

## **AUTOMATED SOLUTIONS HELP BAKERIES ENSURE FOOD SAFETY WHILE OPTIMIZING OPERATIONS**

Food safety is a critical factor for the food and beverage industry. Whether you are a food producer or packager, you not only need to manufacture product quickly while maintaining quality, but you need to ensure that your product is safe for consumption.

This is easier said than done, as food contamination can occur at any point along the supply chain—from production and processing to distribution. The U.S. Centers for Disease Control and Prevention (CDC) estimate that roughly 1 in 6 Americans (or 48 million people) get sick from foodborne illness each year. In 2016, according to the CDC's [Surveillance for Foodborne Disease Outbreaks Annual Report](#), 839 foodborne disease outbreaks were reported, resulting in 14,259 illnesses, 875 hospitalizations, 17 deaths, and 18 food recalls.

The headlines don't lie either with crackers, cookies and cakes making the recall list alongside the "predictable" culprits of leafy greens and meat and poultry products being pulled from store shelves and cases in fear of contamination risks. According to the [U.S. Food and Drug Administration](#) (FDA), there have been more than 300 recalls in 2018 alone. With food safety challenges on the rise, companies know they must face those challenges directly by adhering to new rules and regulations, optimizing operations, and investing in sanitary equipment and packaging systems.



## REGULATORY REQUIREMENTS

To help food producers ensure safety and sanitation, the FDA's Food Safety Modernization Act (FSMA) keeps companies accountable for its products to prevent food-related illnesses and outbreaks.

Signed into law in 2011, FSMA mandates food producers to obtain third-party certification for food safety audits, follow specific requirements for shipping, loading and receiving food, and collect data and keep detailed records to help prevent food contamination throughout the entire supply chain, including packaging. FSMA is largely based on the Hazard Analysis & Critical Control Points, or HACCP, which was the standard for food safety best practices and prevention of food safety problems since it was approved in the 1960s until FSMA was passed.

Other organizations are also helping food producers meet those regulations through equipment and facility design. Within the European Union, for example, European Framework Regulation (EC) 1935/2004 is standardizing sanitary design when it comes to food contact materials.

In fact, according to Packaging World's Food Safety Playbook, these regulations are pushing food companies to collaborate with equipment suppliers to help meet the standards. "Food companies should call upon their machinery suppliers when they seek help in determining the effectiveness of elements within a food safety program, such as establishing the validity of the critical limits for specific critical control points," the report states. "Equipment design also plays a role in easing this aspect of a food safety plan, because good sanitary (or hygienic) design reduces risks as well as the complications of ensuring a safe environment."

## BAKING SPECIFICS

Like any other food producer, the bakery industry—the third largest segment—is also concerned about food safety and sanitation. However, there are specific industry challenges thanks to the inherent nature of the product. Crystalized sugar, sticky syrups, dusty flours and powders, eggs, milk, fruits, caramels and chocolates can cause quite a mess. Add to that production and packaging equipment with components and actuators that can become covered and clogged with food dust and particles.

Remember the more than 300 food recalls in 2018? Nearly 10 percent were bakery related, ranging from cookies and biscuits to cakes and sweet rolls. In fact, Conagra Brands recently recalled four varieties of its iconic Dunkin Hines cake mix due to a potential salmonella risk. According to the USA Today report, the recall includes 2.4 million boxes of the Classic White cake mix and three other varieties that were in production at the same time when the salmonella was identified in the Classic White cake mix after five people reported becoming ill.

As reported in this ProFood World article, bakery operations are no exception when it comes to food safety. According to Amy Scherber, owner and founder of Amy's Bakery, "Cleaning is really important to my company for many reasons. Our wholesale customers demand a sanitary location, and there are inspections of our facility by outside parties to check and see if everything is clean and up to the standards of different health codes. We work with flour, and flour flies and floats everywhere, so it [the facility] needs to be cleaned and maintained all day long."

## AUTOMATION DESIGNED WITH BAKERIES IN MIND

To help food producers and bakeries meet strict regulations and improve operations, equipment manufacturers are designing automated solutions that achieve both. At the same time, baked goods producers are looking for machines that not only meet safety regulations while optimizing their operations, they are also looking for those that also can adapt to various products and keep quality intact.

According to the 2018 PMMI Food and Beverage Processing Machinery Report for Bakery Machinery in the U.S., “There is a greater use of alternative ingredients and product differentiation in baked goods processing, driving demand for flexible machinery and automation to modify processes and easily control and optimize the use of ingredients.”

Traditionally, the bakery industry has been slow to adopt automated technology due to the wide variation and often times delicate properties of the final products. Despite the challenges in automating bakery operations, however, new solutions are providing bakery operations options to handle a wide variety of product, ensure gentle handling, operate at higher speeds and, most importantly, maintain safe and clean operations.

One such solution is new material science-based end-of-arm tooling (EOAT) technology from Cambridge-based **Soft Robotics**. The soft, robotic grippers can pick and place items with varying size, shape and weight with the delicate dexterity that mimics a human hand—and all without the need to reprogram or customize tooling. EOAT can easily grip and lift many products, including cookies, cakes, breads, donuts and more, in addition to easily handling raw dough and wrapped items. Because the soft grippers mimic a human hand, they are ideal for use on delicate, frosted or decorated bakery items.

Most importantly, the food-safety EOAT meets both FDA requirements and EC 1935/2004 standards for food contact and handling. The soft grippers are made entirely from compliant FDA-compatible, elastomeric polymers that offer superior cleanability in the case of stringent safety standards and that can stand-up to bakery ingredients like dusty flours and sugars, and potentially messy butter and chocolate.

Built with sanitation in mind, Soft Robotics’ food-safety EOAT is available in various designs and sanitary options. While some food manufacturers may need the absolute highest level of sanitation for meat and poultry, for example, other food producers may not.

“Commercial bakeries do require sanitary equipment but most do not need cleaning-in-place or full polished stainless on all equipment surfaces like other industries do,” said Craig DeMello, applications engineer for Soft Robotics. “That’s why we’ve integrated sanitary options like a clean out-of-place system, stainless steel ingress fasteners and use a polymer for the manifold and product contact surfaces to ensure a clean and safe operating environment, but also offer a solution tailored to the application at hand—in this case, bakery operations.”

Learn more at [SoftRoboticsInc.com](https://SoftRoboticsInc.com)

