



Radiation in Action

Radioisotopes are used in research, commercial, medical and industrial applications all around us. The Canadian Nuclear Safety Commission licenses the use and production of over 250 radioisotopes in Canada.

¹⁹²Ir

Iridium-192

Testing Aircraft Parts

Iridium-192 is used in radioisotope cameras for non-destructive testing to check for flaws and cracks in machine parts. The remote-controlled cameras contain a sealed source licensed by the CNSC and are operated by trained technicians.

⁶³Ni

Nickel-63

Surge Protectors and Explosives Detectors

Nickel-63 is used in voltage regulators and current surge protectors in electronic items such as cellphones and GPS devices. It can also be found in detectors that identify narcotics, chemical weapons and explosives.

⁹⁰Sr

Strontium-90

Power Far From Home

Strontium-90's radioactive decay heat is converted to electricity in long-lived portable power supplies used in satellites. They play an important role in space exploration.

³H

Tritium

A Bright Light in the Dark

The beta decay of tritium causes phosphors to glow. This radioluminescence is commonly used in self-luminous aircraft signals, dials, night scopes and wristwatches. Tritium is sealed inside plastic or glass, through which the beta radiation cannot pass.

⁶⁰Co

Cobalt-60

Clean Medical Supplies

Sealed and packaged gauze, bandages, ointments, medicines, syringes, sutures and surgical gloves are all sterilized by gamma irradiation using cobalt-60 to prevent the introduction of any pathogens that may harm patients. The process of irradiating materials does not make them radioactive.

¹⁴⁷Pm

Promethium-147

Measuring Thickness

Nuclear gauges are used to measure the width or density of materials as thin as plastic films or as thick as metal sheets during their production. Promethium-147 is used to measure the exact size of paper without touching it.