



## FOOD IRRADIATION

### What are the application fields?

- **Inhibition of sprouting**  
potatoes, onions, garlic
- **Insect disinfestation**  
fresh and dried fruits, cereals
- **Delay of ripening**  
fresh fruits
- **Extension of shelf life**  
fresh fish, strawberries, mushrooms
- **Reduction of microorganisms (e.g. Salmonella)**  
poultry, sea food
- **Improving technological properties**  
grapes (increasing juice yield)
- **Industrial sterilization**  
hospital meals sterilization

Gamma-Service Recycling GmbH has its focus on the supply, recycling and transportation of radioactive materials in research, medicine and industry, the dismantling and decontamination of plants, radionuclide laboratories and other facilities. Furthermore Gamma-Service Recycling GmbH is specialized in the recycling of ionisation smoke detectors and in the dismantling and takeover of cyclotrons, linear and other accelerators.

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## Improvement of food quality by treatment with gamma rays

Early sprouting?  
Microbial contamination?  
Quarantine treatment?  
Salmonellae?  
Insects?

Treating your products  
with gamma radiation  
may be the solution.





## Food irradiation – what is it?

### FOOD IRRADIATION REFERS TO TREATMENT OF FOOD-STUFF WITH GAMMA RADIATION OR ELECTRONS.

#### How does a gamma irradiation facility work?

The products are exposed to gamma radiation in a shielded irradiation room. A computer controlled conveyor system transports the goods into and out of the irradiation room and moves it with the required speed through all positions within the irradiation room.

#### Does the irradiation process make the food become radioactive?

Gamma radiation cannot initiate nuclear reactions as its energy is below the threshold energy for such reactions.

#### How does irradiation affect the taste of food?

Any preparation process normally affects food taste. May it be cooking, baking or irradiation – if improperly applied to a food, it can spoil it. This is also true for irradiation processing. There are many good examples of the excellent sensory quality of radiation processed food, including the NASA menu items, which have been consumed by astronauts for many years.

#### Is irradiated food harmful to the consumers?

Scientific studies have demonstrated, that food irradiation does not generate harmful substances. The Codex Alimentarius Commission of WHO/FAO recommends a maximum dose of 10 kGy. There are specific dose limits for each kind of application published by the relevant national authorities.

#### Are consumers ready to buy irradiated food?

Yes. While many consumers are unfamiliar with food irradiation, consumer research shows that, as more and more factual information is provided, the public increasingly views irradiation in a positive light.



#### Is irradiation technology dangerous to the staff or other people?

The irradiation process is executed in a room with shielding walls (1.5 to 1.8 m of concrete). No radiation can leak out of the irradiation room. A sophisticated PLC based control system guarantees that no person can get into the irradiation room as long as the irradiation is proceeding. For maintenance purposes, the radiation source can be lowered into a water pool, where it is shielded completely.

#### How can Gamma-Service Recycling GmbH help me entering into food irradiation?

Gamma-Service Recycling GmbH provides comprehensive services for establishing your irradiation facility:

- assistance during project preparation
- supply of the equipment
- installation and commissioning
- training of staff
- design and manufacturing according to IAEA recommendations and European technical rules and standards

