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3M™ Scotchcast™ Liquid Resins Troubleshooting

This troubleshooting chart has been developed to assist 3M customers in identifying and solving some possible problems that can occur when using 3M™ Scotchcast™ Liquid Resins.

Should you need further assistance, contact your local 3M Sales Representative or area electrical distributor.

Problem

Cause and Solution	**Uncured** Resin remains liquid, soft or tacky even after extensive curing	**Thermoplastic** Casting appears normal at room temperature but becomes liquid or tacky at elevated temperatures	**Charring or Discoloring** Resin appears burned, especially in center	**Oozing** Resin oozes from fissure and around terminals, lugs and so on	**Cracking** Fissures develop in casting either during cure, cool-down or subsequent thermal shock	**Poor Adhesion** Resin releases from components, terminals, lead wires and so on	**Crazing** Surface exhibits fine cracks, ripples or general roughness	**Distortion** Casting warps or distorts from mold shape	**Sticking** All or part of mold difficult to remove	**Soft Spots** Soft areas in fully-cured products	**Blemishes** Surface rough or pitted	**Voids** Bubbles in the casting
Contamination **Moisture**/Keep covered **Dirt**/Clean parts and keep them covered **Excess mold release**/Use sparingly **Oxidized surfaces**/Remove oxide **Incompatible insulation or components**/Change insulation	■	■		■	■	■				■	■	
Rough mold surface/Polish mold							■		■			
Undercuts in mold/Remove undercuts **Insufficient mold release**/Use more mold release **Inadequate mold release**/Use different mold release **Permanent-type release worn away**/Resurface mold **Mold not broken in**/Use mold									■			
Insufficient vacuum/Adjust vacuum **Resin viscosity too high**/Select resin with lower viscosity or warm resin to reduce viscosity **Component design**/Check design for undercuts												■
Difficult-to-bond-to surface (e.g., plastics)/Evaluate Scotchcast primers; "rough up" surface **Nonstick surface (PTFE, etc.)**/Change materials						■						
Incorrect mix ratio/Check equipment and procedures, must be within ± 2% **Insufficient mixing**/Having proportioned parts A and B correctly, mix thoroughly	■	■		■	■					■		
Resin not fully cured/Check oven temperature. Is resin at cure temperature at onset of timed cure cycle?	■				■							
Wrong resin choice/May need more flexible system or a filled system					■							
Poor component or mold design/Change design					■							■
Cure temperature too high/Lower temperature **Temperature reached as a result of exotherm**/Check exotherm. Use smaller mass of resin			■		■		■	■				
Excessive shrinkage/Filled resins exhibit less shrinkage and should be considered if this problem persists								■				

■ Indicates cause and effect