

Packaging defect troubleshooting

Common problems, usual suspects and what to check first

Problem	Usual suspects	Check first
Weak or leaking heat seal	Seal temperature, pressure or dwell time too low; seal jaws dirty or uneven; contamination in the seal; wrong sealant layer	Check jaw temperature with a probe; clean jaws; check pressure and jaw parallelism; look at seal under light
Burn-through or thin seal	Temperature too high or dwell too long; film too thin; jaws too hot at slow line speed	Lower temperature; check line speed; confirm film thickness
Wrinkles or channel leaks in seal	Film folds trapped in the seal; poor forming or tension; product in the seal area	Check film tension and forming collar; check product fall; adjust jaw design
Delamination (layers peel apart)	Low bond strength; adhesive not cured; ink or surface treatment problem; solvent or moisture left	Measure bond strength; check cure time and storage; check treatment level (dyne)
Tunnelling or curl in laminate	Uneven tension between layers; adhesive coat weight; web temperature; layers differ in stiffness	Check winding tensions; check coat weight and oven settings; check storage of rolls
Blocking (film sticks on the roll)	Heat, pressure or humidity in storage; too much slip or too little; roll wound too tight	Check storage temperature; check winding tension; check slip additive level
Print registration drift	Web stretch from tension or temperature; worn or dirty equipment; roll not true	Check tension; check web path and rollers; check roll quality
Ink rub-off or poor adhesion	Surface not treated; ink not dry; wrong ink for the film; varnish not cured	Check surface treatment; check drying and cure; check ink and film pair
Bottle or tub deformation	Cooling too short; wall too thin; fill temperature too high; stacking load; vacuum after cooling	Check cooling time; check wall thickness; check fill temperature and headspace
Corrugated box crushed or bulging	Board grade too weak; humidity; stacking time and load; poor pallet pattern; overhang	Check board spec and moisture; check stack load; check pallet pattern
Cap or closure leaks	Torque too low or too high; neck finish out of tolerance; liner or seal fault; cross-threading	Check torque with a tester; check neck and closure dimensions; check liner
Barcode will not scan	Low print contrast; bars too thin or smeared; quiet zone too small; wrong size on curved surface	Verify with a barcode verifier; check print gain and quiet zone

Change one thing at a time and record it. Safety first: stop the line before you touch any moving part or hot jaw.