

Allergens

Ongoing Challenges in the Global Food Industry



Do you expect to find **cow's milk** in a coconut drink? **Fish** in chicken pesto pasta? **Gluten** in a product clearly labelled as 'gluten free'? **Peanuts** in wheat products?

Unexpected or undeclared **allergens** and the **misrepresentation** of food continue to make news headlines and is the leading cause of food recalls globally. While the impact on brand reputation can be financially damaging, the impact on consumers sensitive to allergen contamination can be devastating. Food industry awareness of allergens and food misrepresentation has dramatically increased over the past decade, so why do we continue to have ongoing challenges managing them?

Challenges

Undeclared allergens in manufactured foods or raw materials can potentially have global impacts due to high volumes and wide distribution networks. Food services face the same risks, but will typically have a more localized impact. The current challenges stem from our increasingly complex food supply chains and changing eating habits. This is coupled with a reliance on accurate labelling to communicate allergen risk to susceptible people or communities.

Allergen contamination can occur at any stage of the food supply chain from primary production, transport, storage, manufacturing through to food service. As discussed in ['Food Fraud: What you don't know'](#), the addition or substitution of cheaper adulterants for economic gain is lucrative and therefore not uncommon. Just on its own food fraud can damage customer and consumer confidence in your products and brand, but when the substitution involves an allergenic substance it can also have deadly consequences. Undeclared peanut was found in ground cumin in the US and Canada, while undeclared almond was found in both paprika and ground cumin in the UK, Denmark, Sweden and Norway. While the cause of the contamination has not been positively identified, it's suspected that cheap ground nutshells were added to 'bulk up' the spices. This contamination resulted in multiple recalls across Europe and North America.

Primary production challenges arise from competitive global market pressures to produce high-quality products at the lowest possible price. Farmers using rotational cropping and the widespread sharing of harvesting, storage and transport equipment between crops often inadvertently contribute to cross-contamination between cereals which contain gluten and those that don't. Crustacea and prawns have sulphite added postharvest to preserve their fresh appearance. Given the variables within the process, validation is often difficult and there is the possibility that concentrations of sulphites may exceed the regulatory or specified acceptable limits.

Food manufacturing facilities typically handle multiple allergens that need to be managed from receipt, right through to storage, processing, packing, labelling and distribution. Direct allergen contamination can be caused by:

- **Poor management of systems, lack of process controls and ineffective implementation in production areas that require physical or time segregation between allergens and non-allergens.**
- **Poor equipment design and inadequate cleaning procedures that may allow production residues to remain and contaminate subsequent production runs.**
- **Introduction of new allergens through product development trials and non-production areas such as staff canteens and vending machines.**

Foodservices need to ensure allergens are managed from the point of ordering, through the kitchen and meal delivery service. This is often difficult in an industry with transient staff who may be unskilled or poorly trained in allergen management. A new precedent was recently set in the UK where a restaurant owner was jailed for manslaughter after serving chicken masala containing peanuts to a customer who specifically requested a nut-free meal.

Labelling deficiencies are the main cause of allergen-related recalls. Accuracy of information is vital to ensure all allergens present in the product are declared either as an ingredient, processing aid or cross-contact risk. Allergens have different significance and priority in different countries as the definition of 'allergen' differs across regions and countries; further complicating accurate reporting within the global food supply chain.

Allergen cross-contact warnings are worded with a range of statements from "may contain...", "packed in a facility that handles...", to "made on a line that also processes...". Warning statements should not be used as an 'insurance policy' for manufacturers and should only be applied when the allergen risks can't be effectively controlled. If there is no actual risk of contamination, warning statements only create confusion as to the true level of risk which may then lead to consumer complacency.

Packing errors resulting in the mislabelling of products are the main reason for allergen-related recalls. Strict product changeover protocols are essential to avoid errors as an incorrect label will result in a falsely described product and inaccurate allergen declaration.

Technical expertise together with a genuine business intent is essential to effectively manage allergens as the risk assessments are complex, time consuming and must be rigorous. Specialist knowledge is required to assess and understand the unique risks of each allergen. The application of allergen risk assessments will then need to be balanced against the practicalities of manufacturing and foodservice processes.

Some types of allergens are especially problematic, such as 'particulate' allergens which are a separate and distinct particle such as sesame seeds, slivered nuts and grated cheese. Particulate allergens do not mix homogeneously with other parts of the food and as such are high risk as they will be present in a single concentrated form in finished products. They are also readily spread into other production areas through poor cleaning and food handler practices. Powdered allergens such as egg, milk, wheat gluten and soy isolates can readily become airborne and a source of contamination. Sticky or fatty allergens, such as sesame seeds, nut pastes and milk proteins will adhere to surfaces and are difficult to remove from equipment and as such require different controls.

