

PVC Basics

PVC Resin

Polyvinyl chloride resin. Different grades for different application i.e. Plastisol grade resins contain surfactants and have a smaller particle size. Calendaring grade resin has a tighter particle size average.

Processing

Flexible

PVC resin to be fabricated by hot-melt processing is almost always mixed with formulating ingredients in a dry blend (powder-mix) as the first step. A typical PVC compound contains PVC Resin, Stabilizer, Plasticizer, Pigments, and Lubricants.

Dry blending is a compounding technique used in preparing PVC formulations for subsequent fluxing and forming. Dry blending consists of mixing the solids of the PVC formulation with the liquid ingredients in a manner that a uniform, dry, free-flowing powder results.

Then the dry blend is fluxed in any fusion device into a formable hot melt. The hot melt may then be fabricated by extrusion through a die, injection into a mold, calendaring into a film, blow, compression or transfer molding and conversion into pellets or cubes that are remelted at a later time.

Plastisol

PVC resin to be fabricated by plastisol technology is wet-mixed with plasticizers and other formulating ingredients into dispersions of resin / solids in the liquid components of the formulation. This dispersion is known as a plastisol. It is formed into a useful shape and gelled with heat and fused by further heating, then cooled. Typical ingredients of a plastisol formulation:

- dispersion resins
- plasticizers
- fillers
- thinners
- viscosity modifiers
- smoke suppressants
- release agents
- blending resins
- stabilizers
- pigments
- blowing agents
- flame retardants
- adhesion promoters
- air release promoters

A plastisol viscosity is one of the most important characteristics of the PVC formulation because of the various kinds of processing techniques such as spread coating (knife, roll and rotary screen coating and saturating), molding (dipping, rotocasting, slushing, cavity, or in-place), extrusion, strand, curtain, and spray coating.