



TECH TIPS

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Allergens In Food Processing

In today's food processing market, allergens are becoming a leading cause of concern. Allergens affect many facets of processing including production, to product labeling, and even consumer safety.

Allergens are currently the predominate reason behind product recalls. According to recent Food and Drug Administration (FDA) as of Jan. 1, 2006, food manufacturers are required to list food allergens on food packaging to alert consumers with allergies of the potential risk of any food product. This decision was made under the Food Allergen Labeling and Consumer Protection Act of 2004 (FALCPA). To address this concern, many leading manufactures are implementing allergen prevention strategies in their facilities for both consumer and brand protection.



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What are Food Allergens?

Food allergens are caused when an individual who ingests a certain food source has an adverse metabolic reaction to it. A food allergy is an immune system response to a food that the body recognizes as foreign and harmful to the body. Once the body recognizes the foods as an allergen, it creates specific antibodies to it. The next time the individual eats that food, the immune system releases massive amounts of chemicals, including histamine, in order to protect the body. These chemicals trigger a cascade of allergic symptoms that can affect the respiratory system, gastrointestinal tract, skin, or cardiovascular system. Depending on the consumers' response to the allergen, as well as the sensitivity of the individual; reactions can range from low grade fevers, rashes and flu like symptoms to more severe conditions like anaphylactic shock leading potentially to death. It is estimated that from 2% to 2.5% of the general population, or 5.4 to 7 million Americans have food allergies.

Individuals may be allergic to the product as a whole or ingredients, mainly proteins, contained in the product. The Food and Drug Administration (FDA) has listed the top eight allergens which account for an estimated 90% of food allergies:

- Milk
- Eggs
- Peanuts
- Soy
- Tree Nuts (i.e. almonds, cashews, walnuts)
- Fish (i.e. bass, cod, flounder)
- Shellfish (i.e. crab, lobster, scallops)
- Wheat

Companies in the United States that export product to Europe must also be concerned with allergens listed by the European Council (EC). It is necessary for these manufactures to also include these additional allergens to their label.

- Celery
- Sesame seed
- Mustard seed
- Sulfur dioxide and sulfites

It is not longer acceptable according to the FDA or EC to label a product "may contain allergens". Regulations now call for more detailed labeling which must name the allergen in the product. For example, a novelty ice cream bar, one with peanuts and one without, are made on the same production line. The production line was not cleaned when switching product formulations. Therefore, the package for the novelty ice cream bar without nuts must still have a warning on the label stating that the product may still contain peanuts.



Points of Allergen Control

Once a manufacturer is able to identify allergens that are contained in their product, they can take action to isolate the allergen from other non-allergen products processed in the same facility. When determining how to implement an allergen program, a processor needs to address areas where allergen cross contamination could take place.

Cleaning and sanitizing of food contact surfaces is the foremost area where cross contamination can occur. If a food contact surface is not cleaned and sanitized properly, allergens can remain behind and contaminate non-allergen products later in production. It is important to remember that allergen contamination from improper cleaning and sanitizing will not equally distribute itself in a subsequent run. Allergen contamination tends to slug through, usually at the beginning, this is the danger!

Non-food contact surfaces also need to be thoroughly cleaned and sanitized to remove allergens. These areas may not come into direct contact with non-allergen foods, however, factors like employee handling and high pressure spraying can lead to recontamination of clean surfaces with allergen containing debris. It is not uncommon in a facility that may have multiple lines in one processing room, to observe one line being actively cleaned while another, in close proximity, is packaging product. High pressure spraying in and around the line being cleaned can easily transfer and contaminate the running line.

Other Areas of Concern

Ingredients used in processing that contain allergens must be identified. These ingredients should be stored separately from non-allergen ingredients. Once an ingredient is identified as containing allergens, products containing that ingredient should also be isolated from other non-allergen products.

Product changes on the line can also contribute to allergen contamination. Many times there are not procedures in place to identify products that may be the same in name, but the formulation may differ. Processors may produce a product under different label names. It is very common that ingredients may change in a product formulation from one brand label that many contain an allergen to another that does not.

