

ORTEC Exempt Quantity Sealed Radioactive Sources*

The following sources, mounted in 2.5 cm diameter sealed plastic disks, are exempt from USNRC and State licensing and present no special storage or disposal requirements.

Model No.	Description
RSS3	Set of three solid sources: Po-210, Sr-90, and Co-60
RSS5	Set of five solid sources: Po-210, Sr-90, Tl-204, Co-60, and Cs-137 (5 μ Ci for absorption experiment)
RSS8	Set of eight gamma sources for scintillation spectrometry: Ba-133, Cd-109, Co-57, Co-60, Cs-137, Mn-54, Na-22, and an "Unknown" (mixed Cs/Zn) source

Chart of Radioactive Decay

Model	Radioactive Material	Standard Activity/Source (μ Ci)	UCNRC 30.71 Schedule B Exempt Quantities (μ Ci)		Half-Life [†]	Radiation	Energy [†] (keV)	Branch [†] (%)	Feeds
Ba-133	Barium 133	1	10	10.7 y	Y	81	32.8		
						276.3	7.3		
						302.7	18.6		
						355.9	62.3		
						383.7	8.8		
Cd-109	Cadmium 109	1	10	453.4 d	Y	88	3.8		
Cs-137	Cesium 137	1 & 5	10	30.1 y	Y	32.2	3.7		
						661.6	84.6		
						511.6	94.6		
						1173.2	5.4		
Co-57	Cobalt 57	1	100	270 d	Y	14.4	9.5		
						122.1	85.6		
						136.4	10.6		
Co-60	Cobalt 60	1	1	5.3 y	Y	1173.2	99.9		
						1332.5	99.9		
						317.9	100.0		
Mn-54	Manganese 54	1	10	312.2 d	Y	834.8	99.9		
Po-210	Polonium 210	0.1	0.1	138.4 d	α	5304.5	99.9		
Na-22	Sodium 22	1	10	2.60 y	Y	511	179.8		
						1274.5	99.9		
Sr-90	Strontium 90	0.1	0.1	28.5 y	β	546	100.0		
				64.1 hr		2283.9	99.9	Y-90	
Tl-204	Thallium 204	1	10	3.8 y	β	763.4	97.4		
Zn-65	Zinc 65	1	10	243.8 d	Y	1115.5	50.8		
Pb-210	Lead Nitrate	0.1	0.1	20.4 y	Y	46.5	4.0		
						63	19.8		
				5 d	β	1161.4	100.0	Bi-210	
				138.4 d	α	5304.5	99.9	Po-210	

[†]Half-life, Energy, and Branch Ratio data reproduced from:

Nuclide Navigator II nuclide database software program, Version 2.00, November 22, 1996, from ORTEC.

*These sources are manufactured by: SPECTRUM TECHNIQUES, 182 Midway Lane, Oak Ridge, TN 37830.