

RADIONUCLIDE SAFETY DATA SHEET

RADIONUCLIDE: **Ge-68**

FORMS: Soluble

PHYSICAL CHARACTERISTICS

Half-life: 270.95 days

DECAY EMISSIONS

Gammas / X-rays		Betas / Positrons (+) / Electrons		Alphas	
E (keV)	%	E (keV, max)	%	E (keV)	%
10.26	4.84				

Only the four most likely emissions of each type are included. Emission must be > 10 keV and > 1% frequency.

NIH HAZARD CATEGORY

C – level (low hazard): ≤ 7.5 mCi - No DRS protocol required

B – level (moderate hazard): > 7.5 mCi and ≤ 15 mCi - DRS approval required for ceiling increase

A – level (high hazard): > 15 mCi - DRS protocol required

EXTERNAL RADIATION HAZARDS

Gamma dose rate, point source @ 1 foot, 1 mCi:

9.3 µrem/hr

Beta dose rate to skin, point source @ 1 foot, 1 mCi:

n/a

Contamination skin dose, uniform deposit of 1 µCi/cm²

77.4 mrem/hr

INTERNAL RADIATION HAZARDS

Annual Limit on Intake:

Ingestion: 5 mCi

Inhalation: 100 µCi

The value(s) above indicate the activity taken into the body that would result in either 5 rem to the whole body (CEDE) or 50 rem to an organ or tissue (CDE).

SHIELDING

Gammas/X-rays:

n/a

Betas/electrons:

n/a

DOSIMETRY AND BIOASSAY REQS

Dosimetry may be required when working with Ge-68. Fill out Dosimetry Evaluation Form, and DRS will determine if it is required.

Urine bioassay may be required after spills, contamination, or other abnormal occurrences.

SPECIAL PRECAUTIONS:

1. Ge-68 will generally be in equilibrium with Ga-68. Take all precautions that are required for Ga-68.
2. Ge-68 waste must be segregated from short half-life radionuclides (≤ 120 days). Multi-hazard waste must be segregated from short and medium half-life radionuclides (≤ 30 days and > 30 days but ≤ 120 days respectively).

References:

- Brookhaven National Laboratory, National Nuclear Data Center, Decay Radiation Search, Version 3/25/2022.
- National Institutes of Health Division of Radiation Safety, DRS-214 Form - Activity Control System - Cumulative Inventory Ceilings, Revised 10/4/2021.
- Nuclear Regulatory Commission, 10 Code of Federal Regulation Part 20 Appendix B.
- Ehs.stanford.edu/reference Radionuclide Fact Sheets