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Managing Food Allergens in Shared-Use Commercial Kitchens

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IN THE UNITED STATES, approximately 33 million people live with at least one food allergy, which roughly equates to 11% of adults and 8% of children. Each year, an estimated 3.4 million emergency room visits are attributed to food-allergic reactions (Food Allergy Research and Education 2024).

Consequently, food allergens are a top reason the United States Food and Drug Administration (FDA) and the US Department of Agriculture (USDA) issue food recalls. Although allergen control is challenging for large food manufacturers with dedicated infrastructure and staff, it is significantly more difficult for small food businesses, particularly those operating in shared-use commercial kitchens. After briefly discussing food allergens in general, this publication provides advice and explanation for installing effective and efficient allergen-control protocols.

What Are Food Allergens?

Food allergies are caused by an immune system response. The immune system mistakenly identifies specific food proteins as harmful, triggering reactions that can range from mild to life-threatening. Symptoms of an allergic reaction may include the following:

- Tingling or itching of the mouth
- Swelling of the lips or tongue
- Hives or itchy skin
- Abdominal pain or stomach cramps

More severe reactions may involve the following:

- Significant swelling of the tongue or throat, leading to difficulty breathing
- Dizziness or fainting
- A rapid drop in blood pressure



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The most severe reaction, anaphylaxis, requires immediate emergency medical treatment and can be fatal if not addressed promptly.

In the United States, the most common foods that cause allergic reactions include what the FDA recognizes as the “Big 9.” They account for approximately 90% of serious food allergic reactions. The allergens are milk, eggs, wheat, soy, peanuts, tree nuts, fish, crustacean shellfish, and sesame.

The Food-Safety Challenge Shared-Use Kitchens Pose

Shared-use kitchens present distinct food-safety challenges. Multiple food businesses operate in the same space, often using the same equipment and storage areas. Each business may have varying levels of food-safety training, sanitation effectiveness, and allergen-control practices. But individual users cannot dictate what allergens others bring into a facility or their management of them, thus increasing the risk of **allergen cross-contact** in these spaces. Additionally, users often have limited control over scheduling, further raising the exposure risk.

Allergen cross-contact occurs when an allergen unintentionally contacts another food, ingredient, surface, or piece of equipment. In shared-use kitchens, common risk factors include the following:

- Ingredient contamination, such as adding milk to a product not intended to contain milk.
- Airborne particulates. For example, wheat flour dust going airborne during mixing and settling on nearby surfaces.
- Shared equipment, including tables, mixers, bowls, utensils, pots, and pans that are not adequately cleaned between users.
- Inadequate separation of ingredients, preparation areas, or packaging spaces.

Without effective controls, these conditions more easily result in unintended presence of allergens.

Managing Allergens in Shared-Use Kitchens

Direct communication with facility management regarding allergen awareness and controls is crucial when developing an allergen-management program. Such a program identifies procedures that all users are required to follow, including rules for storage, sanitation, and equipment use. If no such program exists, consider collaborating with management to help develop one. A

standardized approach is the most beneficial because it reduces risk and improves consistency. Many resources are available to help create an allergen management program (see the Resources subsection at the end of this bulletin), but the following highlights the basic advice and concepts you need to get started.

Prerequisite Programs and Preventive Controls

In a Hazard Analysis Critical Control Point or Food-Safety Plan, allergens are classified as a chemical hazard, because allergenic proteins pose health risk. Allergen controls may be managed through prerequisite programs. Or preventive controls are an effective way to develop a robust management program. **Prerequisite programs** establish the foundational conditions for safe operations, such as validated cleaning and sanitation procedures, proper labeling and ingredient control, employee training, and scheduling practices to minimize allergen cross-contact between products. **Preventive controls**, when required, are more targeted and risk-based measures that are applied to specific hazards, such as allergen segregation, dedicated equipment or utensils, label verification, and production controls (e.g., sequencing or line clearance), to ensure allergen cross-contact prevention or its reduction to an acceptable level. Key components that support both include supply chain assessments; product development; allergen segregation; effective labeling practices; streamlined production; calculated sanitation practices; worker training; and recordkeeping.

Supply Chain

It's always a good idea to start with the basics when developing an allergen management program. A solid first step includes carefully assessing your ingredients and their suppliers. Always review ingredient labels thoroughly and understand the subingredients used in each component. Indeed, a small cheese producer working on a new product, like bacon ranch cheddar, might not realize that the ranch component contains egg. Or a beef processor making steak marinades that contain Worcestershire sauce might not know that one of its ingredients is fermented anchovies, a fish.

