

How to Solve 10 Common Injection Molding Defects

Injection molding defects can impact everything from aesthetics to structural integrity.

Most issues stem from a combination of processing conditions, material behavior and mold design, and can be resolved with targeted adjustments.

Defect Quick-Reference Guide

Flash

- ✗ Excess material around the perimeter of a part, like crusty batter around the edge of a waffle.



How to fix it

- ✓ Clean the mold of any obstructions.
- ✓ Reduce follow-up pressures.
- ✓ Reduce your set shot size.

Blisters

- ✗ Visible surface defects occur when compressed gas fails to escape the mold cavity.



How to fix it

- ✓ Review material handling process.
- ✓ Consider better mold venting.
- ✓ See if material needs pre-drying.

Bubbles

- ✗ Internal defects that can be seen in the cross-section of a molded part. Very similar to blisters. Commonly confused with voids.



How to fix it

- ✓ Apply heat immediately after part ejection to help determine cause. When heated, voids will shrink, but bubbles and blisters will pop.

Burns

- ✗ Occurs when compressed air becomes overheated. Generally a cosmetic issue, rather than structural.



How to fix it

- ✓ Give trapped air a way to escape.
- ✓ Clean mold and injector pins to enhance natural venting.

Short Shots

- ✗ Occurs when plastic does not completely fill a mold, resulting in a part that looks like a portion has been melted away.

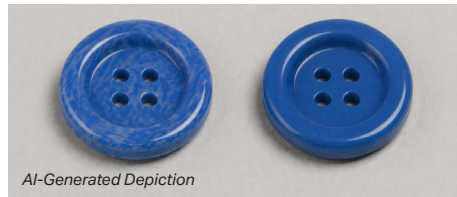


How to fix it

- ✓ Clean mold to check blockages.
- ✓ Verify material amount needed.
- ✓ Consider redesigning mold.

Marbling

✗ Visual defect that causes the solid-color part to look like different colors of paint swirled together

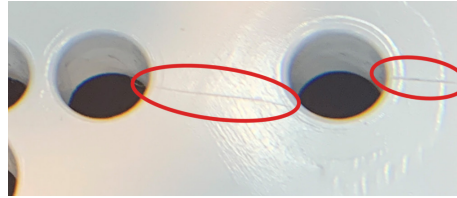


How to fix it

- ✓ Increase mixing time.
- ✓ Increase melt temperature.
- ✓ Reformulate with colorant supplier.

Knit Lines

✗ Occurs where two or more flow fronts meet, usually near a hole in the part.



How to fix it

- ✓ Allow material to overflow at the knit line, then remove remnants.
- ✓ Relocate the mold's gate or redesign to be one solid piece.

Sink Marks

✗ Small surface depressions caused by uneven shrinkage, typically due to part design.



How to fix it

- ✓ Add a foaming agent.
- ✓ Make walls thicker, then core them.
- ✓ Redesign projection thickness.

Warping

✗ Occurs when a molded part has not taken the shape of the mold.



How to fix it

- ✓ Leave in the mold longer.
- ✓ Change fillers.

Splay

✗ Also known as mica or silver streaking. It manifests as silver streaks on colored plastic but is often hard to detect on white parts.



How to fix it

- ✓ Pre-dry hygroscopic materials and verify dryer performance.
- ✓ Check supplier-recommended temperatures and adjust.

Get the full injection molding defects guide at mholland.com



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