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic (cancer causing) to humans". The U.S. Department of Labor, Occupational Safety & Health Administration states that, "the most severe worker exposures to crystalline silica results from sandblasting". This constitutes a serious health risk to the worker and the environment. It is interesting to note that silica sand is the raw material used in the production of glass. The manufacturing process converts the harmful crystalline structure to a state in which there is less than 1% crystalline silica. This makes it an approved alternative in many of even the most strict air quality districts.

Crushed glass has a wide variety of uses removing rust, scale and paint. It is best known for its ability to strip rust. On certain surfaces it produces a matte finish. This media can prepare steel to a white metal condition and is effective on:

- Auto bodies and auto parts
- Trucks
- Construction equipment

- Fibreglass and plastics
- Stainless steel
- Concrete
- Wood* (in some instances crushed glass may etch wood and cause damage)
- Other sensitive surfaces

When selecting the size of media to work with it is important to understand the desired outcome. If the surface is to be re-coated then the blaster must be aware of the etch profile he wants to leave behind. The etch profile on a surface created during abrasive blasting is important if the substrate is to be later recoated such as paint being applied. The etch profile is basically the peaks and valleys on the surface of the substrate on a microscopic scale. Coatings manufacturers will often indicate the specific profile for the best adhesion of their product. The profile is expressed in millimetres, microns or mils. Profiles generally range from 4mils and lower and are measured by the depth of lowest part. The right profile will allow the paint to stick but still completely cover the surface. If a blaster creates too much etching, the 'peaks' will stick above the coating that is later to be applied. This will lead to the coating coming off over time. If there is not enough etching, there will not be enough surface area for the subsequent coating to stick to and they won't bond together properly.

When sizing media, lower numbers denote larger particle sizes and higher numbers indicate smaller particle sizes. Crushed glass is available in four common size ranges:

#10-20 – This size provides a 3.5+ Mil profile. Use on surfaces with thick paint, heavy rust, tar, grease or other materials, when a clean finish and a rough profile is needed as for ships, bridges, silos, tanks and other steel structures.

#20-35 – This size provides a 2.0-3.0 Mil profile. Use on surfaces with paint, rust or other materials that needs a clean finish and less profile such as car bodies, trucks or construction equipment.

#35-60 – This size provides a 1.5+ Mil profile. Use for cleaning surfaces that need a smooth finish with low profile such as fibreglass, plastics, aluminum, wood, stainless steel and on sensitive areas of auto car bodies.

#60-80 – This size provides a very low profile (smooth). Use for polishing, cleaning and finishing of all type of materials. It will provide a very smooth finish.¹

Glass media is readily available and economical. Distributors of packaged product are found worldwide. It is generally packaged in 50lb bags with 56 bags per pallet. 3000lb Super Sacs are also available. High volume users or owners are able to purchase their own glass crushing machines. These machines are available starting at around \$11K. Convenience may be a deciding factor for high volume applications.

Another form of glass blasting media is glass bead. Bead is preformed into round ball shapes as opposed to angular. It produces a smooth, bright satin finish. Although bead can be used in multi-

¹ Opta Minerals Inc. Information Bulletin www.optaminerals.com

media machines such as the ProBlast CRS, it is primarily used in blasting cabinets. It can be used to for light cleaning as well as to polish and finish a product. When properly managed it is an excellent choice for thin-walled parts and thin welds. Larger bead sizes will clean at a slower rate but will produce a more peened effect, whereas the smaller bead sizes produce a more uniform, smoother surface finish. Bead is able to be used also when preparing a surface for finishing without etching or changing part tolerances. Unlike crushed glass which loses its angular form and therefore its superior ability to strip if reused, glass bead is able to be reused up to approximately 30 times. When recycling media it is vitally important that great care is taken not to get any of the coating that was removed in with the fresh media. Glass Bead is also packaged in 50lb bags and comes in mesh sizes from 20-325, and is also widely available.

To the owner wanting to expand, the bottom line is what it's all about. Using crushed glass as a media not only speeds your rate of removal, it is also cost efficient. The average cost of a bag of crushed glass is between \$5 and \$10 for a 50lb bag. The industry average rate charge for abrasive media blasting is in the neighbourhood of \$120 - \$150 per hour. Reducing overall project time also increases your profits and can be accomplished by not having as much media to clean up. The ProBlast CRS aids in reducing media used by having a specially designed metering valve that also allows it to handle abrasive and non abrasive media alike. Abrasive blasting can indeed be a lucrative opportunity.

Jacqui Weber is the owner of ProBlast Inc., an internationally recognized leader and pioneer in media blasting. If you are considering adding on to your current business you should drop by www.problastusa.com. On the site you will find some excellent videos of media blasting and its applications.