Global sourcing needs local testing to ensure worldwide satisfaction

By Clare Goldsberry

Plastics products are only as good as the raw materials that enter the manufacturing stream. And since not all resins are created equal, how do processors know what they're getting?

Getting the answer to that question should make materials/product testing a more critical junction in the manufacturing stream. But Mary Stellmack, senior research chemist with McCrone Associates (Westmont, IL), says that typically processors wait until there's a problem before having materials analyzed. In other words, processors or their OEM customers only test when there's a problem in the field such as a failure of a part. By that time, the damage is done.

The many, and well publicized, recalls of plastics products/parts have caused many OEMs or their plastics processing suppliers to begin testing their raw materials. Some companies have installed a materials testing lab in-house. Others, keen to avoid that expense but cognizant of the need for testing, often arrive at Stellmack's firm.

"The customer didn't specify black swirls." Proactive testing can help prevent problems before they occur.

McCrone Associates, an analytical testing lab established in 1956, is seeing business boom as OEMs and molders make an effort to improve product performance and material reliability. The company tests sample materials or parts sent in by companies when they have a problem in either appearance or performance. The amount of material required for McCrone's testing is minuscule—the size of one pellet or a few milligrams. The cost of the testing depends on the types of tests or analysis required but can range from $600 to $2000, and can take from a day to a few weeks, again depending on the type of analysis required. Stellmack's area of expertise is plastics testing, particularly in plastics failure analysis.

Offshore processing, and the resulting difficulty of control, plus increased resin prices, have been a boon for testing. "There's even less control today over what raw materials are being used and where these materials are coming from. That's where the importance of testing comes in," Stellmack notes.

Offshore sourcing of resin also makes testing more critical. "Bad or defective raw materials are a significant problem," Stellmack says. Dishonest suppliers—be they down the street or around the world—can mix regrind with virgin resin and sell it as virgin, go light on filler/additive content or even intentionally use the wrong fillers/additives. She notes detecting regrind material substituted for virgin is extremely difficult. "Unless the processor does the testing ahead of time they won't necessarily notice problems in the molding stage—although there can be processing problems," she says. "But, later on in the field there will be identifiers such as early failure of the part. You get what you pay for, and in many instances the reputation of the company is at stake."

Mary Stellmack offers some tips to processors:

1) Be careful where you buy your resin. "Many times processors do not specify the parameters of the material they purchase. What is the density? What is the molecular weight? There are a lot of variables within a particular resin and they have to be specified. If the raw material specs are outside the range of what you need for the product's performance, don't buy it."

2) Put it in writing. "But just because it's in writing it still can't be guaranteed," cautions Stellmack. "Some molders I work with put everything in writing and they have the least number of problems. But if they let the resin supplier know that the material will be tested, the processors more likely get what they specify."

3) Ensure lot traceability. Test material and then keep the records. "The time to catch a problem is before the parts are molded," she says.

4) If purchasing overseas or from a new supplier, visit the plant, talk with the managers or owners, and establish the quality assurance criteria. "I had one customer who had parts molded in Southeast Asia and they were coming in with brown specs, which we discovered were pieces of insects," Stellmack relates. "When they investigated the plant, they discovered there were no screens on the windows so the bugs were being attracted by the lights at night and getting into the resin."