Suppliers use different ingredients, so closely scrutinizing product ingredients is important. To be sure, suppliers can change their product formulation without warning, which could modify a product's ingredient or allergen content.

Ask suppliers whether they process other products that contain allergens and how they control those allergens. Although many recalls originate from contaminated ingredients rather than in-house errors, the financial and reputational impact falls on the brand whose name appears on the label.

Product Development

Another aspect involves product development. During this stage, evaluate whether including an allergen is absolutely necessary. In some cases, suppliers can reformulate ingredients to eliminate allergens without compromising quality. The aforementioned cheese producer, for example, could ask the local ingredient producer to make it without eggs to make the product allergy-free. Not only does it lower overall risks, reducing the number of allergens used also simplifies operations.

Segregation

An important consideration in any management program is storage procedures. Never place allergenic ingredients, work-in-progress, and finished products above or next to nonallergen products. Whenever possible, designate specific shelves, bins, or areas for allergenic materials. Kitchen and storage space is notoriously limited in food-production facilities, risking cross-contact incidents in refrigerator, freezer, and/or dry storage areas. A solid program management goal thus includes policies mandating segregating allergens so that no accidental contact occurs. For a bakery, this might involve putting bagged allergen materials in a plastic tub with a lid and then placing that tub into another lidded plastic tub. The doubled storage not only protects the ingredients from exposure, it makes them safer to transfer to a processing table without spillage, because the ingredient stays in a tub.

Labeling

Because they identify a product's content, the use of labels is undoubtedly a crucial tool when developing a management program. Two procedures cover this, finished product labeling and creating a visual system.

Finished Product Labeling

Finished product labeling involves applying compliant, informative labels to goods prior to their shipment. To safely avoid cross-contact or cross contamination in a facility, clearly label all allergenic ingredients and products. Both FDA and USDA regulations require accurate allergen labeling (see Resources for more information on regulatory labeling requirements). Even for a cottage food product for direct-to-consumer sale that is not subject to FDA or USDA inspection, declaring known allergens on a product label is required.

Label changeovers can be particularly challenging periods. To ensure that the correct label is being applied to the correct product, consider implementing a two-person verification system. Such errors can be costly otherwise, often causing a company to recall their product because of improper labeling. For example, a very large manufacturer's barbecue potato chips were once

mistakenly packaged as regular potato chips (the former product contains milk).

Another way to ensure accurate labeling is to remove obsolete or incorrect labels from the production area. For example, after updating a product's recipe, it's best practice to remove any rolls of the preprinted labels of the "old" product from the production floor so a staff member won't accidentally grab one with which to label the product. Even if a mistake like this is caught in time, relabeling all product is costly. Similarly, for processors that print labels in-house, ensure that only the most current label file is available for printing and application.

Not all labeling, however, protects a manufacturer from liability. Cautionary allergen statements such as "may contain," "produced in a facility that also processes X," or "made on shared equipment with" are not considered acceptable allergen control measures by regulatory agencies and thus do not protect a company from liability. Indeed, the FDA and USDA expect food businesses to identify, prevent, and control allergen cross-contact through effective operational practices instead, not advisory labeling. Advisory statements thus merely inform consumers of residual risk and are not a replacement for robust allergen management programs. Moreover, regulators might view reliance on precautionary statements in lieu of proper controls—such as segregation, sanitation, scheduling, and verified cleaning—as evidence that allergen hazards are inadequately managed.

Visual Systems

Adopting visual systems in-house, such as color coding, further improves compliance and awareness and reduces cross-contact risk. The basic approach involves assigning specific colors to specific allergens and posting clear signage that explains their coding. For example,

- Code cleaning items with a pink color when making something with peanuts, green when making something with walnuts, and blue when working with soy.
- For products with multiple allergens, designate a color for each product.
- Attach a sheet of paper or large sticker of a coded color to an ingredient container or shelf.
- Store color-coded tools and cleaning items in separate, labeled containers.

Although any color can be chosen for an allergen, be consistent with the color coding to prevent contamination or other similar accidents from occurring. Use the same color code for all materials so that their labels or tags make an allergen's presence immediately recognizable. Note,

however, that color coding by itself may not reduce risk if some employees are colorblind, so alternative methods, like bold labeling, may be preferable.

