

## Keeping Foods Fresh through Irradiation

For years, food-processing companies have been faced with, and often baffled by, the problem of how to keep food fresh and safe to eat. Pasteurization, heat sterilization, and freezing are just some of the processes used in the attempt to preserve food longer and better. Now, Canada is playing a major role in the development of another preservation process that may soon be in widespread use: food irradiation.

### Process kills bacteria

Irradiation involves exposing food to a carefully controlled dose of ionizing radiation, either from radioactive isotopes that emit gamma rays, or from electronic and mechanical sources. The major source of ionizing radiation for this application is cobalt-60, which is essentially a Canadian product. Atomic Energy of Canada Limited (AECL), a federal gov-

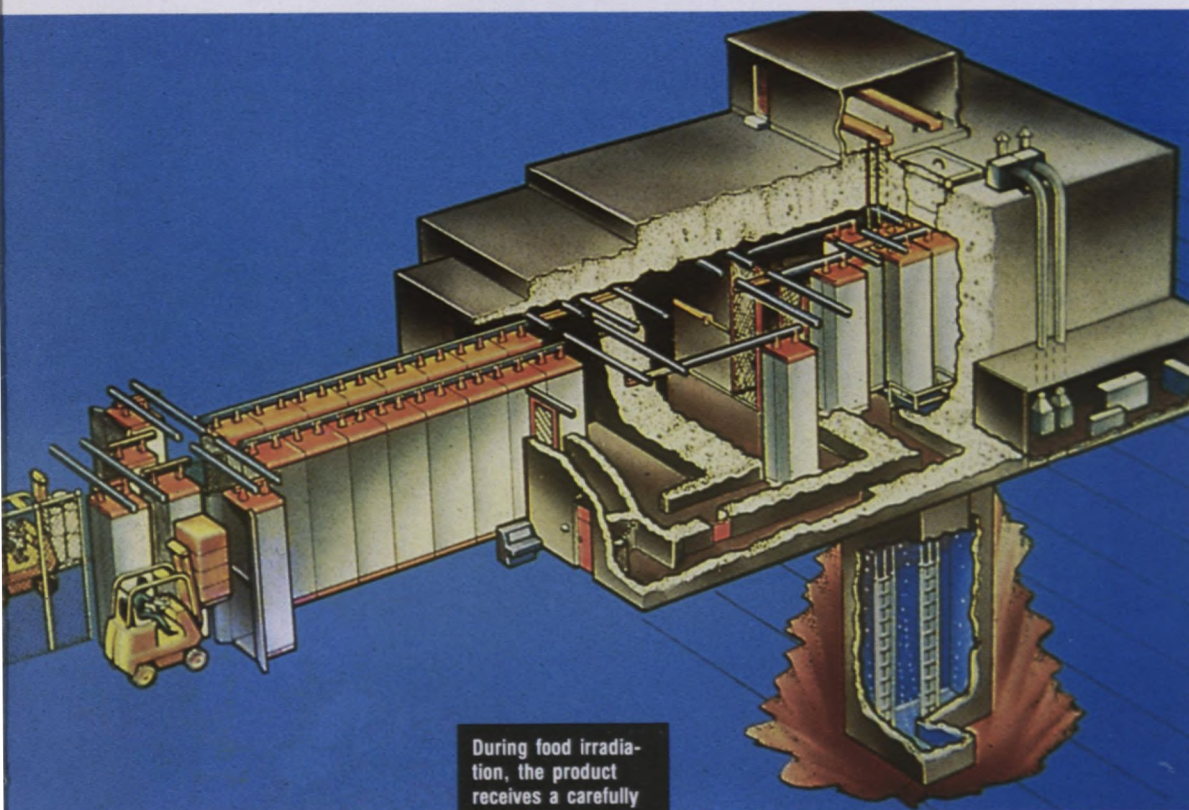
ernment agency, provides 90 per cent of the world's cobalt-60.

The irradiation process is currently used in 30 countries, and can be applied to a variety of agricultural products, food ingredients, and fresh or frozen foods. Irradiation destroys certain micro-organisms of public health significance and extends shelf life by slowing down cell division, thus delaying the ripening of fruits and preventing sprouting in root crops like potatoes and onions. Unlike chemical fumigants, which are now widely used to kill such pests as weevils and fruit flies, irradiation doesn't leave any residue. After the food is treated, it can be immediately handled and consumed.

As yet, there are no irradiated foods on the retail market in Canada. But in the 1960s, Canada was one of the first countries to approve ionizing radiation treatment for certain foods. Potatoes and onions were cleared for treatment in the early sixties, and wheat and flour in 1969. More recently, in 1984, spices and seasonings were approved for irradiation. It is expected that irradiation will soon be reclassified from an additive to a process, meaning it would be regarded like any other food process. However, stringent preclearance and compliance requirements have been proposed, and additional approved uses will be considered on a case-by-case basis.

### Two centres to study technology

If irradiation is approved as a process, the next step towards its widespread use will be to demonstrate its benefits to the food industry. The federal Department of Agriculture will be studying those benefits at



During food irradiation, the product receives a carefully controlled dose of ionizing radiation, which kills bacteria and extends shelf life. Atomic Energy of Canada Limited provides 90 per cent of the world's cobalt-60, the major source of ionizing radiation. (Photo courtesy of Atomic Energy of Canada Limited — Radiochemical Company)