SPRAYTIME®

Published by *The International Thermal Spray Association*
A Standing Committee of The American Welding Society
Volume 20, Number 2 Second Quarter 2013

Recycling Thermal Spray Overspray Dust and More: *How to Maximize the Value of Overspray Materials and Do Right by the Earth*

By Scott McLaughlin

Want to keep your thermal spray waste and by-products out of landfills and generate some extra cash at the same time? Your overspray dust has value and there are recyclers willing to pay you for it. This article will discuss simple ways to get the most out of your overspray dust, spent dust cartridges and all other materials for which you no longer have a use. Furthermore, sending your overspray materials to landfills as hazardous waste is extremely expensive and unnecessary. You can recycle them and in many cases be paid for your materials, converting the overspray dust from an expensive cost center to a cash generating profit center. Let's talk about dust first. One of the first questions I get is, "Do I need to have the different materials segregated?" The simple answer is no. There are qualified recycling vendors who can take a mix of all your overspray dust and separate it out for resale to other manufacturers. So if your collector hoppers contain a mix of tungsten carbide, chromium, cobalt, nickel, aluminum oxide, zinc, chrome oxide it can still be recycled and kept out of landfills.

Overspray dust is never resold to thermal spray powder suppliers because it will not meet purity and particle size requirements and will likely contain a high percentage of fines. Overspray dust is usually sold to other industries. For instance chrome oxide dust is sold to manufacturers of stainless steel as a source for chromium.

However, if operationally practical, segregating various overspray materials will definitely increase the value of your materials in the eyes of the recycler. If at all possible it is best to keep ceramics like chrome oxide Cr_2O_3 and aluminum oxide Al_2O_3 separate from metals like tungsten carbide, cobalt, nickel and chrome. Chrome oxide and Al oxide are low value materials and pull down the value of the other metals which are high value. Plus, although possible, it is more difficult to separate chrome oxide and aluminum oxide from the metals. You will have to weigh the value of increasing your settlement from a recycling company against the operational inconvenience of keeping the materials separate by dedicating a booth and a collector to one or more coatings.

Another common mistake thermal spray shops make is allowing contraband to get tossed into bins or drums of recyclable materials. Keeping latex gloves, string, wood, pop bottles, rubbish, etc out of dust and grit containers is by far the fastest way to increase the value of your recyclable materials.

Two very common but relatively unknown recyclable materials are grit from abrasive blasting, coating prep and solids removed from coating masking. While grit blast material, typically Al_2O_3, will generally only provide a small if any settlement payback, you can keep it out of landfills by recycling it. You do not have to send it to a hazardous waste site either. The best practice would be to keep shipping costs to a minimum by sending the grit along with a load of "good stuff" like Ni, W, Co, etc.

That brings up another frequent question. Who pays for shipping? The answer is, it is up to you. If you prefer to have the recycling company pick up the freight charges, they will be more than happy to do so. However, the recycler will then deduct the shipping charges from your settlement. The better option is to make the shipping arrangements yourself with your usual shipping/freight hauler. You already have a relationship with them and they want to keep your business so they are most likely to give you the best rate. Then your recycling settlement can be maximized.

Spent dust collector cartridges are also recycling candidates. The metal or ceramic dust stuck in the cartridge filter media can be reclaimed just like the material in the hoppers. The metal caps and cages are then sold as scrap to metal recyclers. To assist in shipping the cartridges to your recycler, keep the original boxes the cartridges were sent to you in. Replace the cartridges into the boxes and palletize them for shipping to the recycler.

Proper exhaust ventilation is important to collect as much dust as possible. This keeps your employees safe from metal dust and fumes and captures as much dust as possible for recycling. Make sure the ventilation is drawing airflow away from the nozzle at a 90 degree angle. If the airflow is vertical (such as with an overhead hood) the metal overspray may coat the torch on the way to the ductwork. This creates operational problems for the torch. The metal will foul the torch making for a lot of unnecessary maintenance and torch rebuilds. Both of which lead to unplanned downtime and delayed deliveries.

What factors determine the settlement payback? Number one would be the type of material. Then believe it or not volume is probably the second biggest factor. The more you

generate the more attractive the material will be to the recycler. Purity, absence of contraband, metals market fluctuations, and shipping distance also play into the value of waste materials. It is important the recycler understands your business and has multiple "homes" (manufacturers who will buy the materials to be made into other products) for your materials.

There are plenty of other waste materials generated in a coating shop which can be recycled besides overspray dust. These include powder bottles, wire snippets from thermal spray wires, copper nozzles, electrodes, anodes, cathodes and scrap customer parts made of valuable alloys such as Inconel, Hastalloy, Stellite, etc. Powder bottles are sold to a manufacturer who grinds them up and compresses them into square blocks. The blocks are then used as energy absorbing devices for highway guardrails.

When recycling materials are sent to the recycler they need not be shipped as hazardous waste. They are product, just like the powder was when it was originally shipped to you from the powder supplier. Your recycler should be able to help you interpret and comply with federal and state environmental laws and regulations, whether the recycler is based in your same state or not.

Make sure your recycler provides a certificate of recycling to document your materials are not sent to a landfill. This protects you and your company. All materials sent to a landfill are forever your responsibility. Cradle to grave. Record keeping is a critical responsibility for the generator of waste/recycling materials. Most highly functioning coating job shops assign this task to an individual whom is experienced and knowledgeable with records and procedures, such as the quality manager or HSEA manager. All in all recycling is good for your business and good for the Earth!

For more information, contact Scott McLaughlin, phone: 630-922-7198, website: www.mclaughlinthermalspray.com, email: scott@mclaughlinthermalspray.com