

Radioactive Sources For Instrument Calibration



NATS offers a wide variety of radioisotope products in solid, liquid and specialty configurations to accommodate different needs and applications:

- Medical
- Education
- Environmental
- Health Physics
- Research
- Homeland Security

Custom Standards - NATS offers a “custom standards service” to accommodate our customers that have special applications. Contact us at sales@nats-usa.com for availability and a quotation for your custom standard.

Also, visit our website at www.nats-usa.com for more info.



NATS Radioisotope Product Line Includes



Alpha/Beta Low Background Standards



Calibrated Multi-Gamma Standards



Uncalibrated Solid Sealed Standards



Homeland Security Standards
Rugged and reliable button check sources that represent gamma energies of interest



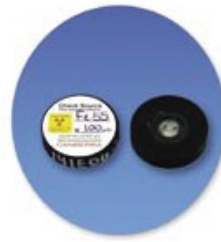
Calibrated Single Gamma Standards



Calibrated Multi-Alpha Standard



Uncalibrated Liquid Standards



Specialty Standards
Range from needle sources used with cloud Chambers to mylar window sources to isogenerators

Calibrated Solid Sources

Safe, calibrated solid sealed sources are fabricated by depositing a license exempt quantity of activity in the well of a 2-inch diameter (50mm) by 1/8-inch thick (3mm) plastic disk. After drying, the well is filled with an epoxy material; sealing the radioactivity inside the source. Calibrations are $\pm 5\%$ and are performed using a high-purity germanium detector for which peak efficiencies have been established using a NIST traceable standard. Each disk is identified by radionuclide, amount of activity, serial number and calibration date. The words "Caution - Radioactive Material" appear on the label of each source.

Sources are available in stock at an activity of ~ 1.0 microcurie. They may be ordered individually or as a set. Sources are available at other activities within the ranges listed below for a nominal charge. When ordering, please indicate any special activity requirements.

Model No.	Nuclide	Activity	Half-Life	Energy (keV)
Ba-133-T	Barium-133	0.1 μ Ci	10.5 y	81.0, 356.0
Cd-109-T	Cadmium-109	0.1 μ Ci	464 d	88.0
Cs-137-CT	Cesium-137	0.1 μ Ci	30.2 y	661.6
Co-57-T	Cobalt-57	0.1 μ Ci	271 d	122.1
Co-60-T	Cobalt-60	0.1 μ Ci	5.27 y	1173.2, 1332.5
Eu-152-T	Europium-152	0.1 μ Ci	13.5 y	121.8, 344.3, 1408.0
I-129-T	Iodine-129	0.1 μ Ci	16E7 y	39.6
Mn-54-T	Manganese-54	0.1 μ Ci	312 d	834.8
Na-22-T	Sodium-22	0.1 μ Ci	2.6 y	511.0, 1274.5
Zn-65-T	Zinc-65	0.1 μ Ci	244 d	511.0, 1115.5

Standard test tube size is 75 mm length x 12 mm diameter. Custom test tube sources containing special activities or radionuclides not listed above are available upon request.



Solid Calibration Point Sources

Two inch diameter, 1/8 in. thick, acrylic disks. Calibrated gamma standards. License exempt.

Model No.	Nuclide	T1/2	Activity $\pm 5\%$
Ba-133-2	Barium-133	10.5 y	0.1 - 10 μ Ci
Cd-109-2	Cadmium-109	464 d	0.1 - 10 μ Ci
Co-57-2	Cobalt-57	271 d	0.1 - 25 μ Ci
Co-60-2	Cobalt-60	5.27 y	0.1 - 1 μ Ci
Cs-137-2	Cesium-137	30.1 y	0.1 - 10 μ Ci
Mn-54-2	Manganese-54	312 d	0.1 - 10 μ Ci
Na-22-2	Sodium-22	2.60 y	0.1 - 10 μ Ci
Zn-65-2	Zinc-65	244 d	0.1 - 10 μ Ci
S-13-2	Set of 8 of above sources		0.1 - 1 μ Ci

Custom sources containing the above nuclides at activities outside of the ranges listed above and not exceeding exempt quantities may be quoted upon request

Calibrated Test Tube Sources

These sealed test tube sources are manufactured by depositing radiochemical into the tube and evaporating. After drying, the activity is sealed inside the tube with epoxy. A cap is then secured. The test tubes are calibrated with a high purity germanium detector. Calibration certificates are provided.

Uncalibrated Multi-gamma Source

This inexpensive multi-gamma source offers six distinct energy peaks from five radionuclides in a range from 88 keV to 1332.5 keV. It is ideal for MCA use.

Model number MGU radionuclides:

- Cadmium-109
- Cesium-137
- Cobalt-60
- Manganese-54
- Tin-113



The standard geometry for the MGU is a 1 in. diameter by 1/4 in. thick sealed disk. However, special geometries may be requested.

Multi-Gamma Standards

Along with single gamma calibration standards, CANBERRA also offers multi-gamma standards: MGS-1 through MGS-6. All six have been calibrated to $\pm 5\%$ by measurement with a high-purity germanium detector for which peak efficiencies have been established using a NIST traceable standard. The standard geometry for MGS-1, 2, 3, and 4 is a 2-inch diameter (50mm) by 1/8-inch (3mm) plastic disk. MGS-5 and MGS-6 are available in a sealed 3 ounce canister or a sealed 500 ml Marinelli beaker. To simulate environmental soil or water samples, MGS-5 & 6 are fabricated in actual soil or water-simulating resin. The standard activity of the MGS-1 through MGS-6 is approximately 1 μ Ci or less.

Custom geometries are available upon request.