



Cycletime Tips - Automotive

Volume 41: Proactive Product Development

With compressed timelines in the plastics industry today, we are tasked with the responsibility to refine our project management techniques. This memory-jogging installment is intended for those of you who have been stretched thin by these increasing customer demands.

When we have been assigned to a new project and have become apprised of the customer's specific expectations, it wouldn't hurt to go through a physical checklist of required info. Listed below are some ideas worth pondering or investing in.

- **Will structural analysis be performed on the parts to confirm design and material?** If so, you will need to review the availability of data with your FEA house and request material information from your material supplier. Do not assume that the data exists, so early notice is critical as this data may take time to generate. Don't forget to communicate the temperature and strain rate requirement(s) so they can best simulate reality.
- **What are the part surface requirements?** As an example, if the customer is expecting gloss levels reflective of a low-gloss polypropylene plaque from your polycarbonate parts, they could be disappointed.
- **Do you have confidence that the material is designed for your application requirements?** Data sheets are ridden with undesirable single-point data and we all know that application stress loading (thermal, chemical, static, or dynamic) is typically variable. Digging for the data depicting short or long-term polymer behavior will assist in avoiding field failure. Tools like Dynamic Mechanical Analysis and Thermal Mechanical Analysis are valuable for understanding polymer performance when multiple influences are being imparted on the plastic component.
- **How will we be coloring the polymer?** Custom color compounding is becoming obsolete due to pricing constraints. If you plan on coloring at the press, it could require several weeks to refine the color. Obtain plaques (texture simulating the final part) from the color house of choice early on to obtain preliminary approval from your customer. Also, develop an understanding of how the plaques are processed – does your colorant supplier use mixing screws in their machinery? What process was used to fabricate them?
- **Will you be performing process and tool design simulation?** Filling, packing, cooling, and warpage simulation is expensive. Does your supplier have the characterization data necessary to make the most of this design tool? The data might need to be generated if we want optimum results. This takes time and is quite costly, so please address this potential issue internally as quickly as possible.

Remember that expediting invariably becomes expensive and very stressful. While these are just a few of the dozens of potential bullet points that need to be confronted early in the development process, we hope that they are helpful.

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