## Troubleshooting Guide for Cast Film and Sheet Extrusion

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Causes</th>
<th>Possible Solutions</th>
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</table>
| **1. Applesauce, gels, poor clarity** | Melt temperature too high, or excessive residence time | • Reduce melt temperature  
• Correct malfunctioning thermocouple and controllers  
• Install a lower shear screw  
• Reduce head pressure by using a less restrictive breaker plate and screen pack  
• Eliminate melt hang-up  
• Change screw or temperature profile if material hangs in vent  
• Correct fit of transition sections so no ledges exist |
| **2. Black specks**           | Foreign material, or degraded polymer                                           | • Eliminate source of contamination  
• Keep paper bag fibers out of resin  
• Disassemble and clean extruder barrel, screw and die to remove deposits |
| **3. Sharkskin or orange peel** | The high viscosity melt leaves the die above a critical shear stress, predominantly encountered with LLDPE | • Lower the melt viscosity by using higher processing temperature  
• Decrease output  
• Use processing aids (e.g. fluoropolymers)  
• Increase die gap |
| **4. Non-uniform optical properties** | Temperature gradient across chill roll                                           | • Check chill roll temperature and adjust if necessary |
| **5. Milky areas of poor clarity** | Contamination by incompatible polymer                                           | • Prevent contamination  
• Clean loader, hopper and dryer  
• Purge extruder  
• Disassemble and clean barrel, screw and die if needed |
| **6. Silvery streaks**         | Moisture on resin                                                              | • Prevent or remove moisture  
• Melt resin more efficiently per recommendations |
| **7. Discoloration**          | Too high extrusion temperature                                                 | • Lower extruder temperature |
| **8. Poor pigment dispersion** | Poor mixing, or uneven melting                                                  | • Increase back pressure  
• Lower temperatures  
• Add static mixer  
• Change or modify screw  
• Better match of polymer and masterbatch MFR/polymer |
| **9. Gauge bands**            | Dirty die lips, die adjustment, or flapping melt                               | • Clean lips  
• Reset die bolts  
• Reset air knife/vacuum box/edge pinning |
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<th><strong>10. Lensing or fish eye</strong></th>
<th>Excessive amount of moisture in raw materials</th>
<th>• Dry raw materials</th>
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<td><strong>11. Dull surface over entire film or sheet</strong></td>
<td>Poor polishing due to insufficient contact with chill rolls</td>
<td>• Fill both nips to ensure contact</td>
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| **12. Bubbles in sheet** | Air entrapment | • Improve melting and mixing function of extruder  
• Increase head pressure  
• Set inverse temperature profile on extruder  
• Use a higher compression screw |
| **13. Edge curl or poor flatness** | Polish roll temperatures not balanced, or uneven heat transfer | • Correct with roll temperature  
• Maintain temperature variation across polish roll surface less than 3 °C  
• Increase sheet tension to improve contact with polish rolls |
| **14. Deposit on chill roll (plate-out)** | Poor chill roll contact, air trapped between the chill roll and the film | • Use the lay on roll to remove air cushion between the film and chill roll  
• Check pinning |
| **15. Film or sheet blocking** | Too hard winding, treatment level too high | • Reduce winding tension  
• Increase chill roll temperature to increase haze  
• Add antiblock  
• Reduce treatment power  
• Remove air under film at dielectric roll |
| **16. Draw resonance** | Drawdown ratio or drawdown distance too large | • Decrease die opening  
• Decrease line speed  
• Increase melt temperature  
• Reduce draw distance |