

Radioisotopes go unnoticed for their everyday applications, from life-saving cancer treatments and oil/gas well-logging to extending produce shelf life and sterilizing medical devices, implants and supplies.

Medicine

- Doctors rely on radioisotopes for radiosurgery to treat otherwise inoperable brain tumors.
- Brachytherapy uses radioactive implants directly into body tissue to treat a variety of cancers.
- Blood is irradiated before transfusion to reduce the risk of host-versus-graft disease.
- Orthopedic devices such as hip replacements are irradiated multiple times—both to strengthen the polymer and to sterilize the device.

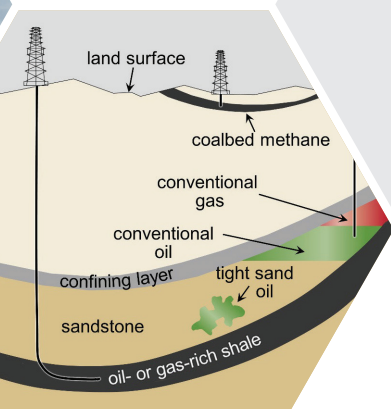


Sterilization

- Food is sterilized through irradiation, including fresh produce and spices. Almost all cosmetics undergo a similar process to remove impurities before they hit the shelves.
- Medical devices are commonly sterilized with radiation, as radiation can penetrate packaging to ensure the equipment maintains sterility. Hundreds of tools in each hospital's operating room have been sterilized using this method, including syringes, bandages, surgical tools, and gloves.

Oil and Gas

- Known U.S. oil reserves are calculated using radiological sources.
- Radioisotopes are used to log and track wells for drilling oil and natural gas. If replaced, every single well would have to be re-mapped, costing the industry billions of dollars.





Research

- Archeologists, geologists, and paleontologists all rely on radioisotopes to accurately date ancient materials.
- NASA depends on propulsion systems and batteries powered by radioisotopes to send their rockets and satellites to space for years at a time.
- Environmental researchers use radioactive isotopes to track and manage ecosystem dynamics, including water management and pollution control.
- Radioactive isotopes are essential in the conduct and advancement of medical and biomedical research.

Industrial Radiography

- Manufacturers measure thickness with radioisotope beams, such as the width of a soda can.
- That can's volume is also measured with the same beams for a more precise measurement than a scale.
- Farmers use radioisotopes in agriculture as tracers to assess fertilization and moisture of soil, to avoid pesticides by sterilizing male insects, and to help breed improved seed strains.
- Engineers test the welds holding your building together for strength with radioisotope beams.



Source Security WORKING GROUP

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American Association of Physicists in Medicine
American Nuclear Society
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International Irradiation Association
International Source Suppliers and Producers Association

The Source Security Working Group (SSWG) is an alliance of professional societies and corporations seeking to ensure safe and secure access to radiological sources.

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