

Radioactive Material Safety Data Sheet

This data sheet presents information on radioisotopes only.

For information on chemical compounds incorporating this radionuclide, see the relevant Material Safety Data Sheet.

Strontium-90

Part 1 – Radioactive Material Identification

Common Names:	Strontium-90	Chemical Symbol:	Sr-90 or ⁹⁰ Sr
Atomic Number:	38	Mass Number:	90 (52 neutrons)
Chemical Form:	Strontium metal	Physical Form:	A strontium compound incorporated on a ceramic insert or rolled silver foil.

Part 2 – Radiation Characteristics

Physical half-life: 28.6 years **Specific Activity (GBq/g):** 5,050

Principle Emissions	E ^{Max} (keV)	E ^{eff} (keV)	Dose Rate (μGy/h/MBq at 10 cm)	Shielding Required
Beta* (β)	546 (100%) 2,283 (99.9%) ^b	196 935	9.7 ^a	-
Gamma (γ) / X-Rays	-	-	-	-
Alpha (α)	-	-	-	-
Neutron (n)	-	-	-	-

* Where Beta radiation is present, Bremsstrahlung radiation will be produced. Shielding may be required.

Note: Only emissions with abundance greater than 10% are shown.

^a *Handbook of Health Physics and Radiological Health*, Lippincott Williams & Wilkins, Third Edition, 1998

^b This beta is produced by the yttrium-90 progeny, which quickly comes into equilibrium with the strontium parent.

Progeny: Yttrium-90 (Yt-90) {half-life: 64.4 hours; decay progeny: zirconium-90 (Zr-90)}

Part 3 – Detection and Measurement

Methods of detection (in order of preference)

1. A radiation survey meter equipped with a thin-window, energy-compensated Geiger Mueller detector.
2. A radiation contamination monitor equipped with a Geiger Mueller pancake detector.

Part 6 – Non-Radiological Hazards

None identified at this time.

OSHA Permissible Exposure Limit (PEL)

No limits set at this time

Part 7 - Emergency Procedures

*The following is a guide for first responders. The following actions, including remediation, should be carried out by qualified individuals. In cases where life-threatening injury has resulted, **first** treat the injury, **second** deal with personal decontamination.*

Personal Decontamination Techniques

- Wash well with soap and water and monitor skin
- Do not abrade skin, only blot dry
- Decontamination of clothing and surfaces are covered under operating and emergency procedures

Spill and Leak Control

- Alert everyone in the area
- Confine the problem or emergency (includes the use of absorbent material)
- Clear area
- Summon Aid

Damage to Sealed Radioactive Source Holder

- Evacuate the immediate vicinity around the source holder
- Place a barrier at a safe distance from the source holder (min. 1 meter)
- Identify area as a radiation hazard
- Contact emergency number posted on local warning sign

Suggested Emergency Protective Equipment

- Gloves
- Footwear Covers
- Safety Glasses
- Outer layer or easily removed protective clothing (as situation requires)

This information was compiled by:

Stuart Hunt & Associates Ltd.
20 Rayborn Crescent
St. Albert, Alberta
T8N 5C1
Phone: (780) 458-0291 or (800) 661-4591
Fax: (780) 459-0746
Web site: www.stuarthunt.com