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Radiochemistry
Sampling and Method Guide

How Eurofins Can Help You

Eurofins Environment Testing has been the leading laboratory for radiochemistry for over 30 years. With increased counting instrumentation, a renovated analysis space, and our implementation of improved processes, our St. Louis facility was built to support all of your radiochemistry needs.

Methodology and Certifications

Eurofins St. Louis performs U.S. EPA, DOE,SM, SW-846 and Eichrom methodologies. Eurofins Environment Testing's St. Louis location has a current Radioactive Material License, NELAC certification, DOD/DOE accredited, ISO 17025, USDA permit and holds multiple state certifications.

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Capabilities

The table featured below summarizes our radiochemistry tests, analytical methods, sample containers, preservation requirements, and quality control recommendations as defined by matrix. All radiochemistry methods allow for samples to be collected and shipped at ambient temperature. Chilling samples is not required. The only exception would be Radon-222 which requires insulation in order to avoid large temperature changes.

Published radiochemistry methods do not have defined holding times. However, we default to a six month holding time as defined in our SOPs. This does not include Radon-222 (4 days) and Iodine-131 (8 days).

Radiochemistry Test	Method	Matrix	Volume[1]	Preservation	QC[2]
Americium, Isotopic	DOE* A-01-R	Water Soil	1 L (P) 5g (P, G)		
Carbon-14	EERF C-01	Water Soil	500 mL (P, G) 5g (P, G)	HNO_3 (pH<2) None	Duplicate Duplicate
Chlorine-36	SOP - Precipitation, GFPC	Water Soil	L (P, G) g (P)	None None, Do not dry	MS/Dup MS/Dup
Curium, Isotopic	DOE* A-01-R	Water Soil	1 L (P, G) 5g (P, G)	HNO_3 (pH<2) None	Duplicate Duplicate
Gamma Scan	EPA 901.1 DOE* GA-01-R	Water Soil	1 L (P, G) 500 g (P, G)	HNO_3 (pH<2) None	Duplicate Duplicate
Gross Alpha/Beta	EPA 900.0 SW 9310	Water Soil	200 mL (P, G) 1 g (P, G)	HNO_3 (pH<2) None	MS/Dup MS/Dup
Iodine-129	EPA 901.1 SM 75001-B DOE* GA-01-R	Water Soil	2 L (P, G) 500 g (P, G)	None None, Do not dry	Duplicate Duplicate
Iodine-131	EPA 901.1 DOE* GA-01-R	Water Soil	1 L (P, G) 500 g (P, G)	None None, Do not dry	Duplicate Duplicate
Iron-55	SOP - Column Separation, LSC	Water Soil	500 mL (P, G) 5 g (P, G)	HNO_3 (pH<2) None	Duplicate Duplicate
Lead-210	SOP - Column Separation, LSC	Water Soil	1 L (P, G) 5 g (P, G)	HNO_3 (pH<2) None	Duplicate Duplicate
Neptunium-237	DOE* A-01-R	Water Soil	1 L (P, G) 5 g (P, G)	HNO_3 (pH<2) None	Duplicate Duplicate
Nickel-59/63	SOP - Column Separation, LSC	Water Soil	1 L (P, G) 5 g (P, G)	HNO_3 (pH<2) None	Duplicate Duplicate
Plutonium, Isotopic	DOE* A-01-R, followed by LSC for Pu241	Water Soil	1 L (P, G) 5 g (P, G)	HNO_3 (pH<2) None	Duplicate Duplicate
Polonium-210	DOE* A-01-R	Water Soil	1 L (P, G) 5 g (P, G)	HNO_3 (pH<2) None	Duplicate Duplicate
Radium-226	EPA 903.0; SW 9315 SOP Column Separation, Alpha Spec	Water Soil	1 L (P, G) 5 g (P, G)	HNO_3 (pH<2) None	Duplicate Duplicate
Radium-226 and Radium-228 (Gamma Spec)	EPA 901.1 DOE* GA-01-R	Water Soil	1 L (P, G) 500 g (P, G)	HNO_3 (pH<2) None	Duplicate Duplicate
Radium-228	SW 9320 EPA 904	Water Soil	1 L (P, G) 5 g (P, G)	HNO_3 (pH<2) None	Duplicate Duplicate
Radon-222	EPA 913.0 SM 7500 Rn-B	Water	40 mL (G)	None	Duplicate Duplicate
Strontium-89/90	EPA 905 DOE* Sr-03	Water Soil	1 L (P, G) 5 g (P, G)	HNO_3 (pH<2) None	Duplicate Duplicate
Technetium-99	DOE* TC-02	Water Soil	1 L (P, G) 10 g (P, G)	HNO_3 (pH<2) None	Duplicate Duplicate
Thorium, Isotopic	DOE* A-01-R	Water Soil	1 L (P, G) 5 g (P, G)	HNO_3 (pH<2) None	Duplicate Duplicate
Tritium	EPA 906.0 DOE* H3-04	Water Soil	120 mL 100 g (G)	None None, Do not dry	MS/Dup MS/Dup
Uranium, Isotopic *(or total by summation)*	EPA 200.8 SW 6020 DOE* A-01-R	Water Soil	1 L (P, G) 5 g (P, G)	HNO_3 (pH<2) None	MS/Dup MS/Dup
Uranium, Total	EPA 200.8 SW 6020	Water Soil	50 mL (P, G) 5 g (P, G)	HNO_3 (pH<2) None	MS/MSD MS/MSD

1 Sample volumes are based on dry weights; volumes need to be increased if soil is wet/moist. For normal samples, 2 or more times the volume may be required for re-extracts/digestions.
2 For samples requiring Matrix QC, 3 times the volume is required. MS = matrix spike. MSD = matrix spike duplicate. Dup = duplicate.

* DOE is shorthand for the Department of Energy (DOE) Environmental Measurements Laboratory (EML) procedure manual HASL 300, 28th Edition
P = Poly Bottle, G = Glass Bottle