

The Sequential Determination of ^{210}Pb / ^{210}Po in Environmental Samples using an EIChroM Resin

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^{210}Pb / ^{210}Po separation using an EIChroM Resin.



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Main aims of the ^{210}Pb / ^{210}Po method.

- Suitable for the analysis of milk, crop and animal samples
- Cost effective
- Less hazardous chemicals than other methods

^{210}Pb / ^{210}Po separation using an EIChrom Resin.



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Reproducibility Study

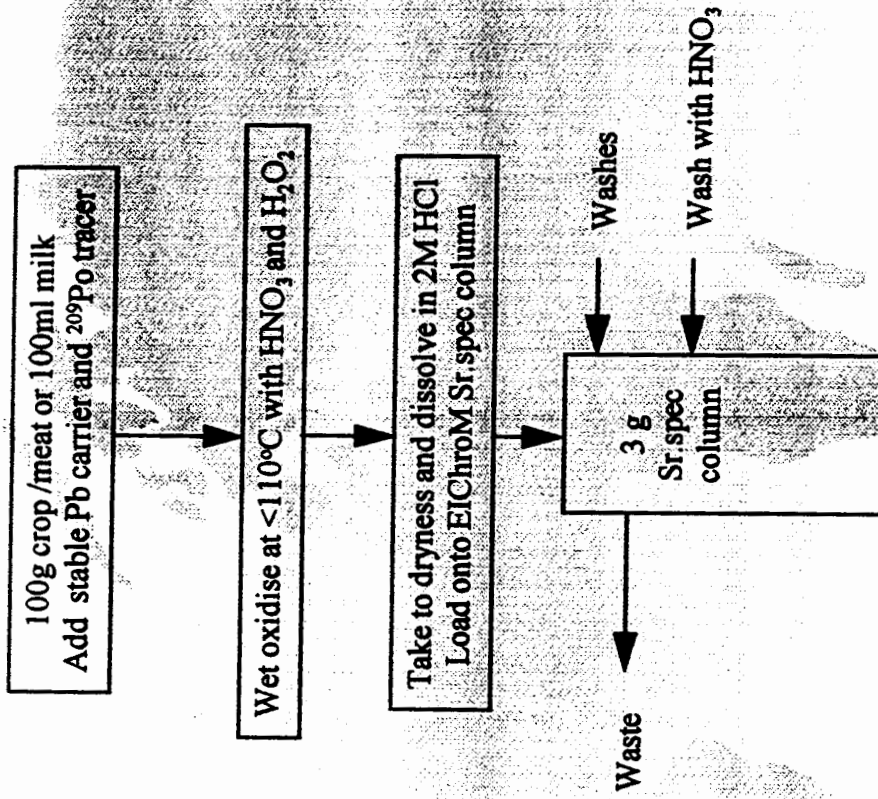
Replicate	% gravimetric recovery of lead	^{210}Pb in mBq/kg	% recovery of ^{209}Po tracer	^{210}Po in mBq/kg
1	71	171 ± 16	50	15 ± 4
2	75	177 ± 16	68	16 ± 3
3	70	191 ± 17	73	15 ± 3
4	67	143 ± 19	56	19 ± 4
5	72	158 ± 20	40	12 ± 4
6	71	152 ± 16	*	*
Mean	71	166 ± 18	58	16 ± 4

^{210}Pb / ^{210}Po separation using an EIChroM Resin.



