

Reusable Abrasive Techniques for Any Size Project

By Russell Roden, Atlantic Design, Inc. | calladi.com

A common myth about grit recycling is that the size of the project alone can determine whether single-use or reusable abrasives is more financially prudent for the job. The reality is that there are many factors to consider when determining which type of abrasive to use, and project size is just one of them. I previously addressed some of these considerations in my article "Abrasives: To Recycle or Not to Recycle" here on PaintSquare.com. But now I want to discuss how much the size of the project affects whether or not a reusable abrasive, specifically metal abrasives, is advisable.

There is a misconception that using steel reusable abrasives is only cost-effective on very large projects and only when standard recycling equipment is used at the project site. While the safety and cost savings may be greatly enhanced on large projects, real and significant cost savings can be realized on much smaller projects as well. Like all other aspects of abrasive blasting, the technique and approach to a project will differ when using and reclaiming steel abrasives versus using single-use abrasives.



There is a misconception that using steel reusable abrasives is only cost-effective on very large projects and only when you can use standard recycling equipment at the project site. ALL PHOTOS © ATLANTIC DESIGN, INC.

METHODS FOR USING RECYCLABLE ABRASIVES

First and foremost, contractors wanting to take advantage of abrasive recycling will have to modify their grit blasting and reclamation process. Using disposable abrasive practices

with reusable abrasives will negate most of the safety benefits and cost savings of reusable abrasive.

Furthermore, just “trying” steel reusable abrasive will not yield the desired return, but once a contractor makes the decision to switch, many new options will be available to enhance safety and production on almost any size project.

Point of Use. The typical arrangement for most projects is to have the blasting and reclamation equipment on site, at the point of use, and do all the vacuuming, recycling and blasting from a single grit machine. This single-unit approach may be the most popular and even the most efficient in many cases; however, it is not the only method for a successful blasting and recycling project.

Remote Delivery. Another method for larger projects is remote recycling, when the reclaiming equipment is removed in from the blast site. For some projects the blasting and vacuuming operations need to be set up and removed daily, so navigating a large machine on and off the work area is neither feasible nor desirable. A successful alternative to the single machine is to separate the blast and vacuum operations from the grit reprocessing. By setting up the grit processing at a remote location, separated blast vessels and vacuum units can be brought onto the blast site individually when needed.

At the reprocessing site, the blast vessels are loaded with grit and then transported to the blasting site for use. When a blasting shift is completed, the vacuum systems are brought in to vacuum up the blasted abrasive. The empty blast vessels and the vacuums with the reclaimed abrasive are transported to the reprocessing site. Now the abrasive can be processed and loaded back into the blast pots for reuse.

This procedure can be repeated until the project is completed. Not only does this method allow the owner to reap the cost advantages of reusable abrasives, it also allows more blast nozzles to be used simultaneously than is possible with the large all-in-one system. See a



This three-pot bulk trailer, equipped with 12 nozzles, was custom-designed for remote recycling capabilities.

12-nozzle blast trailer, below, designed specifically for this method of abrasive blasting and recovery.

Remote Hub. A derivation of the above method is to use the trailer recycling machine as a remote hub to support the blasting and vacuuming from a central location. This would work well on a job — such as a tank project — with multiple blast areas in close proximity to each other. The trailer recycle-and-blast system

can be positioned centrally or closest to a particular blasting section while other mobile blast vessels and vacuum units can be blasting and vacuuming in other sections. The shared recycling trailer system can work as a central processing unit to support the multiple blasting operations. This would also work in shipyards, drydocks and other areas where multiple blasting areas can be supported with the single recycling system.

The remote recycling of abrasive also works on very small projects. While it may not seem possible to use reusable abrasive on small projects that require only one or two nozzles and less than a week of blasting, it is on some of these small projects that reusable abrasives can help owners realize their greatest savings.

USING TOTES

Since steel abrasives can be reused hundreds of times, they can be reused from project to project. For small projects that typically use small 600-pound blast pots, a pallet or two of single-use abrasive can be replaced by using the same 600-pound blast pot with totes of steel grit. These totes are used for grit storage and safer handling and can be easily stacked, making them ideal for small projects.

To do this, all you need is a standard 600-pound blast pot with a tote support frame. Simply set up the blast pot at the job site as you would for a single-use abrasive, then set the tote support frame and place the tote above the blast pot as shown here.

This setup will allow the steel abrasive to flow into the blast pot for automatic loading without any additional handling. As is done with single-use abrasive, take just enough reusable steel abrasive to the job site to blast the project once.

When the blasting is complete, clean up the spent steel abrasive (similar to the way you would clean up the single-use abrasive), and reload it into the totes using the top-loading access door. Then remove the totes with the dirty abrasive and deliver back to the location of the grit recycling equipment.

Recycle the abrasive normally, and load back into the totes for the next project.

FINANCIAL, SAFETY AND HEALTH BENEFITS

Since steel grit is the highest-density blast media, there is actually less grit to clean up as



compared to single-use grit, and it produces much less dust, which can result in faster setup and removal on the project. Also, compared with single-use media, the waste that has to be disposed of is reduced up to 90% or more, thereby reducing the cost associated with waste removal.

With thoughtful consideration, there are multiple techniques to allow for reusable abrasives on varied projects — from very large, multiple-blast operations to very small single blast-and-go projects. Improving production with recyclable abrasives, proper equipment and planning can reap financial rewards, but it can also improve health and safety with reduced debris and dust exposure for the workers and the environment.



ABOUT THE AUTHOR

Russell Roden, Atlantic Design, Inc.

Russell Roden graduated from the University of Houston with a degree in Mechanical Engineering in 1984 and has worked in the Blasting and Coating industry ever since. In 1997 he founded Atlantic Design, Inc. where he has secured several patents and set new innovation, quality, and safety standards for Abrasive Blasting Equipment in a worldwide market.



Atlantic Design, Inc.

1.866.CallADI
410.335.1400
callADI.com

info@calladi.com
11505 Pocomoke Court
Baltimore, Maryland 21220