

Innovation & Design

<http://www.businessweek.com/articles/2013-09-04/edible-bar-codes-aim-to-swallow-the-counterfeit-drug-market>

Edible Bar Codes Aim to Swallow the Counterfeit Drug Market

By [Caroline Winter](#) September 04, 2013

There's something particularly alarming about counterfeit food and medicine. Knockoff pharmaceuticals have been found to contain chalk, brick dust, paint, pesticides, and even traces of [human fetuses](#). The fakes, taken together with substandard meds, cause upwards of 100,000 deaths annually.

Luckily, rubbing out knockoff ingestibles may soon get easier. Honolulu-based startup [TruTag Technologies](#) this month brought to market edible bar codes that can be integrated directly into both edible and non-edible products. The so-called TruTags, which can be scanned to authenticate a product, are the size of a dust speck and thinner than a strand of hair. "A gram of TruTag microparticles contains over 12 million unique tags," says the company's president, Kent Mansfield.

TruTags are made entirely of silicon dioxide, also called silica, a compound that is inert, edible, and incredibly durable (with an infinite shelf life and the ability to survive temperatures up to 1,000C). To manufacture the minute tags, the company etches microscopic bar codes into silica wafers using equipment similar to the semiconductor industry's. The engraved wafers are then ground into a white powder that can be mixed directly into foodstuffs like baby formula or incorporated into the coatings of pills. Even non-edible goods—car parts and cell phone components—could make use of the safe-to-eat tags.

Once items are marked with a few specks of the coded dust, companies use special scanners to send decoded information to iPads or iPhones, revealing details like where and when the product was manufactured.

TruTags, named a 2014 Technology Pioneer by the [World Economic Forum](#), developed its technology with funding from the accelerator Skai Ventures and research money from the U.S. military. Mansfield says the company is already in discussion with several corporations, including pharmaceutical manufacturers, but he declined to disclose names or discuss prices. The potential market is, of course, huge: Counterfeit goods siphon off [\\$1 trillion](#) annually from the global economy, according to the International Chamber of Commerce. Counterfeit drugs alone generated an estimated [\\$75 billion](#) in revenue in 2010.

If all goes well, TruTag plans to make its technology available at the consumer level. "We could actually incorporate our technology into a smartphone," says Mansfield. "That way, any consumer, whether they want to authenticate their own drugs or baby milk powder, they'll be able to do that by themselves. That's our ultimate goal."

Still, TruTag must compete with a host of other anti-counterfeiting technologies—one rival is using [plant-based DNA](#), for example—and contend with the shifting tactics of the ever-tenacious counterfeiters. "Whatever technology is invented to stop it, the counterfeiters have the motivation, money, and the technology themselves to come up with a way to work around it," writes Don Aviv, COO of security consulting company [Interfor](#). "If nothing else, the sheer variety of technologies that are being employed at the

moment may prove to be more effective at slowing the counterfeiters than any one solution.”



[Winter](#) is a reporter for *Bloomberg Businessweek* in New York.

©2013 Bloomberg L.P. All Rights Reserved. Made in NYC