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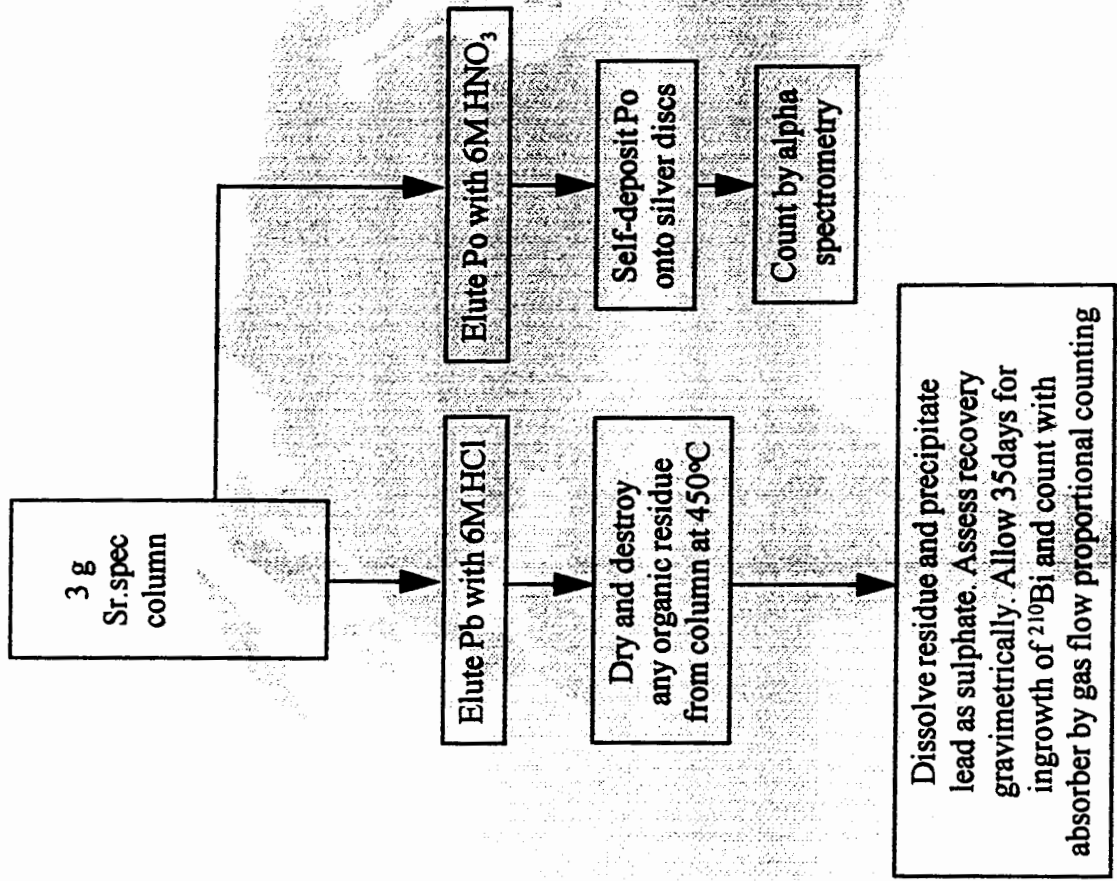
Overview of ^{210}Pb / ^{210}Po Separation Scheme



^{210}Pb / ^{210}Po separation using an Eichrom Resin.



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$^{210}\text{Pb} / ^{210}\text{Po}$ separation using an EIChroM Resin.



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Results for Milk and Vegetation Analyses

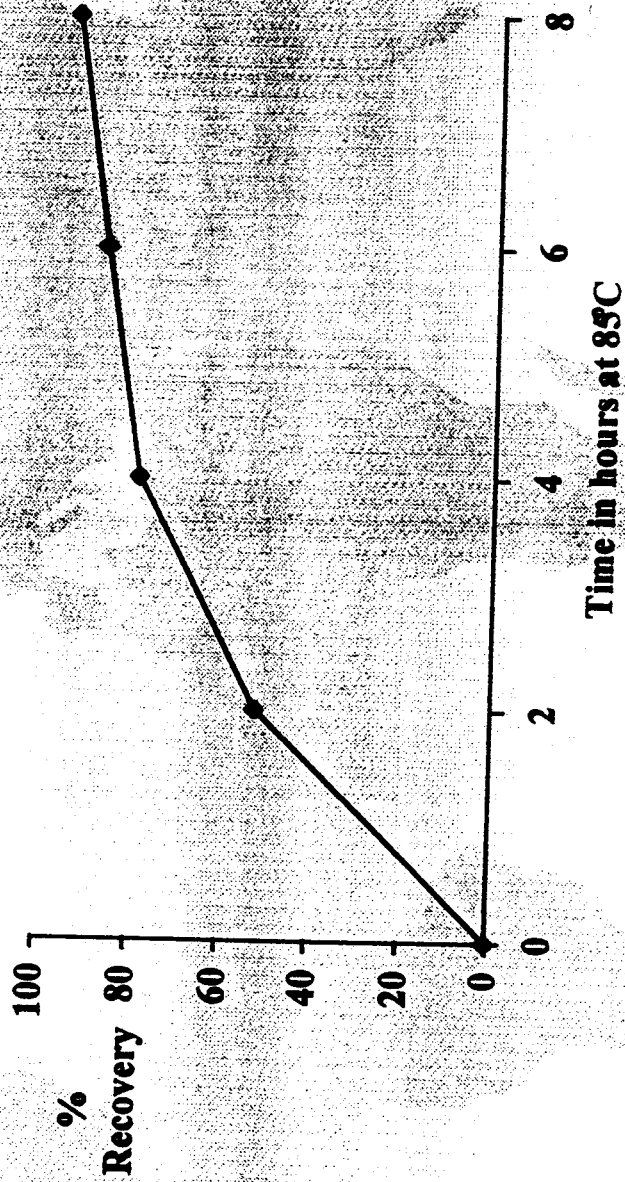
	% Gravimetric Recovery of Lead		% Radiometric Recovery of Polonium	
	Milk	Vegetation	Milk	Vegetation
Mean	70.5	68.4	62.8	74.4
1 std . dev.	4.8	5.4	14.4	9.6
No. samples	40	58	33	43

²¹⁰Pb / ²¹⁰Po separation using an EIChrom Resin.



