

## TYPICAL DESIGN CHECKLIST



TICONA

1. What is the function of the part?
2. What is the expected lifetime of the part?
3. What agency approvals are required? (UL, FDA, USDA, NSF, USP, SAE, MIL spec)
4. What electrical characteristics are required and at what temperatures?
5. What temperature will the part see? And, for how long?
6. What chemicals will the part be exposed to?
7. Is moisture resistance necessary?
8. How will the part be assembled? Can parts be combined into one plastic part?
9. Is the assembly going to be permanent or one time only?
10. Will adhesives be used? Some resins require special adhesives.
11. Will fasteners be used? Will threads be molded in?
12. Does the part have a snap fit? Glass filled materials will require more force to close the snap fit, but will deflect less.
13. Will the part be subjected to impact? If so, radius the corners.
14. Is surface appearance important? If so, beware of weld lines, parting line, ejector location, and gate vestige.
15. What color is required for the part? Is a specific match required or will the part be color coded? Some glass or mineral filled materials do not color as well as unfilled materials.
16. Will the part be painted? Is a primer required? Will the part go through a high temperature paint oven?
17. Is weathering or UV exposure a factor?
18. What are the *required* tolerances? Can they be relaxed to make molding more economical?
19. What is the expected weight of the part? Will it be too light (or too heavy)?
20. Is wear resistance required?
21. Does the part need to be sterilized? With what methods (chemical, steam, radiation)?
22. Will the part be insert molded or have a metal piece press fit in the plastic part? Both methods result in continuous stress in the part.
23. Is there a living hinge designed in the part? Be careful with living hinges designed for crystalline materials such as acetal.
24. What loading and resulting stress will the part see? And, at what temperature and environment?
25. Will the part be loaded continuously or intermittently? Will permanent deformation or creep be an issue?
26. What deflections are acceptable?
27. Is the part moldable? Are there undercuts? Are there sections that are too thick or thin?
28. Will the part be machined?
29. What is the worst possible situation the part will be in? (For example, the part may be outside for an extended period of time *and* intermittently put in water, or the part may see a constant high load while submerged in gasoline at 150°F.) Parts should be tested in the worst case environment.