DOLLARS FROM DUST

In manufacturing, especially in the extrusion business, you can be a clever manufacturing enterprise, and create *dollars from dust*. Oh, everybody has figured out a way to regrind scrap product and re-extrude it, that's the easy part, but what about the dust?

Ever sit down and figure out what your dust is costing you every year? Specifically fugitive dust from your process environment. Well, let's take a look.

Typical Plant Dust Collection Process

Most extrusion plants, be they plastic, PVC, wood composite, or whatever, have a series of known process points where fugitive dust is created. I am not speaking here of leaks in the pipes of a conveying system, but your typical spots:

- Where bulk bags or Gaylord boxes are unloaded, like at minor ingredient stations
- Exhaust stubs from blenders, hoppers, scales, and bag dump stations
- Gravity fed hoppers
- Some points along the extruders

OK, these tiny particulates, so small as to hardly notice (except when you look to the sky and notice the rafters), are usually sucked into a central dust collection system. This *non-homogenous* blend of expensive stuff ultimately gets landfilled. To re-use it is futile because it is comprised of a variety of ingredients, fillers, additives, and other unknown compounds, depending on what point in the material process it was collected. This does keep the plant clean right?

Cost of Fugitive Dust Loss

The amount of material loss for any system is always custom for that system depending on type of material, capacity, and the percentage of loss due to dusting. For a PVC compounding system, you can look at a conservative estimate of 2-5% for each minor ingredient dealt with in bulk or 50 lb. bags. Other products require other analyses. The best way to illustrate this simply to gage the potential order of magnitude is by way of example.

At OA Newton, we have a rather large installed base of wood composite systems for decking, railing and the like. Similar to the PVC case, you can expect a minimum of 2% loss at the minor ingredient unloading stations. Lets table that for the moment. You can expect similar percentage losses at the blender where the wood, plastic and minors come together (after minors are already lost), and another 2% between the blender and the point of process compounder or

extruder. That's a total of 4% on finished compound sent to central dust collection.

Typical production at a PVC or WPC (wood plastic composite) facility can range from 20,000,000 lbs. of product made annually and up. Let's take 10,000,000 lbs. for this example. A compounded price for wood composite material runs an average of $0.70/lb. (insert your number here).

10,000,000 WPC compound
4% loss = 400,000 lb. annually
@ $0.70/lb., loss = $280,000 per year

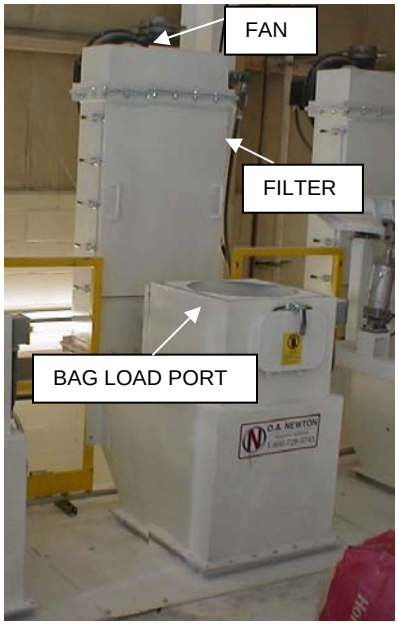
but wait, there's more! You have to landfill that loss from your dust collector. Reasonable landfill rates are about $60/ton, so add…

400,000/2000 = 200 ton
@ $60/ton = $12,000 landfill fees

and *even* more. The average OSHA fine for poor air quality runs $7,000, plus the remediation costs of fixing the problem under OSHA mandate. Other possible hits include *workman's compensation rates* and potential *explosion risks* if your plant has a dusty environment. We can go on, but you get the point. ***Fixing this issue, if you have it, pays big time!***

Point of Use Dust Reclamation

What would happen if your dust collection pickup points fed into self-contained, appropriately sized mini-dust collection units, replete with filter cartridges between the pickup and an exhaust fan? Then that filtration unit was purged using a compressed air blowdown every so often and all the dust released from the cartridge fell back down into the machine where it was created, went through the process, and was ultimately used instead of thrown away. You'd have *point of use dust reclamation (POUDR).* You get to properly ventilate your process hopper and maintain the materials in the process.



POUDR System

Why would you use POUDR?

To prevent blowing nearly $300K out the window for starters to get the same output. You can also sell it to upper management by mentioning the decreased likelihood of OSHA trouble for particulate emissions

and all the other lean and green things we highlighted in the cost section. How much does POUDR cost? Well, that depends on your number of pickup points, air-to-cloth ratio necessary for the volume of displaced air and a few other factors, but you can be safe in saying it's a few thousand at each location. I can guarantee you this is well under the investment to install it, and that is well within most quarterly maintenance budgets at industrial concerns. A large plant wouldn't need to spend more than $25-30K to get a much larger savings than the quarter mil highlighted in this example.

At OA Newton, we install POUDR as a standard part of a handling system for bulk powders and other situations where this calamity occurs, and we'll retro-fit to existing lines as well. Are we the only guys who can do this? Perhaps not, but we know how to do it right and economically and our systems are proven.

The numbers I shared with you are conservative in nature. Your total waste is likely a lot higher than that. Hmmm, is the 1-2 month ROI worth it, you may be asking yourself in the mirror?

"What are you prepared to do about it?!"

By the way, there are a few rules of thumb in maintaining any filtration system to be at its optimum for your bulk handling system and give you maximum yields with minimum headaches. To get the top 5 tips for the best filtration operations ever, email me at solutions@oanewton.com and mention FILTER TIPS in the subject line. Keep smiling and always remember, this stuff is better in your process than in your lungs.

O.A. Newton, is a Delaware-based firm that specializes in delivering smarter material handling solutions that increase capacities and reduce operational expense for manufacturers in the plastics, composites, rubber, food and other powder-challenged industries. Help can be reached at solutions@oanewton.com or toll free at (800)726-5745, ext 3778..