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Effect of Time on Self-Deposition Recovery of Polonium

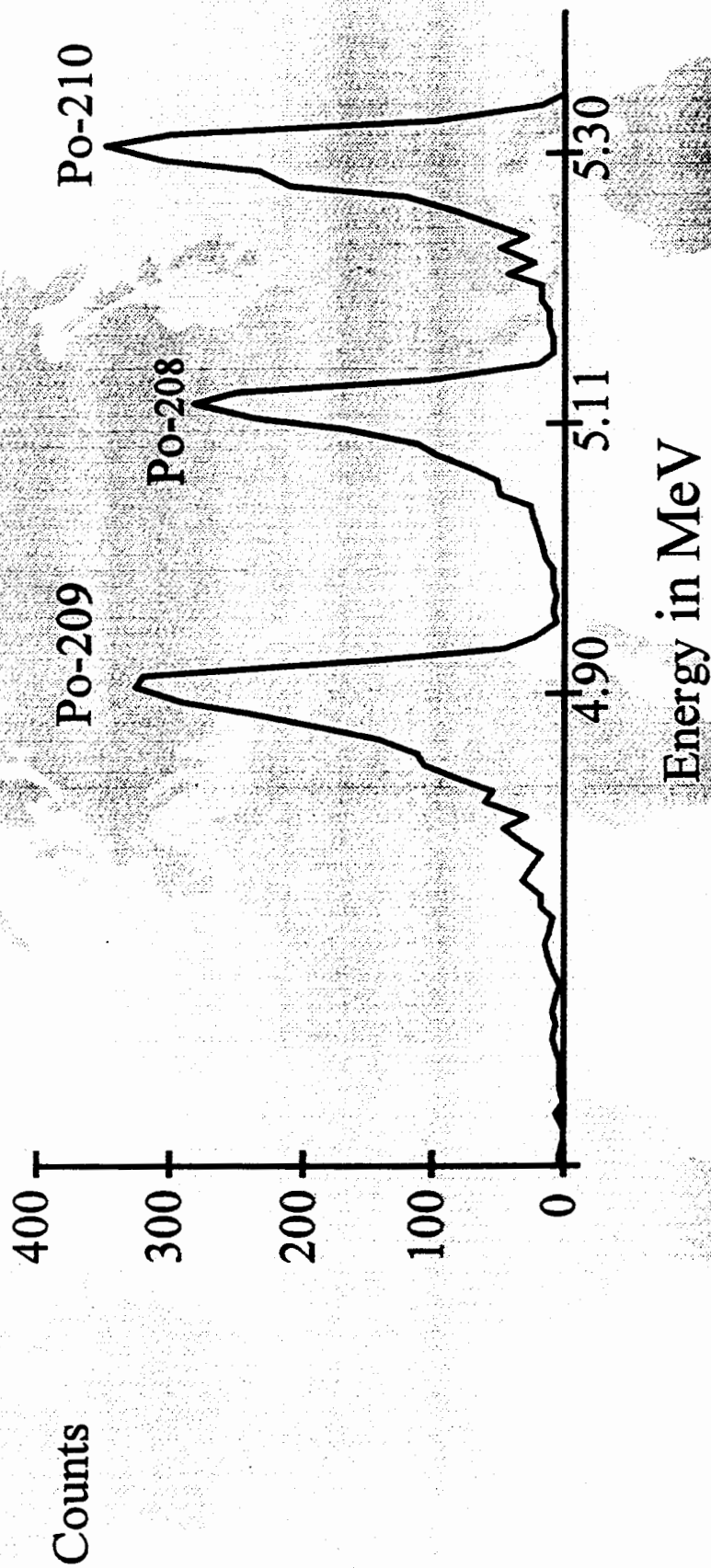


$^{210}\text{Pb} / ^{210}\text{Po}$ separation using an EIChrom Resin.



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Alpha Spectrum for ^{209}Po , ^{208}Po and ^{210}Po



$^{210}\text{Pb} / ^{210}\text{Po}$ separation using an EIChroM Resin.



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Summary

- Method requires minimum of operator time - reduced cost
- Acceptable sensitivity with scope for further improvement
- Simple method for analysts to use
- Reduction in the use of hazardous chemicals

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