



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire



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:	I	Common Names:	Iodine
Atomic Weight:	131	Atomic Number:	53

Part 2 - RADIATION CHARACTERISTICS

Physical Half-Life: 8.04 days
 CNCS Exemption Quantity (in Bq): 1×10^4 (10 kBq)

A CNCS 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	0.3645	-	0.076	24 mm Pb
Beta*	0.1915	0.606	1.2	-
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	< 1% to ^{131m}Xe (11.8 d)
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Part 3 – DETECTION AND MEASUREMENT

Method of Detection: Scintillation detector

Dosimetry:

External: TLD (whole body & skin) T Extremity T Neutron _____
 Internal: Whole body _____ Thorax _____ Urine analysis T 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. Heating Hippuran (I-131) or sodium iodide -131 to decomposition may result in radioactive fumes containing I -131 to 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. Fluoroscopy aprons provide no protection against the radiation from I -131. Always wear disposable plastic when working with I-131 and use instruments to handle I-131.

Minimise handling time. Use syringe shields and tongs. Store volatile iodine -131 in a refrigerator to reduce the production of radioactive vapour.

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)	9×10^5	2×10^6

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

- 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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