Trouble Shooting Guide For Encapsulation/Transfer or Compression Molding

Defect: Blistering, heavy section
1.) Increase cure.
2.) Close mold slowly on low pressure, then apply high pressure to purge gas.
3.) Vent mold.
4.) Preheat to eliminate moisture. Increase preform temperature.
5.) Breathe mold as soon as possible.
6.) Increase pressure.
7.) Use stiffer material.
8.) Lower mold temperature.
9.) Check mold temperature for uniformity.
10.) Vent mold at dead ends with vent pins.

Defect: Porosity (not filled out in every section)
1.) Try a range of plasticities for best grade.
2.) Increase pressure.
3.) Lower temperature.
4.) Close mold faster if external porosity, apply high pressure sooner; close mold slower if internal porosity, apply low pressure longer.
5.) Preheat material.
6.) Adjust charge weight.
7.) Try a higher density material to obtain greater "backing pressure" in the mold.
8.) Breathe mold earlier.
9.) Use semi-positive molds to minimize porosity.

Defect: Mold sticking
1.) Raise mold temperature.
2.) Preheat to eliminate moisture.
3.) Clean mold.
4.) Use stiffer material.
5.) Remove dents and undercuts in mold cavity and force.
6.) Polish mold.
7.) Increase cure.
8.) Lower pressure, softer material if plunger molding.
9.) Check knockout pin adjustment.
10.) Be sure cavities have sufficient draft.

Defect: Dull sudace
1.) Adjust mold temperature- usually reduce temperature for better appearance.
2.) Polish mold.
3.) Chrome plate.
4.) Close mold more slowly

Defect: Orange peel (rough, pimply surface)
1.) Close slowly on low pressure. Delay 2 sec. before applying high pressure.
2.) Preheat (radio frequency).
3.) Use stiffer material.
4.) Use finer ground material.
5.) Use large preforms land as few as possible.
6.) Use lower mold temperature.

Defect: Pitted surface
1.) Use stiffer material.
2.) Preheat.

Defect; Clouded or segregated surface
1.) Reduce molding temperature (for colors, 300 to 310° F.).
2.) Preheat preforms.
3.) Adjust plasticity.
4.) Adjust pressure and closing speed.

Defect: Blurred surface
1.) Close slowly, longer on low pressure, no breathe, then high pressure.
2.) Use stiffer material.
3.) Lower mold temperature.
4.) Increase charge weight
5.) Shape preforms more closely to piece.
6.) Increase pressure.

Defect: Warped piece
1.) Heat mold more uniformly.
2.) Use stiffer material.
3.) Preheat if soft plasticity.
4.) Increase cure.
5.) Use lower shrinkage material and/or material more rigid at discharge.
6.) Redesign mold; use wider knockout pins.
7.) Adjust temperature of force and cavity - lower temperature may reduce warpage.
8.) Preheat for irregular shaped pieces.
9.) Cool uniformly use shrink fixtures.

Defect: Cracking after molding
1.) Increase wall thickness around inserts.
2.) Check knockout pins.
3.) Correct size of shrink fixture.
4.) Use more flexible material.
5.) Increase radii and ribs.
6.) Oven anneal 2 hr. at 200° F

Defect: Poor electrical properties
1.) Close slowly
2.) Preheat 1/2 hr. at 185° F.
3.) Increase cure.
4.) Reduce temperature.
5.) Use stiffer grade.

Defect: Weak mechanically
1.) Increase temperature.
2.) Increase cure.
3.) Increase pressure.
4.) High frequency preheat.
5.) Increase charge.
6.) Afterbake to increase strength, if economical. Try 2 hr. at 250° F.

Defect Pimpling
1.) Breathe mold.
2.) Use higher fines material.
3.) Use softer material.
4.) R. F. preheat.
5.) Lower mold temperature.

Defect: Burned marks
1.) Reduce preheat temperature.
2.) Reduce mold temperature.
3.) Open gates; be sure vents are clear; check plunger travel time to see if it is between 5 and 12 sec. (faster close will entrap gas; slower close causes burn marks).
4.) Avoid or minimize breathing.

Defect: Thick flash
1.) Reduce mold charge.
2.) Reduce mold temperature.
3.) Increase high pressure.
4.) Close on low, apply high pressure sooner.
5.) Eliminate breathing, follow (4.).
6.) Use softer grade material for more pressure.
7.) Be sure of 0.002-in. between force and cavity.
8.) Be sure overflow grooves are clean.
9.) Reduce transfer pressure and/or increase clamping pressure.

Reference: Modern Plastics Encyclopedia McGraw Hill Inc.

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