

# Powder Spray Booths

## The Total Cost To Operate

**M**any companies are feeling the pressure of environmental regulations. The emphasis that the U. S. EPA and the States are placing on industry is "pollution prevention." They say the best way to comply with tougher environmental standards is to reduce the volume of wastes and emissions generated. One way to accomplish this is to change manufacturing processes. Many finishers and OEMs are avoiding compliance to regulations affecting emissions of volatile organic compounds (VOC) and hazardous air pollutants (HAPS) by switching to powder coatings.

If you operate a powder paint spray booth, or are considering switching to powder coatings, then you know that compressed air is one of your biggest operating expenses. The compressed air is used to power your spray guns and "pulses" your powder cartridges clean. Usually this pulse is done every minute or so. Most of the powder cartridges on the market require up to 85 lbs. per square inch (psi) of air to pulse. That can add up to a lot of compressed air usage.

To calculate the cost of operating your powder booth you must consider the compressed air expense, the cost of the paint, the price of your cartridge filters, and of course, labor. You must account for all these variables to figure out the total operating cost of your booth. If you can

save money in any one of these areas then you can improve your bottom line.

When it comes to determining the cost of the compressed air, look at the power consumption of your air system. It is powered electrically so you must find out the cost of electricity per kilowatt hour. Check your monthly electric bill for this. Multiply the price per kilowatt hour times the length of time you operate to determine your electricity cost to use compressed air.

Another variable is the cost of your paint. One of the biggest advantages of using powder paint over liquid paint is that powder can easily be recycled. If you recycle your powder then only account for the powder lost in the filters. This can be done simply by weighing an empty cartridge filter and compare it to a used one. At the end of the service life of a cartridge filter it will retain some amount of powder paint that pulsing cannot clean. This can be a few pounds of powder for a polyester type cartridges and up to 30-40 pounds per cartridge for a paper cartridge filter. The added weight per filter is how much paint is lost per cartridge. Simply multiply the weight gain times the number of cartridges, times the dollar cost per pound of your powder coating. This result will be the total amount of paint lost in dollars.

The number and type of cartridge

filters required by your system is another expense to operating a powder booth. Many types of cartridge filters are available. The most common is paper. A paper filter, however, is prone to "linting," or fibers that become loose during a pulse cycle. This can contaminate the air stream and bounce-back onto the item being painted causing rejects. Also, paper cartridges require a lot of compressed air to pulse, usually around 85 psi. This adds up to a lot of compressed air usage plus the potential of many rejects. Add to that the expense of the lost powder paint and the costs add up quickly. Another type of filter is made of aluminized polyester. There is no linting caused by high air pressure. The pulse rate is reduced from 85 psi to 40 psi, saving more than half on your compressed air cost. Also, powder will tend to "cake," or build-up on a paper filter, but does not with an aluminized polyester filter. An aluminized polyester filter lasts longer, too. Paper cartridge filters will last about 4-6 months. An aluminized polyester one will last a year, or more.

Add it up. Total your filter costs, compressed air costs, reject costs, and paint costs to realize the money you spend to operate your powder spray booth. If you can cut your expenses in any of these areas you will save money in your powder booth operation. *That is the bottom line.*

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