

Blown Film Troubleshooting Guide

Problem	Causes(s)	Possible Solution(s)
Applesauce	Insufficient Mixing	Increase back pressure by increasing screen mesh
	Extrusion temperature too high	Decrease die and adaptor temperatures
	Extrusion temperature too low	Increase die and adaptor temperatures
	Die gap too wide	Decrease die gap
	Extrusion rate	Decrease output rate
	Excessive regrind	Change the amount of regrind being added to virgin material
Blocking	Excessive tension in the winder	Adjust winder tension
	Low level of antiblock additive	Increase concentration of antiblock
	Film collapsing too hot	Lower frost line height/Lower melt temperature/Reduce output
	Insufficient cooling	Use chilled air/Raise nips/Reduce output
	Excessive surface treatment	Reduce treatment level
	Excessive nip roll pressures	Reduce pressure
Bubble Instability	Inconsistent melt feed to die	Adjust temperature profile to provide for more uniform flow
	Dirty die	Pull and clean the die examining for dirt, pelletized, or burnt matter Use purge material
	Worn screw and/or barrel	Use humped profile settings to begin earlier melting
		Check for the presence of pelletized material in last zones Replace screw and/or barrel
	Air currents	Eliminate air drafts/Reduce air output
	Misalignment	Align nip rolls to die
Chatter	Excessive cooling air velocity at die	Adjust temperatures Raise the frost line
	Non-uniform gap between Material and air ring cone	Check gap between top of die and bottom of ring
		Possible polymer buildup in gap
Die Lines	Dirty die and/or die lips (foreign matter lodged inside the die)	Clean die and/or lips with copper pad or brass shim Increase adaptor and die temperatures and screen mesh to increase back pressure
	Scratched die lips	Repair surface at a machine shop
	Insufficient blending of molten polymer	Increase mixing in extruder by adjusting barrel and die temperatures/Increase back pressure
	Inadequate purging	Increase purging time between resin changes
Erratic Output (Surging)	Inconsistent melt feed to die	Check temperature settings and functional parts
		Examine screw for pelletized material in last zones
		Increase temperature settings across the barrel
	Dirty die	Pull and clean the die
	Worn screw and/or barrel	Use humped profile settings to begin earlier melting
	Bridging	Cool throat
Gauge Variations	Erratic cooling	Check temperature settings
	Inconsistent melt feed to the die	Check temperature settings
		Adjust temperature profile to provide for a consistent melt feed
	Dirty die	Clean die and/or die lips with copper pad or brass shim
	Improperly adjusted die	Follow procedures for adjusting die bolts
	Misaligned die	Center and align die to nip
	Misaligned air ring	Center air ring with die
Dirty air ring	Examine for lodged polymer Change the air filter	

Problem	Causes(s)	Possible Solution(s)
Gauge Variation (cont.)	Dirty Air Ring (Cont.)	Check the seal between the air ring and die
		Check hoses for kinks or bends restricting air flow
	Surging of the extruder	Check drive speed of the extruder
		Check temperature controllers
		Examine feed section housing
		Check the regrind feed for force feeding the extruder
Die heat variation	Check for burnt out heater bands/Check temperature controllers	
Nip rollers	Check that the nip roller drives are running smoothly and not surging	
Gels	Contamination	Clean silos and transfer systems periodically
	Excessive regrind	Drop ratio of regrind material to virgin material
	Defective heaters	Check and recalibrate
	Dirty screw and/or barrel	Purge and clean system
	Poor resin quality	Check resin homogeneity and gel/speck level
	Poor mixing	Check screw design
Inadequate Drawdown	Improper melt temperature	Increase melt temperature
	High frost line	Decrease frost line
	Insufficient back pressure	Use smaller mesh screen pack
	Extruder surging	Reduce surging using a barrier screw
	Wrong resin	Check resin specifications/Use different resin
	Insufficient mixing	Use ascending heat profile
Low Gloss/High Haze	Poor quality resin/wrong resin	Check specifications of the resin
	Improper melt temperature	Increase melt temperature gradually
	Inadequate cooling of the film	Check or modify cooling system
	Poor mixing in extruder/die	Increase mixing in the extruder
Melt Fracture	Inadequate die gap	Increase die gap
	Extrusion temperature	Increase melt temperature
		Reduce output
	Excessive friction at die lips	Add processing aid to coat die lips and reduce COF Increase melt temperature
Poor Clarity	Extrusion temperature too high or too low	Adjust extrusion temperatures
	Low blow-up ratio	Increase blow-up-ratio (BUR)
	Poor mixing	Increase mixing in extruder
	Inadequate frost line height	Increase frost line height
	Inadequate film cooling	Check the cooling system
	Poor resin quality or wrong resin grade	Check resin specifications
Poor Heat Seal	Overtreatment	Adjust to proper level of treatment
	Resin oxidation	Reduce melt temperature
	Gauge variations	Check die uniformity
		Check for bubble instability
		Check for air ring leaks
		Examine for defective heater bands
Sealing bar warped	Check for possible surging Examine for distortion	
Poor Printability	Insufficient treatment	Increase treat energy

Problem	Causes(s)	Possible Solution(s)
Poor Printability (cont.)	Insufficient treatment (cont.)	Decrease gap between film and treatment system Use lower slip concentration
Port Lines	Dirty die	Pull and clean the die examining for contaminates
		Examine die for burnt material
		Use purge material to clean the die
		Problem will usually resolve itself within an hour or less
	Clogged ports and/or spirals	Adjust cooling system to cool bubble uniformly
		Make sure the cooling system is working properly
Melt temperature too low	Raise the melt temperature	
	Die too cold or too hot in comparison to melt temperature	Adjust die temperature to narrow the difference in temperatures between the two Insulate the die body
	Check the concentricity of the die gap Raise the bottom die zone in 10°F increments	
Scratches	Damaged or scuffed rollers	Replace rollers
	Rollers not turning	Check roll drag and bearings, roll speed, and/or roll balance
	Excessive nip tension	Adjust lower nip drive speed
Splitty Film	Scratches from collapsing frame, nip, or idlers	Eliminate source of scratches
	Low blow-up-ratio	Increase blow-up-ratio (BUR)
		Use smaller die or tougher resin
	High blow-up-ratio	Decrease blow-up-ratio (BUR) Use larger die or tougher resin
	Die lines	Clean die lips
	High frost line	Lower the frost line
	Contamination (degraded resin or dirt lodged under edge of die lips which makes film split at weld)	Clean die lips, then reduce melt temperature
	Thin spots in film	Check for die concentricity
	Extrusion temperature too high or too low	Gradually adjust melt temperature
	Insufficient cooling (frost line too high)	Decrease melt temperature
Increase bubble cooling rate/Reduce frost line		
Poor resin choice	Check for resin suitability	
Streaks	Dirty die pin	Clean pin/Add additive to die plate/Remove reclaim from die
	Roller surfaces rough	Rework rollers to ensure smoothness
	Bubble guides and collapsing frames are rough	Repair or replace to ensure smoothness
Uneven Film Width	Air leakage from the bubble	Adjust
		Repair or replace the nip roller
		Check for leakage in the inflation system
	Bubble pumping or breathing	Check for control valve problems if using an internal bubble cooling (IBC) system
		Decrease the air velocity of the air ring Increase the opening of the collapsing frame
Tension varies or is too high	Reduce tension as roll size increases	