



Canadian Nuclear Safety Commission 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:	S	Common Names:	Sulphur
Atomic Weight:	35	Atomic Number:	16

Part 2 - RADIATION CHARACTERISTICS

Physical Half-Life:	87.44 days	
Unconditional Clearance Levels:	Activity Concentration (Bq/g)	1×10^2
CNSC Exemption Quantity:	Activity Concentration (Bq/g)	1×10^5
	Activity (Bq)	1×10^8

Principal Emissions	Average Energy of Most Abundant Emission (MeV)	Maximum Energy of Most Abundant Emission (MeV)	Gamma-Ray Dose Rate at 1m Distance (mSv/h per GBq)	Shielding Information ¹
Neutrons	-	-	-	-
Gamma & X-ray	-	-	-	-
Beta* & Electron	0.04883	0.167	-	Total absorption: 0.2 mm glass or 0.3 mm plastic
Alpha	-	-	-	-

* Where beta radiation is present, bremsstrahlung radiation will be produced. Shielding for bremsstrahlung radiation must be considered.

¹Delacroix, D. et al, Radionuclide and Radiation Protection Data Handbook 2002.

Progeny	
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Part 3 - DETECTION AND MEASUREMENT

Method of Detection:

Beta probe (e.g., thin-window Geiger-Mueller detector)

Dosimetry:

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

Part 4 - PREVENTATIVE MEASURES

Sulphur dioxide: irritant to eye, nose, throat, lungs; bronchoconstriction; mutagen, suspect reproductive effects.
 Hydrogen sulphide: moderate irritant to eye (conjunctivitis), lung; acute systemic toxicity; CNS effects. Sulphur is combustible.

Recommended protective clothing: Wear disposable lab coat, gloves and wrist guards for secondary protection. Select appropriate gloves for chemicals handled. Lab coat must be monitored before leaving the laboratory.

S-35 is volatile and should be handled in ventilated enclosures. Take care not to generate sulphur dioxide or hydrogen sulphide which could be inhaled. Use disposable absorbent liners on trays.

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

Part 5 - ANNUAL LIMIT ON INTAKE

Compound Type	Ingestion			Inhalation		
	Inorganic compounds	Elemental sulfur (inorganic)	Sulfur in food (organic)	Vapour	Sulphides and sulphates: determined by combining cation	Elemental sulphur. Sulphides and sulphates: determined by combining cation.
Annual Limit on Intake (Bq)	1.4×10^8	1.1×10^8	2.6×10^7	1.7×10^8	2.5×10^8	1.8×10^7



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. In the case of an emergency, the Radiation Safety Officer should be contacted as soon as practicable.

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
- Clear area
- Summon Aid

Emergency Protective Equipment, Minimum Requirements

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

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