

205.11 - Radioactive Natural Matrix Materials (powder form)

For further information on the Descriptions of Radioactive Environmental Natural Matrix Standards click link: [Descriptions of Environmental Natural Matrix Standards](#)

When an import permit for radioactive material is required of a customer outside the U.S., NIST must have a copy to complete an order and facilitate shipment.

["Radionuclide Calibration Services"](#)

["Radioactive SRM Purchasing Instructions & License Certification Form"](#)

["Radioactive SRMs-General Info"](#)

PLEASE NOTE: The tables are presented to facilitate comparisons among a family of materials to help customers select the best SRM for their needs. For specific values and uncertainties, the certificate is the only official source.

Description >>	4350B River Sediment Environmental Radioactivity Standard 85 g	4351 Human Lung Environmental Radioactivity Standard 45 g	4352 Human Liver Environmental Radioactivity Standard 45 g	4353A Rocky Flats Soil Number 2 75 g	4354 Freshwater Lake Sediment Environmental Radioactivity Standard 25 g	4355 Peruvian Soil Powder 75 g	4356 Ashed Bone Environmental Radioactivity Standard 15 g	4357 Ocean Sediment Environmental Radioactivity Standard 85 g	4358 Ocean Shellfish Radionuclide Standard 1 x 150 g	4359 Seaweed Radionuclide Standard 300 g
Massic Activity (mBq/g)										
NRC License or Equivalent Required*	--	--	--	X	--	--	--	X	--	--
Ref. Date	9-Sep-81	1200 EST 1-Oct-82	1-Jun-82	1-Apr-98	14-Feb-86	1-June-82	1200 EST 31-Dec-95	16-Feb-94	16 Feb 98	1-Jan-02
Americium-241 (²⁴¹ Am)	0.15		0.15		1.1	0.004			0.101	
Cesium-137 (¹³⁷ Cs)	29.0			21.6	59.2	0.33		12.7	0.254	0.933
Cobalt-60 (⁶⁰ Co)	4.64				320	<0.016				
Curium-243,244 (²⁴³ Cm + ²⁴⁴ Cm)							0.12			
Europium-152 (¹⁵² Eu)	30.5					<0.23				
Europium-154 (¹⁵⁴ Eu)	3.78					<0.2				
Europium-155 (¹⁵⁵ Eu)						<0.2				
Lead-210 (²¹⁰ Pb)				58.0					6.9	21.0
Plutonium-238 (²³⁸ Pu)	0.013		0.055	0.278	0.26		0.86	2.29	0.009	0.00606
Plutonium-239 (²³⁹ Pu)										0.0840
Plutonium-239,240 (²³⁹ Pu + ²⁴⁰ Pu)	0.508	1.1	2.06	16.8	4.00	0.0075	1.26	10.4	0.055	0.1296
Polonium-210 (²¹⁰ Po)										20.6
Potassium-40 (⁴⁰ K)								225	160	734
Radium-226 (²²⁶ Ra)	35.8			74.9			14.5	12.7		
Radium-228 (²²⁸ Ra)								13.3	1.33	4.32
Strontium-90 (⁹⁰ Sr)				10.5	1090		42.6	4.4		
Thorium-228 (²²⁸ Th)					28.6	42.2		12.1	1.34	
Thorium-230 (²³⁰ Th)						39.7	0.52	12.0	0.413	
Thorium-232 (²³² Th)		0.21			26.8	43.0	0.98	13.0	0.642	2.40
Uranium-234 (²³⁴ U)		0.100		40.4			0.64		1.56	9.5
Uranium-235 (²³⁵ U)				1.88	0.75				0.061	0.400
Uranium-238 (²³⁸ U)		0.101		39.6	17.4		0.63		1.46	8.67

- Certified values are normal font
- Non-certified or reference values are italicized
- Non-certified values in parentheses are for information only

*If no "X", then license is not required unless the institution possesses a specific license that covers the listed radionuclide.