polychem usa

Raw Materials For The Plastics Industry

PRODUCERS & DISTRIBUTORS OF APC PURGING COMPOUND
The product registered in U.S. Patent office under
Trademark No. 814677

THE PURGING OF EXTRUDERS AND RECIPROCATING SCREW INJECTION MOLDING MACHINES

DESCRIPTION

APC is a fully polymerized thermoplastic compound in granular form packed into fiber drums of approximately 300 lbs. each and into gaylord containers of about 1000 lbs. each. It has exceptional color absorption properties combined with a high melt viscosity.

APPLICATION

APC has proven to be an excellent cleansing agent for injection molding machines and extrusion machines. With APC all types of thermoplastic resins of any color can be purged from machines much quicker and more economically than with other conventional methods.

ADVANTAGES

1. APC is versatile and will effectively purge from injection molding machines and extruders every known type of thermoplastic resins and colors currently being used. This includes nylons, Fluorocarbons, Polyethylenes, etc., however extra precaution is recommended in purging Acetals, because a chemical reaction may result between the two and it is recommended that two scoops of Polyethylene be run through the machine before introducing APC. This intermediate run of Polyethylene will prevent a chemical reaction between APC and the Acetal resin.

2. APC does a much better job and much quicker. Because of its exceptionally high melt viscosity, APC does not melt completely as it passes through the machine, and as a result it does a much better and thorough job of cleaning and purging in a much shorter time than materials that become fluid during use.

3. APC is economical. Compared to competitive products, our material is priced much lower and does exactly the same job. The quantity of APC needed for purging purposes is approximately 1

lb. for each ounce of machine capacity. For example, and eight ounce machine will require only 8 lbs. of purging compound, slightly more when changing from a very dark color to a very light color.

4. APC is easier to use. Because of the physical properties of our material it is not necessary to make any radical changes in machine settings or temperatures prior to actual purging. By following recommended procedure purging can be accomplished quickly and efficiently.

PRECAUTIONS

APC does not melt completely as it passes through the equipment hence it will not readily pass through the small orifices in dies and nozzles. Therefore, REMOVE DIES AND NOZZLES before introducing APC into the machine.

PROCEDURE

APC will thoroughly clean injection molding machines and extruders according to the following procedure.

1. Retract die from nozzle
2. Remove nozzle (and screen if one is in use)
3. Feed APC compound into hopper
4. Put machine into operation (leaving the machine settings as they were during molding operation)
5. Continue to run machine until APC compound appears through aperture with no traces of material being purges mixed with the APC
6. Feed new plastic to be molded or extruded into hopper
7. Continue to run until APC is evacuated from machine and new plastic flows freely
8. Replace nozzle and proceed with molding or extruding

INSTRUCTIONS FOR USING CAST ACRYLIC AS A PURGE

1. Our experience with cast acrylic is that it must be used at temperatures at 500°F maximum or lower. If it is used at higher temperatures, it will start vaporizing at the hopper and become smaller granules. By the time it then reaches the nozzle, the granule size is so small that it loses its scrubbing quality. Do not heat APC above 500°F as polymer degradation may occur.
2. If running a high temperature resin, lower the temperature, especially at the hopper to 500°F and then start purging.
3. If bridging is experienced at the hopper, water cool the area, and also starve feed the acrylic. The starve feeding with allow free flowing granules to reach the screw, rather than fused lumps.

4. Not all resins are equally well purged with cast acrylic. There are some cross-linked materials that have an affinity for metal and must be processed at high temperatures that the acrylics will not clean. To purge these materials, an intermediate material must be used, i.e. fractional melt Polyethylene.
5. APC purge is more economical than other purge compounds as it generates less scrap and cleans equipment quickly without the need to change temperature settings.
6. We suggest 2 lbs. of APC purge per inch of screw diameter, i.e. 4 ½" screw requires about 9 lbs. of APC.
7. APC purge is recommended at these temperatures for the following materials:

WHEN PURGING	**USE TEMP**
Cellulosics, Polyolefins, Styrenic & PVC	380 – 450°F
ABS, Nylon, Polycarbonate, PET and other High temperature engineering resins	450 – 500° F

PROBLEM SOLVING

1. If material does not flow properly raise the temperature in increments of 10° F until it starts flowing. Make certain that screen pack, nozzle or breaker plate have been removed.
2. If material is brownish or acrid fumes develop reduce temperature in increments of 10°F.
3. In case of excessive fumes or smell make sure area is properly ventilated. Odors and fumes are not harmful even if unpleasant for some operators.

PURGING PRACTICES

Only you know how often you have to purge. Purging often accompanies changeovers of color, resin or resin viscosity; it should be done with startup or shutdown, and is even beneficial as a regular maintenance procedure. The more often you purge, the better the results.

Procedures vary with the type of purging compound. What you have to do first is read the instructions. It is usually recommended that the screen pack be removed before purging; a few of the products don't require it, but the quantity of degraded resin that remains in the machine will be the arbiter. Removal of the pelletizing die depends on the product being run. It's usually recommended that the screw be run until all possible material has been removed before the purge is added. With all but the chemical type of purge, a slow screw speed is the usual recommendation. Purging into water is recommended for the cast-acrylic scouring type, and also with some resins, such as ABS.
The temperature should be that of the following material, or a little below. Lower temperature will stiffen the purging compound, which is beneficial. Observe the temperature limits of the purging compound; some won't handle resins that process above 600°F.

Note that running purging compound may not be the end of the cleanup operation. Don't expect miracles. It may still be necessary to pull the screw… but by using the purge first, you will have eliminated a good deal of the heavy cleanup chores. Or, to put it another way, any time that you're planning to pull the screw for whatever reason; run a purge cycle first.

How long will purging take? A lot less time than pulling the screw and have at it with the tools of the scraping trade. Case histories are plentiful and inspiring in their savings of hours of hard labor. Some compounders of an experimental bent, faced with a tough cleanout, or perhaps just impatient, will first run one type of purge, then another. Some even combine two or three and run them together, and occasionally stumble onto synergy.