Powder Coating Recycling

Powder coating involves the use of pigmented powder that is sprayed and then melted onto a part to create a finish. The powder is typically applied using electrostatics, creating a charged part that will attract the powder coating to increase transfer efficiency. Powder coatings contain no solvents, which means that they contain no hazardous air pollutants (HAPs), and no (or very few) volatile organic compounds (VOCs). This makes powder an excellent option for companies that want to reduce pollution. When compared to liquid coatings, powders get better transfer efficiency, and over sprayed powder can easily be reclaimed for reuse or recycling.

Sometimes it is not practical or cost effective to reclaim and reuse waste powder. In these situations, recycling offers an alternative for powder overspray and left over coatings, rather than sending the powder to landfill. To learn more about the powder coating recycling process, MnTAP interviewed Brian Spicer from Surplus Coatings, a powder recycling company servicing Minnesota.

MnTAP: Can you tell me about your company and what you do?
Brian Spicer: Surplus Coatings started in 1995 buying and selling manufacturer's off-spec powder coatings being landfilled at the time. Eventually, word spread, and companies started calling and asking whether we took overspray. We didn't at the time, but we got so many phone calls we started looking in to how to recycle it. During the R & D phase, we estimated that 20 million pounds of waste powder coating is disposed of annually in the US. The result of the R & D phase was the development of a proprietary way to re-use and recycle powder overspray. The recycled material is used as a bonding agent for the non-woven textile industry. This bonding agent is used in filters, carpets, mats, and clothing. It can also be reprocessed back into powder used for wood and wire coating.

What is your service area?
We service all throughout the world. We recycle mainly throughout the United States, but do also serve Canada, Mexico, and we also have some customers in Europe and Asia.

What would you tell a company that is on the fence about powder recycling?
I would let them know that we are available! We recycle all types of waste powder coatings. There is no limitation on the quantity that can be recycled. We work with customers from Original Equipment Manufacturers (OEMs) to waste collection companies.

How does transportation work?
We organize shipping through shipping brokers, which the client typically pays for in place of landfilling and tipping costs.

What are the first steps?

The first steps are to give us a call and to send us a two pound sample of your powder to begin the creation of your powder recycling plan. Call 616-952-0032 to learn more and to get started, or visit our website: http://surpluscoatings.com/.

We also interviewed Paul Huot, CEO of Huot Manufacturing. Huot Manufacturing is a Minnesota company currently recycling their powder coatings. Paul was kind enough to share his perspective on the process:

MnTAP: Can you tell me about your company and what you paint?

Paul Huot: We are a 90 year old, third generation family business in St. Paul, Minnesota. We make a line of products to help machine shops get organized including carts, cabinets, and racks. We powder coat our own product and also do custom powder coatings for customers. Our painting is done on a conveyorized powder coating line with both automatic and manual powder paint guns. We excel at painting large quantities of 8''x 8'' or smaller box profile components, but we can paint custom parts up to 40'' x 38'' x 38''.

Why did you choose to implement powder coatings?

We started powder coating in 1983. We were managing hazardous waste with liquid coatings and solvents, and we got tired of dealing with the shipments, regulations, and liabilities. At the time, our waste solvents were being sent to a waste to energy recovery facility. Shipment of the hazardous material was difficult to handle and a hassle, so we looked into powder coating and found that it was a much more environmentally friendly system. There was a lot less waste, and what waste there was could be melted into a cube and disposed of as non-hazardous solid waste. The other major factor for us was that we had a 20,000 cfm make-up air unit required for ventilation of the liquid paints and solvents. When we implemented powder, we were able to turn off the 3'' natural gas line needed for this unit. The reduced make-up air requirements combined with the reduced heating requirements during Minnesota winters made the powder system pay for itself quickly.

Can you tell me about powder re-use and recycling?

With powders, the first pass efficiency that we see is right around 60%. Our main three colors we can capture and re-use, which results in an overall transfer efficiency of 95%. However, it is not feasible for us to capture and re-use our custom colors, so the overall transfer efficiency there is confined to 60%. Surplus Coatings will accept these mixed custom colors so that we don't have to send them to landfill. We've only sent our powders for recycling one time so far; it takes us about a year to collect enough to justify the shipment. We are planning send our second shipment shortly. We started powder recycling to reduce waste being sent to landfill, and recycling powder was a cost-neutral solution.

The cost was a wash when compared to our other powder disposal method, but we think it's worth it to keep our waste out of landfill.

Is there anything else you would like to share?
Surplus Coatings is an easy company to work with. We got started by sending them a powder sample, and it wasn't hard to organize transportation. Overall, we've had a good experience with powder coatings and powder recycling.

Powder coating recycling is an option available to businesses looking to reduce their environmental footprint. It sources excess and waste powder for another purpose, rather than having it landfilled, improving sustainability. It's a great way to green your business and to reduce waste here in Minnesota.