



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: | Co | Common Names: | Cobalt |
| Mass Number: | 57 | Atomic Number: | 27 |

Part 2 - RADIATION CHARACTERISTICS

Physical Half-Life:

270.9 days

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 | - | - | - | - |
| Gamma & X-rays | 0.1221 | - | 0.041 | 2 mm Pb |
| Beta* | - | - | - | - |
| Alpha | - | - | - | - |

* 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: Nal scintillation counter

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. May emit radioactive fumes containing Co-57 when heated to decomposition. Cobalt dust is flammable.

Recommended protective clothing: Disposable plastic, latex, or rubber gloves. Wear a lab coat, which must be monitored before leaving the laboratory. Also wear safety glasses.

Keep handling time to a minimum. Use syringe shields and tongs.

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) | 1E+08 | 1E+08 | 5E+07 | 3E+07 |

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: 18 May 2004