^{35}S	Nuclide Safety Data Sheet Sulfur-35 **radsafety@berkeley.edu**	^{35}S

I. PHYSICAL DATA

Radiation:	Beta (100% abundance)	
Energy:	Maximum: 167.47 keV; Average: 48.8 keV	
Half-life [$T_{½}$]:	Physical:	87.44 days
	Biological:	623 days [unbound ^{35}S]; 90 days [bound ^{35}S]
	Effective:	44 - 76 days [unbound ^{35}S]
Specific Activity:	9.24E4 Ci/g [3.42E3 TBq/g] max.	
Beta Range:	Air:	26 cm [10.2 inches]
	Water/Tissue:	0.32 mm [0.015 inches]
	Plastic:	0.25 mm [0.010 inches]

II. RADIOLOGIAL DATA

Radiotoxicity[1] :	2.48 mrem/uCi [CEDE] of ^{35}S inhaled 0.733 mrem/uCi of ^{35}S ingested
Critical Organ:	Testis.
Intake Routes:	Ingestion, inhalation, puncture, wound, skin contamination (absorption).
Radiological Hazard:	External exposure – none from weak ^{35}S beta. Internal exposure & contamination – primary concern.

III. SHIELDING

None required - mCi quantities not an external radiation hazard

IV. DOSIMETRY MONITORING

Urine bioassay is the most readily available method to assess intake [for ^{35}S, no intake = no dose]

V. DECTION & MEASUREMENT

Portable Survey Meters:	Geiger-Mueller [e.g. Ludlum 44-9].
Wipe Test:	Liquid Scintillation Counting is the best readily available method for counting ^{35}S wipe tests

VI. SPECIAL PRECAUTIONS

* Avoid skin contamination [absorption], ingestion, inhalation, & injection [all routes of intake].
* Many ^{35}S compounds and metabolites are slightly volatile and may create contamination problems if not sealed or otherwise controlled. This occurs particularly when ^{35}S amino acids are thawed, and then they are added to cell culture media and incubated. Therefore vent thawing ^{35}S vials in a hood with charcoal activator.

VII. LAB PRACTICES

1. Disposable gloves, lab coats, and safety glasses are the minimum PPE [Personal Protective Equipment] required when handling radioactive material. Remove & discard potentially contaminated PPE prior to leaving the area where radioactive material is used.
2. Clearly outline radioactive material use areas with tape bearing the legend “radioactive.” Cover lab bench tops where radioactive material will be handled with plastic-backed absorbent paper; change this covering periodically and whenever it’s contaminated.
3. Handle radioactive solutions in trays large enough to contain the material in the event of a spill
4. Never eat, drink, smoke, handle contact lenses, apply cosmetics, or take/apply medicine in the lab; keep food, drinks, cosmetics, etc. out of the lab entirely. Do not pipette by mouth.
5. Never store [human] food and beverage in refrigerators/freezers used for storing radioisotopes.
6. Prevent skin contact with skin-absorbable solvents containing radioactive material.
7. Fume hoods and biological safety cabinets must be labeled “Caution Radioactive Material.”

[1] Federal Guidance Report No. 11 [Oak Ridge, TN; Oak Ridge National Laboratory, 1988], p. 122, 156