



Allergen Management for Dairy Food Manufacturers

Although food allergens affect a small proportion of the population, food manufacturers need to be aware of their potential life threatening impact on allergy sufferers. Manufacturers are therefore required to operate their business in a manner that provides protection to consumers that have food allergies.

This Food Safety Note gives an overview of how allergens can be managed and controlled in food manufacturing operations, and should be read in conjunction with DFSV Information Note 20, Food Allergies – the Basics for Food Manufacturers.

How do you manage food allergens in the manufacturing plant?

It is essential that food allergens are controlled throughout every stage of food manufacture, from the supply of raw materials to final product consumption. An Allergen Management Program (AMP) should form an integral part of a food manufacturer's Food Safety Program (FSP).

When creating an AMP, it is important to identify all of the potential allergenic materials within the manufacturing environment. As well, a manufacturer should have a thorough understanding of all stages of production (ingredient selection, product formulation, processing, handling, storage, labelling, product flows, etc.), and particularly those aspects where unintended exposure to allergens could occur (e.g. cross-contamination points, accidental mis-formulation of product or insufficient cleaning procedures).

The AMP should address the following key areas:

- Product development and formulation.
- Raw materials, including storage.
- Equipment, premises and production systems design.
- Production scheduling.
- Rework.
- Cleaning.
- Labelling and packaging.
- Training and communication.

Product development and formulation

This is a critical aspect of any manufacturers control over the potential inclusion of allergens into a finished food product. The AMP should aim to:

- Exclude and/or minimise the use of ingredients containing allergens in the product formulation. A listing of allergens that must be declared may be found in DFS Note 20, Food Allergies – the Basics for Food Manufacturers.
- Design the product formulation so that ingredients containing allergens are added as close as possible to the end or at the end of the production process.
- Understand the formulation of a product in order to identify any ingredients that contain allergens.
- If technical knowledge/expertise of allergen containing ingredients is not available in-house, access this externally. Some allergens are not obvious. For example: vegetable oil - is it from a tree nut, peanut, soy or sesame source? An enzyme such as amylase - is it from a wheat source? Or a whitener - is it from a milk or wheat cereal source?³
- When developing new products consider using manufacturing equipment that is easy to clean.
- If developing products for the export market it is important to be familiar with the relevant country's food allergen regulations and standards, particularly in relation to labelling requirements. For example, certain markets require declaration of mustard and celery (European Union), or peas (Finland), on the food label whereas this is not required in Australia.¹

Raw materials

Manufacturers should:

- Put in place an approved supplier program for sourcing all raw materials, with particular emphasis on allergens and request allergen specific information.
- Ensure that part of the approved supplier program includes verification audits focusing on allergen prevention and control. These audits should not only include raw material suppliers, but co-packers and distributors as well.

Allergen Management for Dairy Food Manufacturers

- The approved supplier program should include conditions in the raw material specifications that no unlabelled allergens are present.
- Be attentive to any changes in raw material specifications that may impact on the allergen status.
- Assess the allergen status of all raw materials entering the plant.
- Identify and label all raw materials containing allergens in the plant. The identification is very important as a tool to prevent accidental contamination of other raw materials, equipment and products. If possible, segregate raw materials containing allergens, to minimise the risk of cross-contamination. (Allergenic materials should not be stored above non allergenic)
- If imported raw materials are used, it is important to be aware that different countries have different food allergen regulations, particularly in relation to labelling. Not all of the allergens that must be declared in Australia need to be declared in other countries. Therefore, it is important to be aware of any differences so that undeclared allergens do not potentially end up in the finished product.

Equipment, premises and production systems design

The manufacturer's AMP should:

- Ideally have a separate plant for allergen and non-allergen product types. Since this is not always possible, due to associated economic costs, the next best option is to try to segment production lines (from formulation through to packaging) for product types containing allergens and non-allergens.
- Focus attention on controlling allergen hazards in the design and installation of any new/modified production line or new/modified piece of plant equipment.
- Where possible, isolate allergen addition points in the production system and preferably design these points at the end of the production process.
- Consider the physical lockout or capping-off of plant equipment when designing production systems to minimise the potential for cross-contamination. For example, bulk storage of wheat flour that is metered into a batching operation should be locked out when this raw material is not in use.²
- Identify the potential cross-contamination and allergen risk areas in the process flow when designing production systems and new product lines.

- Eliminate production line cross-overs and poor product containment points.
- Consider product flow and air flow in order to minimise aerosols that may contain allergens when designing production systems and equipment.
- Consider utilising a colour coding system for separating non-allergen/allergen areas, production equipment, production utensils and tools, as well as maintenance tools that are a potential risk for cross-contamination.
- Consider access for adequate cleaning and for visual cleanliness inspections when designing or introducing new plant equipment or production systems.

Production scheduling

- Ideally, products that do not contain allergens should always be scheduled to run before a product that does contain allergens.
- Ideally, run allergen containing products at the end of the shift immediately before cleaning.
- Where possible, utilise longer run times and minimise product change-overs.
- Always schedule sufficient cleaning time between production runs.

Rework

- All rework (i.e. product/food materials that are to added back into the production stream) must be clearly identified and labelled, and appropriate documentation kept.
- Instructions and procedures on the use of rework should be clearly displayed throughout the plant and communicated to staff.
- The equipment and lines used for feeding rework into the production stream must be able to be adequately cleaned.
- Audit rework periodically to ensure proper identification and use, and report any misuse of rework.
- Where possible, regrind and re-feed should be dedicated to a particular product type.