Packaging can also become a problem if formulations are not understood. If the employee is not aware of a product that contains an allergen, they may change packaging without considering cleaning and continue to package into a non-labeled package.

Due to processing issues, facilities will have rework. Again, products containing allergens must be labeled as so, on the container they are stored in until they can be further processed. Products containing allergens can not be reprocessed with non-allergen products.

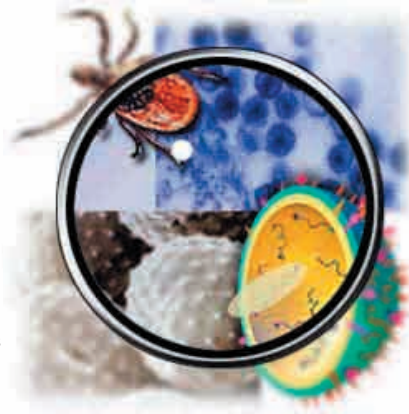
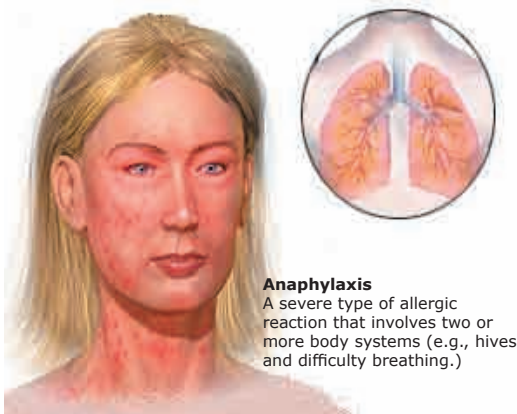
When implementing an allergen program, as with any program in a facility, employees need to be educated as to their role in preventing allergen contamination. Training on the importance of allergens, as well as, procedures in place to avoid cross contamination needs to be performed. Even with an allergen program in place, if it is not understood by the employees, it will not be successful.

Other tactics used to avoid allergen cross contamination are formatting production schedule to isolate products containing allergens. It may be beneficial for a manufacturer to schedule products containing allergens to run at the end of the day or shift. These products may also be isolated to one line in a facility so then do not come into contact with other non-allergen products. This type of proactive scheduling can not only prevent cross contamination, but also save on employee time, sanitation costs, and production down time.

Once parameters for an allergen prevention plan are in place, the program must be validated. Validation of procedures, training and sanitation are imperative.

Validation of procedures should include, but are not limited to any Standard Operating Procedures (SOP) directed toward allergen control. These may include the storage of allergen containing ingredients, product formulation, and packaging. Often manufacturers also specify certain in-plant guidelines when running products containing allergens. Allergens should also be a part of a manufactures Hazard Analysis & Critical Control Point (HACCP) program. Allergens are considered health hazards in a HACCP plan. All regulations should be documented and visually inspected to ensure adherence to the allergen program.

Employees need to be aware of their company's allergen program. Since many procedures and regulations are performed by employees, they must be trained in the area of allergen prevention. Training should be performed as necessary to keep employees up to date on the program as well as any changes that may occur in the allergen plan as it develops. More often then not, human error is the contributing factor in most product allergen recalls.



Dermatitis

A disorder affecting the upper layers of the skin, which can be the result of allergic or non-allergic factors.





Program Verification

Perhaps the most important step in allergen prevention is validation of the manufacturers' sanitation program. Inspection of equipment and environmental areas after sanitation should be performed as needed to ensure surfaces are free from all allergens.

In today's industry, many companies like Neogen®, have test kits that can detect allergens in food products, on equipment surfaces and in CIP rinse water. At the present time allergen kits are available for the detection of almond, egg, gliadin, hazelnut, milk, peanut, and soy residues. Usually in a manufacturing environment, testing is performed by quality assurance staff or personnel trained to inspect cleaned and sanitized food contact surfaces as well as other equipment. Test kits have been developed to be easy to use, however, it is important that employees using the kit be correctly trained. Training should be provided by the allergen test kit representative or a pre-trained plant employee. This will ensure that results from all employees are consistent and accurate.

For further information on allergens the following site can be of assistance.

www.cfsan.fda.gov (Go to the "Select a Topic" tab and click on Allergens)



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