How to Know when Reclaiming Powder is Right for You

While it is true that the ability to reclaim overspray powder is a prominent selling point of the powder coating process, this does not mean that it makes sense for you under every circumstance. Everyone who either has an existing powder coating process or is looking to purchase one must eventually come to grips with this issue. Surprisingly, most people look at this dilemma the wrong way because they get mesmerized by the technology rather than analyzing this issue using normal cost accounting techniques.

Reclaim Choices

Reclaim systems come in several varieties: cartridge, cyclone, or spray-to-waste systems. Cartridge collector technology utilizes dedicated cartridge collectors to reclaim individual colors or powder formulations at efficiencies approaching 99 percent. In addition to the collector, there are bulk powder transfer pumps, sieves, receiver tanks, gun feed hoppers, gun feed pumps, powder feed hoses, hopper level probes, and control packages that must be incorporated in this design to make it a fully functioning automatic reclaim system. Color change time using this type of reclaim system is often less than 45 minutes with two persons.

The second type of powder coating reclaim system utilizes cyclone technology at efficiencies approaching 90 percent. Because these systems are "self-cleaning," they use cyclones to reclaim all the individual colors or powder formulations sprayed in a particular booth. In addition to the cyclones, there are bulk powder transfer pumps and feed centers that include sieves, gun feed hoppers, gun feed pumps, powder feed hoses, hopper level probes, and control packages that, like the cartridge system, must be part of a complete and automatic reclaim system. Color change time using this type reclaim system is often less than 20 minutes with two persons.

Spray-to-waste reclaim systems always use cartridge collectors to collect the overspray powder and can include transfer pumps to send the waste material to drums for disposal. Color change time using this type reclaim system is limited to cleaning just the feed system and gun(s) and can take as little as 12 seconds to complete using sophisticated paint kitchen technologies.

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Calculating Reclaim Value

The amount of overspray generated is directly proportional to the first pass transfer efficiency of the spray system. First pass transfer efficiency is dependent upon the products being coated and the spray equipment used. General ranges for first pass transfer efficiencies are as follows:

- **Simple Flatware Parts and Inside Box Shapes = 60%**
- **Large Parts = 50%**
- **Small Parts on Hanging Racks or Complex Parts = 40%**
- **Wire Goods with Very Little Surface Area = 25%**

These efficiencies do not reflect the type of spray equipment that is used in the system. Therefore, the first pass transfer efficiencies must be modified based upon the following equipment factors:

- **Automatic Systems: add 0%**
- **Automatic Systems with Automatic Triggering and/or**
- **Profiling: add 10%**
- **Manual Spray Systems: add 20%**

Using these factors, calculating the amount of overspray powder is as follows:

- **Spraying 100 lb. of powder manually to coat flatware parts will generate 100 - (100 x (0.60 + 0.20)) = 20 lb. of overspray powder.**

Determining if a particular color is worth reclaiming becomes a simple math problem. Simply calculate the amount of overspray generated and multiply it by the cost of the powder coating to obtain the reclaim value. Compare this value to the cost to perform the color change (both in manpower and lost production). If it is cheaper to scrap the powder, don't hesitate to do so.

Of course, the same methodology should be used to calculate the return on investment (ROI) or payback for purchasing the reclaim equipment over the life of the system, as well.

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