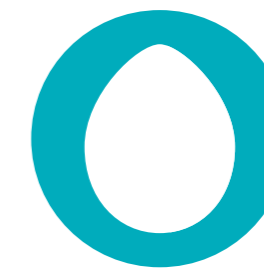
Ingredients to be declared:



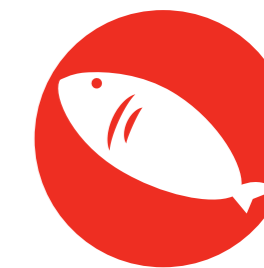
Cereals containing gluten including wheat, rye, barley, oats, spelt or their hybridized strains



Crustacea and products of these



Eggs and egg products



Fish and fish products



Peanuts, soybeans and products derived from these



Milk and milk products including lactose

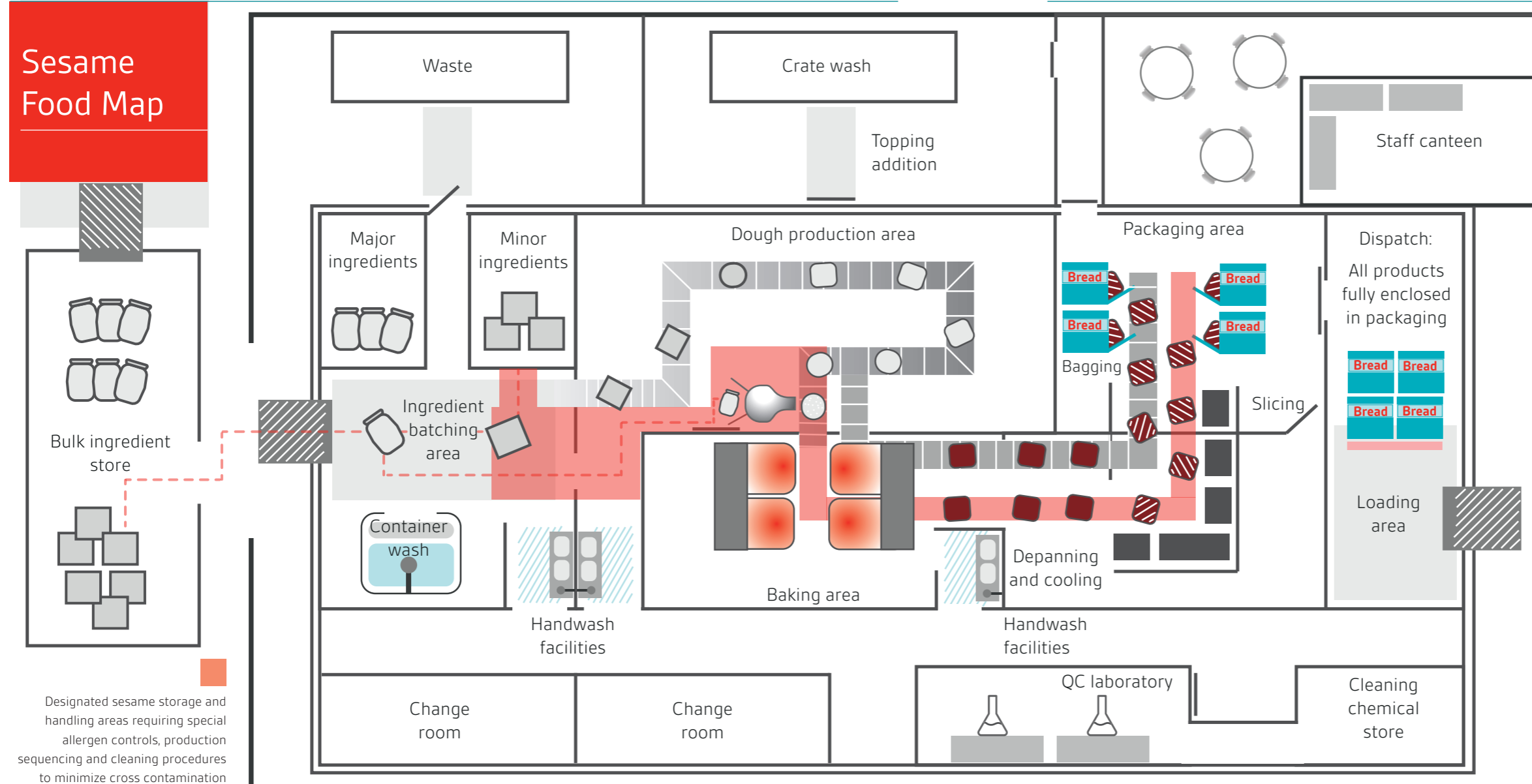


Tree nuts and nut products



Sulphite in concentrations of 10 mg/kg or more⁴

Source: Codex Alimentarius, Food Labelling. Provided as a benchmark only. Local regulations may include different and/or additional items.



