

Runners, sprues, and off spec parts molded from transparent materials are often reground for use in the same part, in less critical clear parts, or in tinted parts.

There are two major obstacles in the utilization of this regrind. The first obstacle is fines. Fines are a natural by-product of grinding styrenic and acrylic materials/copolymers. Large concentrations of these tiny particles can result in screw recovery inconsistency, splay, and even black specks in applications where high processing temperatures are needed.

To minimize fines generation during the grinding operation, it is imperative that your grinder be well maintained. Well-sharpened blades, free of nicks and gouges, are a must. Equally important is the clearance between the rotary blades and the bed knife. A clearance of 0.007" is usually effective. However, it would be wise to consult the equipment manufacturer for specific recommendations. Clearances that are excessive will result in pulverized rather than cut material, and cause a large concentration of fines.

If excessive fines do exist, they can be removed by passing them over a #12 stainless steel screen with agitation. Several vibrators are available for this method of fines removal.

The second obstacle is cleanliness. When using transparent materials, any dirt, dust or foreign material contamination can result in rejected parts. Incompatible polymers will cause loss of transparency ranging from haze to opacity.

Parts or runners containing dirt or discoloration, purgings, and plastic materials of a different type must be kept out of the grinder. The entire grinder must be cleaned meticulously prior to a material change. This includes the cutting chamber (vacuum out the bolt head areas), the screen, and the collection point.

Generating clean regrind is no guarantee it will stay that way. Dust will be attracted to material in open containers because of high static charge. Storing material in used containers is yet another source of contamination. If regrind must be stored, use clean, sealed polyethylene bags.

The best way to eliminate these sources of contamination is to consume the regrind from an on-line grinder immediately. Transfer the material directly to a ratio-type loader mounted on the press. A fines separator can also be engineered into the system. This "Closed" system will keep environmental contaminants out of clear moldings.

Following these suggestions for maintaining regrind systems and for handling clear reground materials will result in successful regrind utilization. In heavy walled (>0.125") parts, 15% regrind is the maximum recommended usage level. Loadings up to 30% may be possible in parts with thin walls.