



Canadian Nuclear Safety Commission

P.O. Box 1046, Station B
Ottawa, Canada
K1P 5S9

Tel: (613) 995-5894 Fax: (613) 995-5086
24 Hour Emergency Hotline: (613) 995-0479

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:	Co	Common Names:	Cobalt
Mass Number:	60	Atomic Number:	27

Part 2 - RADIATION CHARACTERISTICS

Physical Half-Life: 5.271 years
CNSC Exemption Quantity (in Bq): 1×10^5 (0.1 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	-
Gamma & X-rays	1.25	-	0.37	40 mm Pb
Beta*	0.09577	0.344	~0.05	-
Alpha	-	-	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
----------------	-----

Part 3 - DETECTION AND MEASUREMENT

Method of Detection: Geiger-Mueller detector

Dosimetry:

External: TLD (whole body & skin) Extremity Neutron
Internal: Whole body Thorax Urine analysis Other (specify) Faeces



Part 4 - PREVENTATIVE MEASURES

Health hazards associated with cobalt (metal, fume and dust) include cumulative lung damage and dermatitis. Cobalt dust is flammable. Cobalt-60 sealed sources presents an external gamma hazard.

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	
	Unspecified compounds	Oxides, hydroxides, inorganic compounds	Unspecified compounds	Oxides, hydroxides, halides, nitrates
Annual Limit on Intake (Bq)	6E+06	8E+06	3E+06	1E+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

- 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

Emergency Protective Equipment, Minimum Requirements

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

Revision number: 1

Date of revision: 6 May 2004