**Troubleshooting Guide for Blow Molding**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Causes</th>
<th>Possible Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Parison not being blown</td>
<td>Defective blow timer, clogged blow lines, or too sharp pinch-offs</td>
<td>• Replace blow timer&lt;br&gt;• Clean blow lines&lt;br&gt;• Stone pinch-offs to create more pinch area&lt;br&gt;• Reset cushion&lt;br&gt;• Clean tooling</td>
</tr>
<tr>
<td>2. Parison curling</td>
<td>Mandrel and bushing not flush, bushing too cold, low container weight, or stock resin temperature too low</td>
<td>• Remachine tooling&lt;br&gt;• Raise bushing temperature&lt;br&gt;• Check heat controllers&lt;br&gt;• Increase container weight&lt;br&gt;• Increase stock resin temperature&lt;br&gt;• Center mandrel in die&lt;br&gt;• Check screw tip design</td>
</tr>
<tr>
<td>3. Drawdown, parison sag/stretch</td>
<td>Too high parison temperature, melt index of resin too high, or mold open time too high</td>
<td>• Decrease stock temperature&lt;br&gt;• Increase extrusion pressure/rate&lt;br&gt;• Decrease extrusion back pressure&lt;br&gt;• Use lower melt index resin&lt;br&gt;• Reduce mold open time&lt;br&gt;• Decrease container weight</td>
</tr>
<tr>
<td>4. Parison tail sticking to parts</td>
<td>Parison too long</td>
<td>• Shorten parison length or increase pinch-off land area to cool compressed tail</td>
</tr>
<tr>
<td>5. Rough parison surface/uneven parison thickness</td>
<td>Extrusion speed too fast, cold parison, stock temperature too low, resin melt index too low, loose mandrel, or insufficient venting</td>
<td>• Adjust extrusion rate&lt;br&gt;• Increase stock temperature&lt;br&gt;• Use resin with higher melt index&lt;br&gt;• Check mold alignment&lt;br&gt;• Check tool design&lt;br&gt;• Add venting by either sandblasting the mold surface channels or venting the interior of the mold</td>
</tr>
<tr>
<td>6. Black specks in containers</td>
<td>Resin hang-up in die, or material contamination</td>
<td>• Clean die surface and tooling&lt;br&gt;• Check material for contamination</td>
</tr>
<tr>
<td>7. Bubbles/fish eyes</td>
<td>Blow air orifice too small or restricted, low stock temperature, mold temperature too low, tooling damage, or wet and contaminated resin</td>
<td>• Check the orifice for restrictions and size&lt;br&gt;• Increase air pressure&lt;br&gt;• Increase melt temperature&lt;br&gt;• Increase mold temperature&lt;br&gt;• Check tooling&lt;br&gt;• Check resin for moisture&lt;br&gt;• Check for contamination&lt;br&gt;• Check for resin lines and/or streamers</td>
</tr>
</tbody>
</table>
| **8. Streaks** | Stock temperature too high, contamination in die head, or degraded material on tooling | • Decrease stock resin temperature  
• Check heat controllers  
• Clean die head  
• Check for contamination in material  
• Clean tooling  
• Decrease extrusion back pressure  
• Decrease regrind level  
• Check design of flow path in die |
| **9. Scratches and die lines** | Stock temperature too low, die surface poorly polished, extrusion rate too slow, or damaged tooling | • Increase stock temperature  
• Clean die surface  
• Increase extrusion rate  
• Check tooling for damage  
• Check tooling for burnt materials  
• Check tooling for contamination |
| **10. Orange peel** | Parison temperature too low, sweat on mold surface, or melt index too low | • Increase melt temperature  
• Increase mold temperature  
• Check mold vent surface  
• Decrease cycle time  
• Use higher MFI resin |
| **11. Containers stick in mold** | Parison and mold temperature too high, blowing air pressure too low, part wall too thick | • Decrease stock temperature  
• Decrease mold temperature  
• Increase blowing air pressure  
• Check mold for damage  
• Center mandrel in die  
• Check for contamination in tooling |
| **12. Parts blow-out** | Blow-up ratio too large, mold separation, pinch-off too sharp or hot, or parts blow too fast | • Use large die  
• Increase clamp pressure or decrease blow pressure  
• Provide wider land in pinch-off  
• Cool mold pinch-off  
• Use low pressure blow followed by high pressure blow |
| **13. Excessive shrinkage** | Stock or mold temperature too high, cooling cycle too short, blowing air pressure too low, or uneven parison wall thickness | • Decrease stock temperature  
• Decrease mold temperature  
• Check mold cooling  
• Increase blowing pressure and delay air release  
• Align mandrel and die  
• Program parison |
| **14. Poor weld or seal at pinch-off** | Stock temperature too low, mold temperature too high, mold closing speed too fast, incorrect design of pinch-off blade, or improper mold venting | • Increase stock temperature  
• Decrease mold temperature  
• Increase mold closing time  
• Check pinch-off blade land size  
• Check pinch-off of mold for clearance and damage  
• Check mold alignment  
• Check mold venting |
<table>
<thead>
<tr>
<th>15. Excessive flash</th>
<th>Melt too hot, blowing air pressure too high, clamping mechanism out of adjustment, or excessive material being forced into mold</th>
</tr>
</thead>
</table>
|                     | • Decrease melt temperature  
|                     | • Decrease extrusion back pressure  
|                     | • Decrease pre-blow air pressure  
|                     | • Decrease pre-blow time  
|                     | • Reset clamp or increase clamp pressure  
|                     | • Increase recess at pinch-off areas to accommodate more material |

<table>
<thead>
<tr>
<th>16. Warpage</th>
<th>Stock or mold temperature too high, blowing air pressure too low, material density too low, tooling condition, or part wall too thick</th>
</tr>
</thead>
</table>
|                      | • Decrease stock temperature  
|                      | • Increase cycle time  
|                      | • Check mold for cooling  
|                      | • Reduce cycle time to obtain proper mold cooling  
|                      | • Increase blow air pressure  
|                      | • Use resin of proper density  
|                      | • Check tooling design  
|                      | • Center mandrel  
|                      | • Decrease container weight |