Map your allergens

The process of visualizing the flow of allergenic material as it changes from an ingredient to the final product while at your site will help you identify specific points of potential contamination and consider the control measures(s) that can be applied to help resolve the risk of cross-contamination.

Follow BSI's '**Allergens facility mapping guide**' to protect the people who buy your product and your brand.

[> Learn how](#)

The Future



There is an increasing trend for food packaging that is not readily distinguishable between brands or between flavor varieties within a food category. This is largely driven by a desire for enhanced brand recognition and a deliberate lack of differentiation between proprietary and retailer branded products increasing the opportunity for a product to be packed into the wrong packaging. Demand for 'free from' foods, especially gluten-free foods is increasing and retailers are driving a trend to replace allergenic products with a non-allergenic substitutes where possible. There are significant compliance costs in maintaining high-level allergen controls due to the sheer volume of testing required for raw materials and finished products to assure allergen-free status. The positive outcome of allergen testing is that this focus continues to drive refined test methods and improved limits of detection.

Building and retaining collective knowledge remains challenging as communicating changes to the allergen status of raw materials and finished products throughout the food supply chain is onerous and requires ongoing monitoring, reporting and feedback. Sustained focus and rigor in allergen management at all stages of the food supply chain will reduce the incidence of unexpected allergens. Capacity building of staff to equip them with the knowledge and skills to understand and actively manage the challenges posed by allergens will be the key to future success.

We are all consumers of food and most of us know someone with an allergy or intolerance. Could you, or your business or brand cope with an allergen recall? Is your allergen management plan rigorous enough to prevent this happening today and into the future?

Learnings in Allergen Management

All GFSI (Global Food Safety Initiative) and retailer food safety standards have high-level expectations and prescriptive requirements for allergens. However, these are often limited to the direct operations of the manufacturing facility and do not necessarily include allergen risks in other sectors of the food supply chain. There is little gain to be had if manufacturers have rigorous controls in place to prevent contamination through equipment and production processes, if a raw material containing an unexpected allergen is then received and used.

Fundamentals for effective allergen management include:

Knowing your supplier(s) and communicating regularly on the source(s) of raw materials so that inherent allergen risks are understood. If a raw material is intended for use in a product that makes a 'free from' claim, this needs to be known by the supplier to ensure changes to the allergen status are prioritized and communicated.

Understanding the unique risks and allergen status of all raw materials. While this information should be detailed in a product specification, its accuracy and reliability will depend on the technical knowledge and competence of the author. Often product specifications are completed remotely without a site assessment being undertaken to identify actual allergen risks.

Applying a rigorous risk assessment to identify the potential for allergen contamination at each step in the manufacturing process. The flow of allergenic material, from receipt through to finished product despatch, needs to be mapped to identify specific points of potential contamination. A control measure then needs to be applied at each potential point of contamination to prevent, eliminate or reduce the allergen risk. These controls may be identified either through HACCP or pre-requisite programs.

Implementing, monitoring and reviewing the ongoing effectiveness and sustainability of controls such as segregation of allergenic products or production scheduling to minimize the frequency of changeovers between allergen and non-allergen-containing products. The use of visually distinct clothing may be used to highlight food handler movement between allergen and non-allergen areas. Stringent rework procedures are necessary to ensure allergens are not added into allergen-free products. Special waste-handling and spillage procedures will be required to ensure the removal process isn't a source of contamination into other areas of the facility. The sustainability of controls will depend on the effective training of food handlers as human error is a significant risk factor in allergen contamination and product mislabelling.

Why BSI?

We believe the world should be supplied safe, quality food and we offer a broad range of Food Safety certification and risk management services.

We're a leading food safety certification provider, with extensive auditing capacity and capability to conduct integrated audits for a wide range of Food Safety standards across the entire food and beverage supply chain – including GFSI recognized standards.

Our service solution for food safety includes certification, training, assessment and supply chain solutions – providing you and your customers' assurance and enabling you to manage risk more effectively.



Our products and services

Knowledge

The core of our business centres on the knowledge that we create and impart to our clients.

In the standards arena we continue to build our reputation as an expert body, bringing together experts from industry to shape standards at local, regional and international levels.

In fact, BSI originally created eight of the world's top 10 management system standards.

Assurance

Independent assessment of the conformity of a process or product to a particular standard ensures that our clients perform to a high level of excellence. We train our clients in world-class implementation and auditing techniques to ensure they maximize the benefits of standards.

Compliance

To experience real, long-term benefits, our clients need to ensure ongoing compliance to a regulation, market need or standard so that it becomes an embedded habit. We provide consultancy services and differentiated management tools to facilitate this process.

For more information on managing allergen risks in your facility, visit [bsigroup.com](https://www.bsigroup.com) or email food@bsigroup.com