

# Recycling Abrasives

**ANY FACILITY** that uses abrasives, whether it is shot, cut wire, aluminum oxide or other types of media, faces the challenge of what to do with the by-products from the abrasive blasting processes. The by-products produced from these operations can include spent shot, dust collector fines, the dust collector filters—right down to the floor sweeps from the areas around equipment. Many facilities have a number of areas where multiple operations occur in the same facility and utilize different media for different phases of the manufacturing process.

We all want to avoid disposing of anything in the waste stream that ends up in local landfills. In some cases, a few simple changes to collection processes and a plan on how to handle these items can lead to cost savings by reducing the amount waste produced. What once was considered waste might be converted into a revenue-generating item.

Recycling these items is possible and is currently being done in many facilities. A successful recycling program begins with the end in mind. Before you begin and dive right into sweeping up everything in the area, you must determine what by-products you produce, how much you generate over a period of time, how you will collect the materials (drums, boxes, or super sacks), and where you will store your collected materials. Most by-products of the abrasive blasting process must be kept dry or they will not be usable in a process downstream.

Collecting information about the waste streams is very important when working with your recycling partner. Providing as much information as possible about the by-products helps create an accurate profile of your materials. Once you have identified your by-products and determined your approximate generation, such as ten 1,000 lb drums per



*Spent Steel Shot for Recycling*

month, or two truckloads per month, you need to gather all relevant information about the specific by-product such as data sheets generated by the provider of the raw materials, SDS Forms, and any other information about the by-product that can be used by your recycling partner to find a home for your materials. In addition, a sampling of these materials is a key component to finding a buyer for your by-product. Expect to provide anything from small quantities to larger samples to the markets that will test your materials and determine if your materials are a feasible “feedstock.” It’s also very helpful to provide photos of the materials with a ruler or any item that helps provide a size reference. The completeness of the package that you prepare will have a direct effect on how quickly answers come back to you about the recyclability of your materials. Sometimes you will quickly find a person willing to take your material or the process is agonizingly slow, as your by-product may be interesting to only a few select individuals.

Have patience and tenacity. I’ve worked on by-products for years only to one day have an opportunity present itself and solve my client’s problems with a single phone call.

Waste streams such as spent steel shot are fairly easy to recycle as the materials have ready markets established and they traditionally yield a return for recycling. Dust by-products become more difficult to recycle as there are fewer markets for these materials and things like the chemical make-up of the dust, density, particle size, and packaging all become factors that determine the recyclability of these materials. If the products being treated have elements like Nickel, the dust may yield a value because dust from these operations is used by a few companies to produce new products. If the dusts are composed of only Iron, then it becomes more difficult and depends on the condition of the steel industry where much of this material is recycled. Spent Aluminum Oxide has multiple outlets for recycling and is used for its Alumina content, depending on how pure the material is and what contaminants have been introduced into the waste stream.



*Super sacks are ideal for holding recyclable materials*

This leads to the next issue—the cleaner the material the better chance for recycling. Since most recycled products are used to produce other products, the cleaner and closer the materials are to their original composition the better the chances are of finding a home for these by-products. When thinking about a recycling program for abrasive by-products, it's important to keep the individual by-products as separate as possible. For example, mixing spent steel shot and aluminum oxide can make it very difficult to recycle as other separation processes must be done to make the material marketable. The additional processes add cost to the end product that the final market may not be able to support. Keeping trash out of the products is very important to do as well. Ear plugs, wood, gloves, nuts and bolts are just a few of the items we have seen that have led to the rejection of a perfectly good by-product. Maintaining a clean waste stream requires a few things including a good labeling program, covering and protecting the material once the drum or sack is full, and a methodology for collecting and storing these materials at the facility. These steps will go a long way to getting the best value out of your materials.

Another overlooked item is the filters in your dust collector systems. In many cases, there are options for cleaning these filters and re-using them instead of throwing them out after one use. These filters can cost hundreds of dollars and companies spend thousands of dollars per year



*The Wisdom Filter Clean System*

on new replacement filters. Finding a company that can “clean” your filters and allow you to reuse them will save you considerable money. Many filters can be cleaned multiple times and can easily become part of your overall abrasives recycling program.

While I have presented a rough outline of the recycling of abrasives, as an owner of an industrial recycling company specializing in difficult to recycle by-products, the recycling of these items has a path that goes much further than I can address here. One thing that you should keep in mind is not to focus on a single by-product and see success or failure in that one stream. A successful recycling program is holistic and seeks to achieve the goal of landfill avoidance and the minimization of cost to the company. If one looks at all the recycling options for their company's by-products and finds a few that generate revenue, a few that eliminate a disposal cost, but generate no revenue, and a few that cost money to recycle, in the end your company will benefit from having a recycling program that achieves landfill avoidance, reduces costs, and makes a few dollars that adds up year after year.

Wisdom Environmental, Inc. specializes in the development of recycling programs for the business and manufacturing sectors. As the world moves toward a more environmentally friendly mindset and as landfills continue to fill and close down, Wisdom Environmental serves the needs of both business and society. Wisdom Filter Clean is a division of Wisdom Environmental and specializes in the cleaning of industrial dust collector filters. ●



*Dust Collector with Cyclone*

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