

## 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.

<b>Part 1 - RADIOACTIVE MATERIAL IDENTIFICATION</b>			
Chemical Symbol:	I	Common Names:	Iodine
Atomic Weight:	125	Atomic Number:	53

<b>Part 2 - RADIATION CHARACTERISTICS</b>
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**Physical Half-Life:** 60.14 days

**CNSC Exemption Quantity (in Bq):**  $1 \times 10^6$  (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	-	-	-	-
Gamma & X-rays	0.03549	-	0.074	-
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.

<b>Progeny</b>	
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<b>Part 3 – DETECTION AND MEASUREMENT</b>
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**Method of Detection:** Scintillation detector

**Dosimetry:**

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

## Part 4 - PREVENTATIVE MEASURES

Exposure to significant amounts of radioiodine increases risk of developing thyroid cancer. Iodine is toxic by ingestion and inhalation and a strong irritant of eyes and skin. Iodine can be absorbed through the skin. When iodinated (I -125) albumin injection is heated to decomposition, radioactive fumes containing I -125 may be emitted.

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. Some iodine compounds can penetrate surgical rubber gloves. Wear two pairs, or polyethylene gloves over rubber.

Minimise handling time. Use syringe shields and tongs. When possible handle iodine compounds in a fume hood.

Consult CNSC license for requirements concerning engineering controls, protective equipment, and special storage requirements.

## Part 5 - ANNUAL LIMIT ON INTAKE

	Ingestion	Inhalation
Compound Type	All compounds	All compounds
Annual Limit on Intake (Bq)	$1 \times 10^6$	$1 \times 10^6$

## 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

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

### Spill and Leak Control

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

### Emergency Protective Equipment, Minimum Requirements

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

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