



## 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:	C	Common Names:	Carbon
Atomic Weight:	14	Atomic Number:	6

#### Part 2 - RADIATION CHARACTERISTICS

**Physical Half-Life:** 5730 years  
**CNSC Exemption Quantity (in Bq):**  $1 \times 10^8$  (100 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	n/a
Gamma & X-rays	-	n/a	n/a	n/a
Beta*	0.04945	0.156	n/a	n/a
Alpha	-	n/a	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.

<b>Progeny</b>	n/a
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#### Part 3 - DETECTION AND MEASUREMENT

**Method of Detection:** Thin end window Geiger-Mueller detector. Wipes counted by liquid scintillation.

**Dosimetry:**

External: TLD (whole body & skin) \_\_\_\_\_ Extremity \_\_\_\_\_ Neutron \_\_\_\_\_  
Other \_\_\_\_\_  
Internal: Whole body \_\_\_\_\_ Thorax \_\_\_\_\_ Urine analysis \_\_\_\_\_ T \_\_\_\_\_ (specify) breath (carbon dioxide)

#### Part 4 - PREVENTATIVE MEASURES

Hazards: Carbon Monoxide: Chemical anoxia and asphyxiation. Carbon Dioxide: asphyxiation. Generation of carbon dioxide which could be inhaled.

Recommended protective clothing: Disposable lab coat, gloves (select gloves appropriate for chemicals handled) and wrist guards. Some organic compounds can be absorbed through gloves therefore wear two pairs of gloves and change the outer layer frequently.

Optimize time, distance, shielding. Be careful not to generate carbon dioxide and handle potentially volatile or dusty 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	labelled organic compounds	Vapour	Dioxide	Monoxide
Annual Limit on Intake (Bq)	3E+07	3E+07	3E+10	3E+09

#### 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