Troubleshooting Guide

»» PVC Extrusion of flexible wire & cable

Low variable insulation resistance

Cause	Solution
Cold conductor	Preheat conductor to 280-300 F with electric preheater.
Incorrect formulation	Check the clay content or increase amount.

Low initial elongation

Cause	Solution
Low stock temperature	Increase stock temperature.
Incorrect formulation	Lower the filler content.

Test failure in heat shock

Cause	Solution
Strains due to poor flow in approach to die which cannot relax during cooling of insulation or jacket and/or excessive drawdown	Increase the distance of water bath from the die.

Voids throughout the jacket or insulation sometimes giving a rough or grainy surface.

Cause	Solution
Melt zone too far forward in barrel to force entrapped	Use more or finer screens.

air in back through hopper.	Raise temperature of controlling heat zones. Preheat plastic pellets before use.

Voids occurring normally just beneath outer surface of jacket or insulation sometimes giving a rough or grainy surface depending on severity of problem.

Cause	Solution
Humidity or dampness causing the plastic pellets to hold moisture over time	Dry the material before use. Store material in tightly closed containers.

Voids occurring sporadically in wall of jacket insulation usually accompanied by chunky surface roughness.

Cause	Solution
Excessive stock temperature	Lower temperature of controlling heat zones and crosshead. Lower the amount of screen packs and use fewer or coarser screens. Change screens at least every 8 hours.
Extended runs without cleanouts or screen changes	Decrease crosshead temperature.
Poor streamlining or flow in approach and crosshead	Polish dies, maintain guiders, resurface any nooks or burrs.
Dirty or pitted dies, guiders and breakers plates	During temporary shut down continue running by reducing barrel temperatures and screw rpm.
Improper start-up and shut-down procedures	During extended shut down continue running with open gate. Purge adequately before starting new run. Clean dies, tools etc. while still warm.

Fine pimples similar to grains of sand sprinkled over surface

Cause	Solution
Inadequate screw design for low back pressure extrusions	Use finer screens and increase number of screens. Adjust screw cooling. Raise temperature of controlling barrel heat zones.

Coarse grainy surface accompanied by porosity just under surface.

Cause	Solution
Moisture in material	Pre-dry material before using.

Fine grainy surface occurring over entire surface or portions of it at regular intervals

Cause	Solution
Cold pitted or dirty dies	Clean die thoroughly and polish it.
Poor streamlining and abrupt angles in approach to die	Raise stock temperature by: Adjusting screw cooling. Raising temperature of barrel and crosshead. Increase screen packs.

Orange peel surface with sporadic lumps

Cause	Solution
Non homogenous melt delivered to die	Increase screen pack. Use more or finer screens. Adjust screw cooling. Raise temperature of controlling barrel heat zones.

Sporadic lumps containing different coloured or texture materials. High incidence of sparker failure.

Cause	Solution

Break in screen pack. No guards on hopper. Careless handling of feed stocks or of material containers.	Flush out extruder barrel and thoroughly clean head. Avoid storing feed stock in open containers. Take care when emptying bags to keep paper out of hopper.

Raised lines on surface

Cause	Solution
Damage to die due to improper handling and care	Clean die thoroughly and polish it.

Holes or splits in jacket

Cause	Solution
Die opening too large – out of proportion for construction requiring excessive draw-down	Raise crosshead and die temperatures. Lower the RPM.

Fluctuation in rate surging

Cause	Solution
Inadequate back pressure for screw design	Decrease space between wire guider and die.

Uneven feedstock temperature

Cause	Solution
Uneven feed stock temperatures. Hot feed stock.	Cool the feed stock to room temperature before processing.

Bridging in extruder hopper

Cause	Solution

Poorly designed hopper and hopper throat. Poor flow due to poor granulation or foreign contamination.	Hand feed or carefully watch feeding of material. Use hopper cooling (if available). Avoid contamination.

Bridging feed section of screw

Cause	Solution
Temperature at the feed section may be too hot	Lower the temperature at the feed section. Make sure the cooling water is on at the throat section.

Low rates

Cause	Solution
High back pressure die with deep flighted screw	Decrease screen pack to minimum, normally 1-40 mesh and 1-60 mesh.

Output low from screw design

Cause	Solution
A screw designed basically for another thermoplastic	Limit screw cooling to feed section. Increase barrel heats in front sections.

Worn extruder

Cause	Solution
Clearance between screw and the barrel is too much	Polish surface of screw. Roughen surface of barrel. Replace barrel or barrel liner. Replace screw.