

EXTRUSION PROCESSING GUIDE- RIGID DRY BLEND PVC COMPOUND (TWIN-SCREW EXTRUDER)

GENERAL INFORMATION

This processing guide is meant to provide general information for the extrusion of rigid PVC dry blend (powder) compounds when using a twin screw extruder. Westlake rigid PVC compounds can be tinted on-line with color concentrates; however, it is recommended that the concentrates use PVC as a carrier resin.

EQUIPMENT

Conical or parallel twin-screw equipment with vacuum venting should be utilized.

Screws

Screws must be designed by the equipment manufacturer for processing rigid PVC. Screws may be co-rotating or counter rotating; they can also be intermeshing or non-intermeshing in configuration. For screw cooling and heating, use of temperature-controlled oil-filled screws are recommended.

Barrels

Bi-metallic barrels are recommended.

Dies

Dies should have a streamlined design to maximize flow and avoid any “dead spots” where material can stagnate and burning will occur. The vast majority of dies are constructed of 4340 or 420 stainless steel; aluminum is sometimes used for small plate dies. Quenched and tempered steels are used to prevent dimensional changes and distortion in larger dies. Any steel material should be should be chrome or nickel coated/plated due to potential corrosion when extruding PVC.

The land length should be 10-15 times the land clearance. Excessive draw down ratios can cause high residual stresses and brittleness. Depending on die swell, drawdown should be 4-10%; with 5% being the standard but this is dependent on processing conditions

Clean-down/ Maintenance

The use of a PVC purge compound is recommended when shutting down and cleaning equipment. The die and all associated components should be “neutralized” to remove any residual hydrochloric acid and then treated with a high-quality mold preservative or rust inhibitor.

TEMPERATURE PROFILE

Barrel Temperature (°F)	Die Temperature (°F)	Melt Temperature (°F)
325 - 365	345 - 365	370 - 390

Revision Date: 04/11/2022

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ADDITIONAL INFORMATION

Rigid PVC dry blend compounds do not typically need to be dried before use; however, if necessary the compound can be dried at 120°F for approximately 4 hours. Proper sizing of the drier is based on throughput; the hopper is sized to hold the lbs. /hr. multiplied by the suggested drying time (normally 4 hours). Example: if the extrusion rate is 100 lbs/hr. then the drier capacity should be 400 lbs.

Regrind can be used up to approximately 20% by weight with virgin powder.

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