



PRODUCT SHEET

Resolve filter

Main Applications

- Source preparation for alphaspectrometry via microprecipitation (e.g. CeF_3 , $BaSO_4$)

Packing

Order N°.	Form
RF-100-25PP01	Box of 100 Resolve filters

Physical and chemical properties

Diameter : 25 mm

Pore size : 0.1 μm

Material : Polypropylene

Conditions of utilization

Recommended T of utilization : /

Flow rate : /

Filters have to be rinsed with Ethanol before use

Storage : Dry and dark

Methods¹

Reference	Description	Matrix	Analytes	Support
SPA01	Cerium Fluoride microprecipitation for alpha spectrometry			

¹ Methods developped by Eichrom Technologies LLC.

TECHNICAL DATA

RESOLVE® FILTERS

Resolve® filters are used to prepare sources for the alpha spectrometric determination of uranium, americium, plutonium and radium by micro-precipitation. Resolve® filters are made from polypropylene and are 25 mm in diameter with a porosity of 0.1 µm.

Maximum peak resolution in alpha spectrometry requires as uniform a filter surface as possible to ensure a uniform deposition. Therefore, Resolve® filters undergo a strict quality control including an electron microscopic examination of the surface and an evaluation of the quality of the thin-layer deposits obtained by micro-precipitations. The Resolve® filters have been evaluated for use for the determination of U, Am, Pu (micro-precipitation with LnF₃) and Ra-226 (micro-precipitation with BaSO₄) via alpha spectrometry, respectively figures 1 and 2. Repeatability and reproducibility of U, Am, Pu and Ra-226 sources were determined with respect to the variation of peak area (Table 1) and FWHM (Table 2). Repeatability and reproducibility of the peak area and FWHM are good with standard deviations less than 6 % and less than 15 % respectively.

RN(*)	Repeatability		Reproducibility	
	Nb of Replicates	Standard Deviation (%)	Nb of Replicates	Standard Deviation (%)
U-232	9	1.9	6	4.6
Am-243	10	1.4	6	2.2
Pu-239	9	4.1	6	6.4
Ra-226	10	3.1	6	4.6

Table 1 : Repeatability and reproducibility of the peak area for thin-layer deposit by micro-precipitation of U-232, Am-243, Pu-239 and Ra-226 on Resolve® filter. (*)RN : Radionuclide.

RN(*)	Repeatability		Reproducibility	
	Nb of Replicates	Standard Deviation (%)	Nb of Replicates	Standard Deviation (%)
U-232	9	3.7	6	12.6
Am-243	10	7.3	6	12.3
Pu-239	9	9.0	6	9.5
Ra-226	10	11.4	6	10.1

Table 2 : Repeatability and reproducibility of the FWHM for thin-layer deposit by micro-precipitation of U-232, Am-243, Pu-239 and Ra-226 on Resolve® filter.

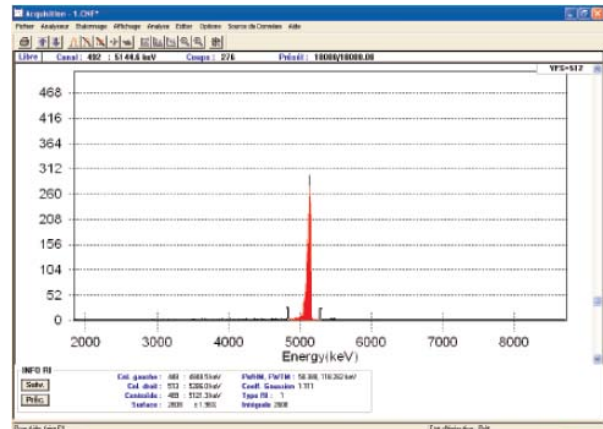


Figure 1 : Alpha spectra of Pu-239 micro-precipitated source. Resolution (FWHM) mean: 55.3 keV.

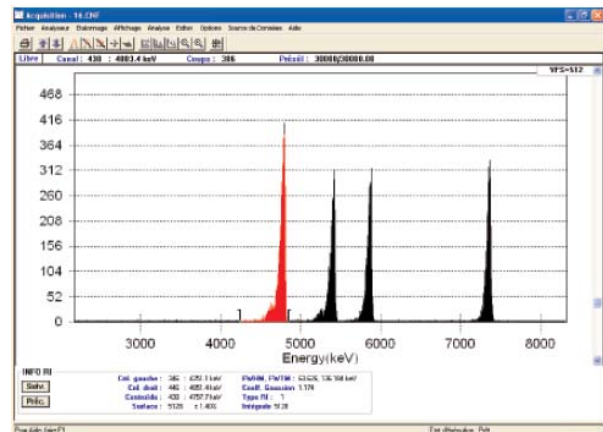


Figure 2 : Alpha spectra of Ra-226 micro-precipitated source. Resolution (FWHM) mean: 54.2 keV.

Radium radio-isotopes in general and Ra-226 in particular need specific conditions to be electro-deposited. Micro-precipitation of Ra-226 in with baryum sulfate offers an interesting alternative. Figure 3 presents the results obtained during a linearity test (varying Ra-226 activity) of the micro-precipitation of Ra-226. The results show that this preparation method of Ra-226 is efficient over a wide range of activities.

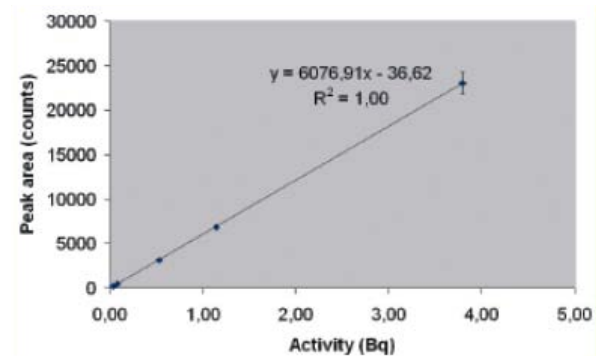


Figure 3 : Linearity test, peak area at 4784 keV vs Ra-226 activity.