

## Special Information on Coinjection Moulding: Trouble shooter

Problem	Possible Causes	Possible Solutions
Incomplete fill	Air entrapment due to insufficient venting	<ol style="list-style-type: none"> <li>1. Check for obstruction of vents.</li> <li>2. Check vent locations.</li> <li>3. Enlarge vents.</li> <li>4. Change filling behaviour by reducing or increasing injection rate and/or pressure.</li> <li>5. Add vacuum assist to vents</li> </ol>
	Runner system	<ol style="list-style-type: none"> <li>1. Check for obstruction of gate.</li> <li>2. Enlarge gate.</li> <li>3. Enlarge runners.</li> </ol>
	Melt and / or mould too cold	<ol style="list-style-type: none"> <li>1. Increase barrel and nozzle temperatures.</li> <li>2. Increase mould temperature.</li> <li>3. Increase injection rate.</li> <li>4. Increase screw speed.</li> </ol>
Sink marks (not to be confused with air entrapment)	Shot weight	<ol style="list-style-type: none"> <li>1. Increase shot weight.</li> <li>2. Increase melt cushion.</li> </ol>
	Hold pressure too low	<ol style="list-style-type: none"> <li>1. Increase holding pressure.</li> </ol>
	Melt and / or mould too hot	<ol style="list-style-type: none"> <li>1. Reduce barrel and nozzle temperatures.</li> <li>2. Reduce mould temperature.</li> <li>3. Reduce screw speed.</li> </ol>
Burning	Melt and / or mould too hot	<ol style="list-style-type: none"> <li>1. Reduce barrel and nozzle temperatures.</li> <li>2. Reduce mould temperature.</li> <li>3. Reduce screw speed.</li> </ol>
	Heater(s) stuck on	<ol style="list-style-type: none"> <li>1. Check thermocouples and heater bands.</li> </ol>
Odour or yellowing	Mould design	<ol style="list-style-type: none"> <li>1. Enlarge vents.</li> <li>2. Check for obstruction of vents.</li> <li>3. Add vacuum assist to vents.</li> <li>4. Check vent locations.</li> </ol>
	Melt and / or mould too hot	<ol style="list-style-type: none"> <li>1. Reduce barrel and nozzle temperatures.</li> <li>2. Reduce mould temperature.</li> <li>3. Reduce injection rate.</li> <li>4. Reduce screw speed and back pressure.</li> <li>5. Check temperature of hot runners (if used).</li> </ol>
	Injection pressure / rate too high	<ol style="list-style-type: none"> <li>1. Reduce injection pressure / rate.</li> <li>2. Increase clamp pressure.</li> <li>3. Reduce injection rate.</li> </ol>
Flashing	Melt and / or mould too hot	<ol style="list-style-type: none"> <li>1. Reduce barrel and nozzle temperatures.</li> <li>2. Reduce mould temperature.</li> <li>3. Reduce screw speed.</li> </ol>

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Part distortion	Too much orientation	<ol style="list-style-type: none"> <li>1. Increase melt and mould temperature.</li> <li>2. Reduce injection rate.</li> </ol>
	Part is over-packed	<ol style="list-style-type: none"> <li>1. Reduce back pressure.</li> <li>2. Match injection time to mould fill time.</li> </ol>
	Uneven mould fill	<ol style="list-style-type: none"> <li>1. Change gate locations.</li> <li>2. Ensure uniform mould temperature.</li> <li>3. Increase injection rate and back pressure.</li> </ol>
Black specks or undispersed particles	Contamination	<ol style="list-style-type: none"> <li>1. Purge with high-MFI PP or HDPE.</li> <li>2. Check that colour concentrate is based on PP or PE, not PVC.</li> </ol>
Sticking in mould	Part is too hot	<ol style="list-style-type: none"> <li>1. Reduce barrel and nozzle temperatures.</li> <li>2. Reduce mould temperature.</li> <li>3. Increase cooling time.</li> </ol>
	Part is over-packed	<ol style="list-style-type: none"> <li>1. Reduce shot weight and find correct fill point.</li> </ol>
	Mould design	<ol style="list-style-type: none"> <li>1. Increase draft angles.</li> <li>2. Use non-stick surface treatment.</li> <li>3. If necessary, erode mould.</li> </ol>
Clump formation at gate	Moisture	<ol style="list-style-type: none"> <li>1. Dry pellets.</li> <li>2. If using vented screw, check for obstruction of vent.</li> <li>3. Add vacuum assist to vents.</li> </ol>
Flow lines	Melt and / or mould too cold	<ol style="list-style-type: none"> <li>1. Increase barrel and nozzle temperatures.</li> <li>2. Increase melt and/or mould temperature.</li> <li>3. Increase injection rate.</li> <li>4. Increase screw speed and back pressure.</li> <li>5. Check suitability of screw.</li> </ol>
	Mould design	<ol style="list-style-type: none"> <li>1. Change gate location.</li> <li>2. Enlarge gates.</li> <li>3. Enlarge runners.</li> <li>4. Add additional flow-restricting zones (e.g. sprue pullers) to runners.</li> </ol>
Voids (not to be confused with air entrapment)	Melt freezes too quickly	<ol style="list-style-type: none"> <li>1. Increase mould temperature.</li> <li>2. Increase screw speed and back pressure.</li> </ol>
	Moisture	<ol style="list-style-type: none"> <li>1. Dry pellets.</li> <li>2. If using vented screw, check for obstruction of vent.</li> <li>3. Add vacuum assist to vents.</li> </ol>
	Back pressure too low	<ol style="list-style-type: none"> <li>1. Increase back pressure.</li> </ol>

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Poor or no adhesion in coinjection	Processing / mould temperatures too low	1. Increase Processing / mould temperatures.
	Hold pressure too high (displacement of cooled materials at bond interface)	1. Reduce hold pressure.
	Injection rate too low	1. Increase injection rate.
	Use of lubricants	1. Do not use lubricants.
	In transfer processes, (insert moulding) semi-finished part is not free of grease and dust.	1. Clean semi-finished part (use gloves if necessary).
	In transfer processes, (insert moulding) semi-finished part is too cold	1. Preheat part (caution: heat surface only to approx. 80° C – 100° C (175° F – 210° F). The preheating process should last for only a short period of time; very important when hard component is semi-crystalline.