



Canadian Nuclear Safety Commission

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Radiation 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.

Part 1 - RADIOACTIVE MATERIAL IDENTIFICATION

Chemical Symbol:	Cd	Common Names:	Cadmium
Atomic Weight:	109	Atomic Number:	48

Part 2 - RADIATION CHARACTERISTICS

Physical Half-Life: 464 days

CNSC Exemption Quantity (in Bq): 1×10^6 (1 MBq)

A CNSC license is not required if the amount of radioactive nuclides possessed is less than one Exemption Quantity.

Principal Emissions	Average Energy (MeV)**	Maximum Energy (MeV)***	Dose Rate at 1m Distance (mSv/h/GBq)	Recommended Shielding
Neutrons	-	n/a	n/a	
Gamma & X-rays	0.08803	n/a	0.045	
Beta*	-	-	n/a	
Alpha	-	n/a	n/a	

* Where beta radiation is present, bremsstrahlung radiation will be produced. Shielding may therefore be required.

** Average energy of most abundant emission.

*** Maximum of most abundant emission.

Progeny	n/a
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Part 3 - DETECTION AND MEASUREMENT

Method of Detection: Nal scintillation counter

Dosimetry:

External: TLD (whole body & skin) T Extremity T Neutron

Internal: Whole body Thorax Urine analysis Other (specify) Feces

Part 4 - PREVENTATIVE MEASURES

Cadmium and its compounds are toxic by ingestion and inhalation. The oral toxicity of Cd and its compounds is high. However, ingestion usually causes a strong emetic action, little Cd is therefore absorbed and fatal poisoning rarely occurs. Cadmium and some compounds are suspected carcinogens. Flammable in powder form.

Recommended protective clothing: No protective clothing is necessary for work with sealed sources. When working with unsealed sources wear appropriate protective clothing, such as laboratory coats, coveralls, gloves, safety glasses/goggles and a suitable mask, if the radioactive material is in the form of a dust, powder or if it is potentially volatile.

Optimize time, distance, shielding. Manipulate sealed sources remotely to minimize extremity doses. Consult CNSC license for requirements concerning engineering controls, protective equipment, and special storage requirements.

Part 5 - ANNUAL LIMIT ON INTAKE

Compound Type	Ingestion	Inhalation		
	All inorganic compounds	Oxides, hydroxides	Sulphides, halides, nitrates	Unspecified compounds
Annual Limit on Intake (Bq)	1E+07	2E+06	4E+06	5E+06

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

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

Spill and Leak Control

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

Emergency Protective Equipment, Minimum Requirements

- C Gloves
- C Footwear Covers
- C Safety Glasses
- C Outer layer or easily removed protective clothing
- C Suitable respirator selected

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