

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.

Americium-241/Beryllium

Part 1 – Radioactive Material Identification

Common Names:	Americium-241/Beryllium	Chemical Symbol:	Am-241/Be or ²⁴¹ Am/Be
Atomic Number:	95	Mass Number:	241(146 neutrons)
Chemical Form:	Americium oxide with beryllium metal	Physical Form:	Compacted mixture of americium oxide with beryllium metal.

Part 2 – Radiation Characteristics

Physical half-life: 432.2 years **Specific Activity (GBq/g):** 127

Principle Emissions	E _{Max} (keV)	E _{eff} (keV)	Dose Rate (□Sv/h/GBq at 1m)	Shielding Required
Beta* (□)	-	-	-	-
Gamma (□) / X-Rays	13.9 (42.7%) 59.5 (35.9%)	-	85 ^a	HVL Lead: 0.01 cm
Alpha (□)	5,443 (12.8%) 5,486 (85.2%)	-	-	-
Neutron (n)	-	4,500	0.6 ^a	HVL Paraffin Wax: 6.6 cm

□ 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

Progeny: Neptunium-237(Np-237)

Part 3 – Detection and Measurement

Methods of detection (in order of preference)

1. A radiation survey meter equipped with an energy-compensated Geiger Mueller detector. This only measures the gamma component of the total dose.

Part 6 – Non-Radiological Hazards

Currently no information available for americium. Beryllium is a suspected carcinogen and is known to produce cumulative lung damage (Berylliosis).

OSHA Permissible Exposure Limit (PEL):

No limits currently set for americium
2 ug/m3 TWA for beryllium

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. 5 meters)
- 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)

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