Materials Science

A resin compounder offers unique additives and handheld detectors to thwart counterfeiters.

By Daphne Allen
Editor

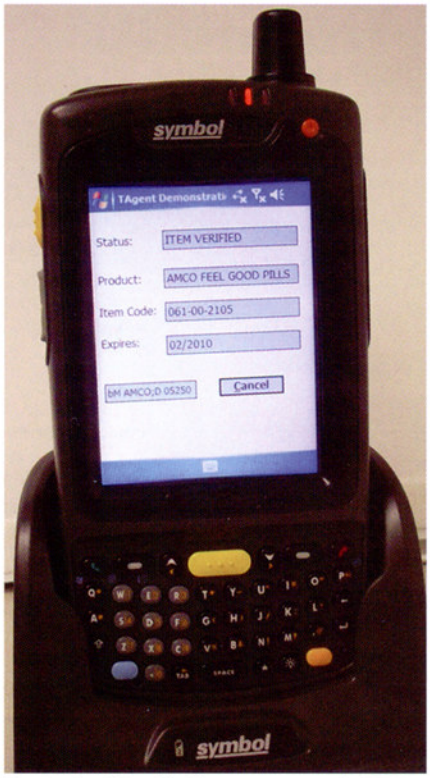
Even though fighting counterfeiting became a public priority for FDA in 2004, Amco has been in the thick of it for decades.

A compounder and distributor of thermoplastic resins, Amco has used its materials science expertise to develop "unique ways to incorporate additives or particles into plastics, inks, lacquers, and papers," reports Gary Metzger, president. These additives, whose actual material composition Metzger won't disclose, can then be used as part of either simple or complex anticounterfeiting approaches.

For basic authentication, Amco offers a simple Yes/No Kit utilizing devices to detect the presence of such additives. Detectors range in price. Avi Vyas, director of corporate development, says that FIFA used an Amco technology similar to this to authenticate tickets for the 2007 Women's World Soccer Championships in China.

Amco has also developed an additive-enhanced pharmaceutical ink that imparts a special signal when scanned with a handheld unit. "Pharmaceutical companies are interested in hybrid solutions," says Vyas. Recent advances include more-refined detection devices capable of identifying specific distribution channels in multidiscipline supply chains.

For products requiring a higher level of protection against counterfeiting, Amco has also partnered with Motorola to develop customized handheld scanners to read encrypted 2-D bar codes and detect additive/particle presence. "The system uses a private electronic key, solely held by each brand owner, to decipher each item's unique 2-D bar code," Vyas explains. "The 2-D bar code represents both a standard electronic product code (EPC) and the encrypted data to authenticate the item. When the product is scanned, there is instant authentication plus data. In the event an unverifiable code is scanned, the private key owner is notified of the event." Vyas says that as particle-containing packaging elements (labels, cartons, or bottles) are applied or filled on packaging lines, an in-line device captures the item-level particle pattern. An integrator links the pattern to EPC data and prints a 2-D bar code on the package. In the field, such as during random audits at a pharmacy, the 2-D bar code scanner could authenticate each item.



Customized handheld scanners read 2-D bar codes that represent both a standard electronic product code (EPC) and encrypted data to authenticate the item.

Because the brand owner has a private key to all data, product movement throughout the supply chain can be tracked securely, he adds. The 2-D bar code based on item-level particle-pattern cannot be forged.

Amco will be introducing a starter kit that includes custom handheld authentication scanners with several hundred premarked labels. "The kits will be a cost-effective way for companies to begin distinguishing their products from counterfeits with certainty," says Vyas.

A number of Amco's taggant additives meet both ISO 10993 Part 11 and Part 12 for Biocompatibility and 21 *CFR* 175.300. They can be compounded into color concentrates or virgin materials or added at the machine during processing, explains Amco's Web site. Most can withstand temperatures typically used in thermoplastics materials processing as well as exposure to many chemicals, UV, adhesives, and other influences. ■