

Food Safety Program, for Processors and Distributors

FACT SHEET #7

Cross-contamination

Cross-contamination is the unintentional transfer of microorganisms, chemical contaminants (including allergens) or any foreign substance from food, person, or object to another food product. It usually occurs from raw foods to ready-to-eat products (RTE) or between products that contain allergens and allergen-free products.

Cross-contamination can cause food poisoning when harmful bacteria are transferred to RTE products that do not undergo further processing to eliminate bacteria.

How does cross-contamination occur?

Food, equipment, food contact surfaces and people are considered important sources of cross-contamination:

Food: raw food which may contain harmful bacteria can contaminate other food products when they come in direct contact. For example:

- contamination of RTE products with pathogens transferred by blood dripping from raw meat during storage (if RTE products are stored uncovered and below raw meat products)
- contamination of food products with pathogens transferred from leaky boxes or broken cartons containing raw products during receiving

Equipment and food contact surfaces: food residues on equipment and other food contact surfaces may provide opportunities for cross contamination of food products. For example:

- contamination of RTE products with bacteria and/or allergens due to improper washing and sanitation of equipment and utensils
- contamination of food products with bacteria and/or allergens due to the use of dirty cloths to clean the surface of tables

- contamination of RTE products with pathogens during packaging due to the use of contaminated packaging material
- contamination of an allergen-free product with residual allergens on the equipment surface due to an ineffective cleaning
- contamination of RTE products with residues of chemicals (used to wash and sanitize tables and equipment) and allergens due to improper sanitation procedures

People: food workers that do not follow Good Manufacturing Practices (GMPs) may transfer microorganisms and allergens to the food. For example:

- contamination of food products with pathogens and/or allergens caused by not following prescribed food handling procedures (ex: taking shortcuts)
- contamination of RTE products due to soiled uniforms and gloves or dirty boots

How do I prevent cross-contamination?

Cross-contamination is usually preventable. To decrease the chances of cross-contamination, keep raw and cooked products separate and allergen foods and allergen-free products separate. Other tips to prevent cross contamination are listed below.

GMP Implementation

Recontamination of food products and food contact surfaces are prevented by:

- washing your hands when starting work, changing tasks, after using the washroom, and after breaks
- using hand washing stations with soap and sanitizer (ex: 30-50 ppm chlorine solution)
- using foot dip stations at the employee entry door
- using different utensils for raw and pre-prepared foods
- not placing containers or boxes that may have been stored on the floor onto food contact surfaces
- cleaning and sanitizing utensils between uses
- using correct sanitation procedures for all utensils and equipment
- changing smocks and dipping or changing boots before entering a RTE area

Storage

- Store raw food and RTE food separate.
- Store ingredients containing Health Canada's priority allergens below or away from allergen-free ingredients (ex: do not store loose bags of nuts over open bin of flour).
- If raw and RTE products are stored in the same refrigerator, store RTE foods above raw foods.
- Keep food products covered and off the floor during storage.
- Store cleaning materials and other chemicals separately from food products.

Plant Design and Production Flow

- Flow of operations in a food processing facility should minimize the likelihood of cross-contamination (ex: employees working in the raw processing area should not access the RTE area).
- Physical separation of raw food products from cooked products is essential.
- Clean filtered air should flow from finished product or packaging areas to raw product handling areas.
- Condensation must be controlled within the processing area; particularly the RTE and packaging rooms.

Cleaning and Sanitation

- Use color-coded cleaning utensils for different sections of the plant.
- Use brushes to clean food contact surfaces
- If you use cloths to wipe food contact surfaces, dip the cloth in sanitized water between uses.

Training

- Employees must be trained in GMPs.
- Employees should be able to identify a potential cross contamination situation and prevent it from happening.
- Visitors should be educated to ensure that they are following proper GMPs.

For information on the Food Safety Program contact the [CVO/Food Safety Knowledge Centre](#).
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For general information, contact your local [GO Centre](#).