Production Scheduling

Plan production runs strategically. Always produce nonallergen products before those that contain allergens. Indeed, once an allergen is introduced, cross contamination is possible. Nevertheless, building on allergens is acceptable, but only if production stops after completing each use of an allergen so that a full cleaning (not just a wipe down), can be carried out (removal of all protein that could be present). For example, a baker makes four products, one with no allergens (NA), one with milk (M), one with wheat (W), and one with milk and wheat (MW). After starting with an NA product, they build by either making one with M or W, then lastly one containing MW. After completing the MW product, a full clean is required, which allows manufacture of any product not made during the first run. Afterward, a full cleaning and sanitation cycle is required before restarting nonallergen production.

Sanitation

Sanitizers and heat alone do not remove allergen proteins. Effective allergen removal requires thorough washing, scrubbing, and rinsing to physically remove proteins, followed by sanitizing for microbial control. In shared-use kitchens, also clean and sanitize all equipment before beginning production, since prior users' sanitation practices cannot be assumed. Precleaning is always good practice because even if a facility was cleaned, sanitation is only acceptable for a finite amount of time.

Allergen protein test swabs are available and provide rapid verification through color change or indicator lines. Although these tools add cost, theirs are minimal compared to the average direct recall cost of a nationally distributed product, which can reach approximately \$10 million (Ostroff 2018). Also, allergen swab testing does not take any additional special equipment and involves minimal training of production workers on their timing and interpretation.

Training

If a worker or their close family member doesn't have a food allergy, it may be difficult for them to understand why their employer mandates using a certain colored spoon, why a certain ingredient has to be segregated (unexposed) when other products are being made, or why a finished product can only be stored on a particular freezer rack only. Misunderstandings like these make allergen management training for anyone working on a product that much more essential. Employees must grasp

the entire spectrum of their workday enterprise: what allergens are present, why controlling them matters, and how following management procedures protects consumers and the company.

Open communication among shared kitchen users is also a critical training issue. Make it a common practice to regularly inform workers, suppliers, and shippers of the allergens being used and request the same free-flow practice of information exchange in kind. The coordination allows for any adjustments to scheduling, storage practices, or production timing that minimize risk going forward. Note: Not all kitchen users produce products for resale and so they may not track their ingredients and allergens with finished product labels.

Recordkeeping

As one popular saying goes, "If it is not documented, it didn't happen." Always document your allergen program. Create procedures and log sheets; notate conversations with suppliers; document ingredients reviews; provide signoffs for label management and changeover procedures; provide company-wide training (with signoffs and testing); and maintain cleaning logs and testing records. Create incident logs if an issue arises to facilitate continuous improvement programs. Keeping records like these demonstrates program effectiveness and supports continuous improvement.

Continuous Improvement

Just like with all other food-safety and -quality programs, continuous improvement—reviewing and making upgrades when needed—is crucial to maintain the high quality of a system over time. When incidents occur, what policies or practices can you put in place to prevent that issue from happening again? Annually review your programs to see if there is something that can be improved. Complete facility walkthroughs to make sure you are following your programs. Talk with employees and fellow kitchen users to ask what ideas they have that you can institute. Engage with kitchen management and work with them to improve practices.

Food allergens present a serious food-safety hazard, with potentially fatal consequences. Although managing allergens in a shared-use kitchen is challenging, effective controls are achievable. Indeed, each user is responsible for their own allergen controls even though it is a shared space. Through standardized practices, clear communication, thorough training, and consistent documentation, shared-use kitchen operators practice continuous improvement, protecting consumers and operating safely.

Further Reading

Food Allergy Research and Education. n.d. “Facts and Statistics.” <https://www.foodallergy.org/resources/facts-and-statistics>.

Ostroff, S. 2018. “The Costs of Foodborne Illness, Product Recalls Make the Case for Food Safety Investments.” *Food Safety Magazine* (<https://www.food-safety.com/articles/5847-the-costs-of-foodborne-illness-product-recalls-make-the-case-for-food-safety-investments>).

Resources

Food Allergy Research and Education. Allergen management program and sanitation information: <https://www.foodallergy.org/>

Food Allergy Research and Resource Program (University of Nebraska Institute of Agriculture and Natural Resources). *Components of an Effective Allergen Control Plan: A Framework for Food Processors*: <https://farrp.unl.edu/farrp-resources/allergen-control-food-industry/>

US Department of Agriculture Food Safety and Inspection Service: Basics of Labeling. <https://www.fsis.usda.gov/inspection/compliance-guidance/labeling/basics-labeling>

US Food and Drug Administration: Food Allergies. <https://www.fda.gov/food/nutrition-food-labeling-and-critical-foods/food-allergies>

US Food and Drug Administration. Guidance for Industry: Food Labeling Guide: <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/guidance-industry-food-labeling-guide>

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