Cleaning

- The methods of cleaning should be validated to determine that they are effective in removing allergens.
- All cleaning procedures should be thoroughly documented.

Allergen Management for Dairy Food Manufacturers

- For equipment that is difficult to clean, consider dedicating this equipment to particular products only.
- Provide adequate cleaning between production runs.
- If equipment cannot be thoroughly cleaned through 'Cleaning In Place' (CIP) systems, then disassembly and manual cleaning is necessary.
- Properly clean all production tools and utensils (e.g. scoops, bins, containers and hoppers), as well as maintenance tools/equipment.
- Ensure that any containers or other receptacles that are reused for storing raw materials are adequately cleaned to prevent potential cross-contamination from the other raw materials.
- Use alternative cleaning measures where wet-washing is not viable, e.g. use a sugar or salt flush.³
- Verify that equipment and tools are visually clean. Make sure that equipment with hard to reach or difficult to see spots is visually inspected. Another useful indicator for wet-wash systems is that the final rinse water should be visually clear and the pH should be in the normal range.⁴ Also consider the use of allergen testing for assessing cleanliness. For example, take equipment/environmental swab samples or samples of the first product produced after cleaning. Testing of these samples for allergens can be done using techniques such as Enzyme Linked Immuno-Sorbent Assays (ELISA).
- If reclaiming CIP solutions/ chemicals be aware of potential carryover of allergens.
- Prior to a production run always confirm that the correct packaging and label is available and that it matches the corresponding product to be run.
- Appropriately manage or dispose of any out of date or inaccurately labelled packaging to reduce the likelihood of packaging/product mismatches.
- Ensure products are adequately packaged to avoid the possibility of cross-contamination during storage and distribution
- Consider the use of technologies such as bar-code scanners to allow for an automated 100% inspection process.¹
- Consider the use of a coding system such as colours, symbols or graphics for the packaging of products to differentiate between allergen and non-allergen products.

Training and communication

- Ensure that all company staff have an awareness and understanding of the importance of allergen prevention and control through on-going training and communication programs. These communication, training and awareness programs should extend through to suppliers, co-packers, contractors, etc., in the food chain for your raw materials and products.
- Use a variety of training and communication mediums such as videos, training manuals, workshops, newsletters, demonstrations, etc., on a regular basis to ensure active participation and awareness by all staff.
- It is also very important for the company to have a policy on allergens and allergen management, including labelling and the use or non-use of precautionary/advisory statements (eg: 'may contain...' or 'contains traces of...'). In addition to the policy, it is vital that the company has an AMP with supporting procedures and work instructions.
- Procedures and work instructions on the control and prevention of allergens need to be visible throughout the workplace and production plant.. Signage should be easy to understand. Where possible utilise diagrams/pictures or graphics, so that language difficulties and/or differences are not a barrier in communication.

Labelling and packaging

- Ensure known allergens are listed on the ingredient list of the product label.
- Ensure that the label meets the Australian New Zealand Food Standards Code Standard 1.2.3 Mandatory Warning and Advisory Statements and Declarations labelling requirements. If relevant, ensure that any export markets' legislative requirements for allergens are met.
- Regularly check and review the product label to ensure that it is the current product formulation (i.e regular label verification audits).
- Review the product label accuracy and update it when a change of an ingredient in the product formulation is made.
- Regularly review raw materials for any changes to their allergen status that will flow through into final product labelling.

Where to go for further information?

- The Allergen Bureau – This is a centralised collection of information about food allergens relevant to the Australian and New Zealand Food Industry. It includes current information from international food allergen regulations to summaries of the latest scientific research. It is an initiative of the 'Australian Food & Grocery

Allergen Management for Dairy Food Manufacturers

Council - Allergen Forum' and is operated within the 'Australian Food Safety Centre of Excellence'.⁵ For further details go to:

web www.allergenbureau.net or

email info@allergenbureau.net or

tel AUS 1800 263 829, NZ 0800 263 829.

- The Australian Food and Grocery Council 'Food Industry Guide to Allergen Management and Labelling,' (2007 Revised Edition). For further details go to www.afgc.org.au or email afgc@afgc.org.au or tel (02) 6273 1466.
- Food Standards Australia New Zealand 'User Guide to Standard 1.2.3 – Mandatory Warning and Advisory Statements and Declarations,' (July 2001) www.foodstandards.gov.au
- Anaphylaxis Australia Incorporated - A charitable, non-profit organisation. Their main aim is to support and assist those affected by anaphylaxis, and to raise awareness of life-threatening allergies in the community by providing science-based information, resources and services. For further details go to www.allergyfacts.org.au or tel 1300 728 000.

References

1. Lennard, L., (February 2006), 'The European Approach to Allergen Management,' Presentation at the Food Safety Centre Allergen Bureau Conference – Food Allergens: Issues and Opportunities for the Food Manufacturer.
2. Deibel, K., Trautman, T., DeBoom, T., Sveum, W.H., Dunaif, G., Scott, V.N., and Bernard, D.T., (1997), 'Review - A Comprehensive Approach to Reducing the Risk of Allergens in Foods,' Journal of Food Protection, Vol. 60, No. 4, pp 436-441.
3. The Allergen Bureau, (2005), 'Food Allergen Management Awareness Training Presentation,' www.allergenbureau.net in the resources/training materials section.
4. Lennard, L., (February 2006), 'New Approaches to Cleaning Validation,' Presentation at the Food Safety Centre Allergen Bureau Conference – Food Allergens: Issues and Opportunities for the Food Manufacturer.
5. The Allergen Bureau, (2007), 'Allergen Bureau Website,' www.allergenbureau.net

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