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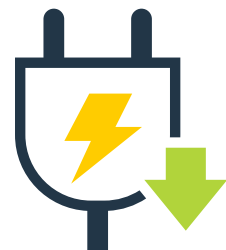
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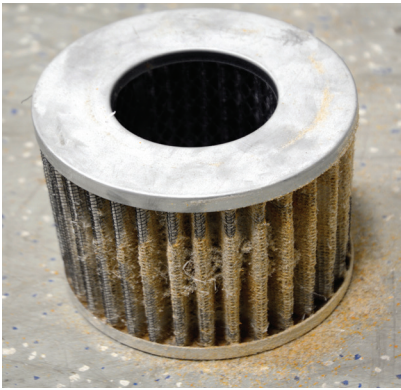
Mark has been designing and installing dryer systems for over 40 years and has worked at Novatec, a leading dryer equipment supplier for the plastics industry, for 25 years. Mark is a well-known and well-respected resin drying expert. Throughout his career, Mark has visited thousands of plastics plants offering solutions for drying challenges and has authored many technical drying and moisture-related articles.

# Energy Saving Resin Dryer Installations

*Energy costs are one of the few things you can control.*

You can exert some control over those monthly energy costs whether you continue to use existing dryers or you are planning to replace your dryers.





*Clogged filters increase energy consumption.*



*Differential pressure switches can warn of filter clogging.*



*Drain plasticizer and wash filter regularly.*

### PROCESS AND REGENERATION FILTERS

Do you realize how much dirty process and regeneration filters can reduce the efficiency of your dryers? Would you believe a 30-40% reduction in efficiency? That means you are using a lot more energy to dry your materials or – your percentage of rejected product is increasing. Most older dryers do not provide an alarm when filters are clogged, so it is imperative that a regular cleaning schedule be established and followed by production personnel. The schedule should be based on the dustiness of the material being processed, and operators should be required to sign a preventive maintenance checklist when they perform the cleaning. You should also keep replacement filters in stock for each dryer. Newer dryers use pressure drop indication to alarm when filters need attention.

### PLASTICIZER FILTER AND DRAIN

It is equally important that plasticizer filters be cleaned on a regular basis and excess plasticizer be drained to ensure that contaminants do not get into your desiccant – which will cause it to lose effectiveness and require replacement.

### CHECK AND REPLACE DESICCANT

Poorly performing desiccant can also increase energy usage because it does not absorb moisture as readily as it should, nor does it regenerate as quickly so process times increase. More energy or poor product is produced which also represents additional wasted energy. A good sign of ineffective desiccant is when the dryer is not consistently producing -40°F/C dew point process air. One of the easiest ways to check desiccant is visually. If it is discolored – replace it. Also, grab a handful of cool desiccant and squeeze it...you should feel it warm up quickly – without crumbling.

### HOSE AND HOSE CONNECTIONS

Every few months, all hose clamps should be checked for tightness and all hoses should be examined for holes and cuts in and around the dryer and at the hopper. Air leaking from these points represents energy flying off into the atmosphere.

### HOSE INSULATION

Be sure that all hoses that carry hot air are well wrapped with insulation. Note that the process return air hose from the hopper to the dryer should not be insulated.

If the dryer is not attaining the proper process and regeneration temperatures, it could be a sign that a heater needs to be replaced. Any delay, means that poor parts are probably being produced. Every poor part that is produced represents wasted energy, labor and higher material cost.

Now let's look at energy considerations for new dryers and hoppers: First and foremost, when replacing an old dryer, talk to suppliers who offer more than one or two types of dryers. If all they have to sell are Type 1 and Type 2 Dryers, they will try to pigeonhole you into one of those solutions. Today, you have many choices allowing you to purchase the dryer best-suited for each application.

Just like energy usage has been reduced for home appliances and automobiles, energy usage has been reduced for newer dryers while older dryer technology has lagged in energy-saving features.

### DRYERS

- Compare energy usage for the type of dryers that meets your processing requirements. Any manufacturer you talk to should be able to show you the kw/lb. or kw/kg of material processed so you can relate that to your cost/kw in your area.
- Ask whether the dryer control includes any special energy-saving features.
- Make sure that high temperature hose or ducting is well-insulated.
- Ask whether the dryer you are considering qualifies for an energy-savings credit.

### HOPPERS

A minimum of two inches of insulation should be sandwiched between the walls of the hopper cone, hopper door and hopper sides, but not in the section where the return air exits the hopper. You want relatively low-temperature air to be returning.

### PLACEMENT OF PROCESS HEATER

The best place for the process heaters depends largely on the size of the dryer.

For smaller dryers, the process heater is usually in the dryer when the hopper is very nearby.

For larger systems, where the hopper is several feet from the dryer, the process heater should be mounted on the hopper to minimize heat loss.



*Worn or degraded desiccant beads cause higher energy costs.*



*Hopper insulation should extend from bottom of cone to just below process return outlet.*



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