Pocket Performance Specs for Thermoplastics and Pocket Specs for Injection Molding

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Published by injection Molding Magazine and IDES, inc. Cost is $40 and $50 respectively

This is admittedly a divergence from the typical extrusion reference, but I frequently find myself helping product developers identify grades and alternative resins to consider. In the long run, this is self serving, as I will eventually be called to help with the problems caused by poor choices. The combination of these two books provides a listing of more than 40,000 grades of resins with physical properties and molding processing conditions. These may not correspond directly to extrusion conditions, but they certainly form a reasonable basis for comparison and helps one assess the needed processing capabilities and how processing may differ from the currently processed resin.

The bulk of the books are tables of properties organized first by resin type, then trade name, and then manufacturer. This sometimes throws me, as I can never remember trade names and would prefer the manufacture of the second level of division. Of course, there are cross referenced lists of materials, trade names and manufacturers in the back to aid in finding a material for which you have limited information.

Performance Specs discusses physical properties (grade, fillers, specific gravity, melt flow, flex modulus, tensile strength, % elongation, hardness, izod impact, deflection temperature under load, and coefficient of thermal expansion), while the Injection Molding Specs list the grade, filler, molding shrinkage, melt flow, drying time barrel and mold temperatures, and desired stock temperature. Materials covered are very exhaustive although elastomers and the new metallocene resins are not included.

At the beginning of the performance, specs are a group of bar charts that simply rank, in performance order, the general types of materials with respect to deflection temperature, dielectric strength, flex modulus, izod impact, continuous use temperature, and tensile strength. This provides a great means for selecting materials through properties comparisons. I find this most useful in helping designers and in selecting alternative materials.

The books are very compact (3-1/2" x 5-1/2") and are softbound to make them convenient to carry out onto the floor in troubleshooting adventures. They are a great reference and people think I am an expert! Anything that makes me look like an expert is well worth the money, and I

carry them everywhere. They are updated every few years so they remain reasonably current but, of course, are no substitutes for the manufacturer's spec sheets.

By the way - IDES also has a Web page at http://www.idesinc.com. The entire database is online and is search able for subscribers.

- Ken Powell, Becton Dickinson Research Center