

## 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.

### Promethium-147

#### Part 1 – Radioactive Material Identification

<b>Common Names:</b> Promethium-147	<b>Chemical Symbol:</b> Pm-147 or $^{147}\text{Pm}$
<b>Atomic Number:</b> 61	<b>Mass Number:</b> 147 (86 neutrons)
<b>Chemical Form:</b> Promethium oxide	<b>Physical Form:</b> Promethium-147 incorporated in a silver foil mounted in a stainless steel holder

#### Part 2 – Radiation Characteristics

**Physical half-life:** 2.6 years      **Specific Activity (GBq/g):** 34,300

Principle Emissions	$E_{\text{Max}}$ (keV)	$E_{\text{eff}}$ (keV)	Dose Rate ( $\mu\text{Gy/h/MBq}$ at 10cm)	Shielding Required
Beta* ( $\beta$ )	225 (99.9%)	62	858 <sup>a</sup>	-
Gamma ( $\gamma$ ) / X-Rays	-	-	-	-
Alpha ( $\alpha$ )	-	-	-	-
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.

<sup>a</sup> *The Health Physics and Radiological Health Handbook*, Scintra, Inc., Revised Edition, 1992

**Progeny:** Samarium-147 (Sm-147)

#### 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.



**Part 6 – Non-Radiological Hazards**

None are known at this time

OSHA Permissible Exposure Limit (PEL)

No limit 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. 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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This information was prepared by: Stuart Hunt & Associates Ltd.  
15803 - 145 Avenue N.W.  
Edmonton, Alberta  
T6V 0H8  
Phone: (780) 458-0291 or (800) 661-4591  
Fax: (905)-602-0774  
Website: www.stuarthunt.com