



## Fresh Facts for Industry: Irradiation

Food irradiation is a food safety and preservation technology, similar to pasteurization. While pasteurization uses heat to kill microorganisms, irradiation uses a form of energy called ionizing radiation. The process involves exposing food, either in bulk or packaged, for a specified amount of time to gamma rays, X-rays, or electron beam radiation. The effects of irradiation on the food, and on animals and people eating irradiated food, have been studied extensively. Irradiation has been shown to be a safe and effective tool that can help to prevent many food-borne diseases.

### Why is it important?

Food irradiation has several benefits:

- It reduces the potential for food-related illness by reducing the level of bacteria and parasites that contaminate food and cause food-borne illness;
- It increases shelf life by slowing down the ripening or sprouting of certain fruits and vegetables; and
- It presents an effective treatment to mitigate post-harvest damage by destroying bacteria, molds and yeast which cause food to spoil, and to control insect and parasite infestation.

The effect of irradiation processing on food has been investigated more thoroughly than any other food technology. The irradiation process produces very little chemical change in food and does not change the nutritional value of food. Extensive research and testing have demonstrated that irradiated food is safe and wholesome.

While irradiation kills most of the microorganisms present in food, it does not necessarily sterilize the food. Consumers must still take appropriate precautions, such as refrigeration, and proper handling and cooking, as they do with all foods.

### What You Need to Know

Canada first approved the irradiation of potatoes to inhibit sprouting in 1960. Since then, other food products have also been examined by [Health Canada](#) and have been approved for irradiation. The current list includes onions, wheat, flour, whole wheat flour, whole and ground spices, dehydrated seasoning preparations and raw ground beef. The [Food and Drug Regulations \(FDR\)](#) require all foods processed by irradiation to be labeled with an international symbol for irradiation and the words "treated by irradiation", "treated with radiation" or "irradiated".

Irradiation facilities for food are also being operated safely. The facilities, equipment and operators are governed under the *Nuclear Safety and Control Act* and related regulations and must all be licensed by the Canadian Nuclear Safety Commission (CNSC), which imposes strict safety rules based on international guidelines. These rules also include specific directives on the transportation and disposal of the radio-isotopes used for food irradiation. Transportation and disposal of food radioisotopes used for food irradiation are governed by strict local and international safety rules.



From a safety perspective, the **Health Products and Food Branch of Health Canada** is responsible for the regulations specifying which foods may be irradiated and the treatment levels permitted under the [Food and Drugs Act](#). The **Canadian Food Inspection Agency (CFIA)** is responsible for the administration of the regulations relating to the labelling of irradiated food products under the *Food and Drugs Act*.

The **Radiation Protection Bureau (RPB) of Health Canada** is responsible for assessing, communicating and reducing the health risks associated with exposure to ionizing radiation, and the **Canadian Nuclear Safety Commission (CNSC)** regulates the use of nuclear energy and materials in accordance with Canada's international commitments.

Any Canadian food irradiation facility must comply with the above regulations. All irradiated food must also be approved for irradiation in Canada by Health Canada, and must comply with the *Food and Drugs Act* and [Division 26 of the Food and Drug Regulations](#), including the applicable labelling requirements.

Only certain foods are approved for irradiation in Canada. For a complete list of approved foods, view the [Health Canada](#) website, or the Table in Division 26 of the *Food and Drug Regulations*.

#### **CPMA Contact and Other Resources**

For more information, please contact Vincent Huston at [vhuston@cpma.ca](mailto:vhuston@cpma.ca) or use the following resources:

- [Canadian Food and Drugs Act](#)
- [Canadian Food and Drug Regulations](#)
- Canadian Food Inspection Agency – [Food Irradiation](#)
- Health Canada – [Food Irradiation](#)
- Health Canada – [Frequently Asked Questions about Food Irradiation](#)
- Health Canada – [Recommended Code of Practice for Food Irradiation](#)