

Dear Partners

Xenemetrix at Pittcon 2015 Conference & Expo

During the Pittcon 2015 conference, that was held on March 8-12 at the Morial Convention Center in New Orleans, USA, we met our distributors and suppliers from around the world. The meetings focused on the solutions and innovations which had been introduced during the past year, as well as the introduction of great new opportunities for the future.



Xenemetrix's distributor's network is expanding

As part of our global expansion we have introduced several new representatives into the Xenemetrix business network, namely: **Cluster d.o.o** in Bosnia-Herzegovina, Serbia, Macedonia & Montenegro; **IM "LOKMEKA" SRL** in Republica Moldova; **Nanoserv Pte Ltd** in Malaysia & Singapore; And **Zutek Services CC** in South Africa, Mozambique, Namibia & Botswana.

We welcome them all! Their joining our network yields a meaningful increase in the availability of our spectrometers across the globe and an extensive contribution to our global presence and success.

For any queries, feel free to contact us at info@xenemetrix.com or check the 'Contact us' tab at our website to find authorized representatives near you.

Yours,
Xenemetrix Team

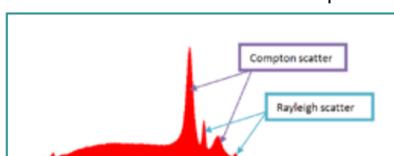


Tip of the Month

Scattered- Intensity Ratio with Fundamental Parameter (SIR-FP)

SIR-FP is one of the methods included in Xenemetrix professional Fundamental Parameter package.

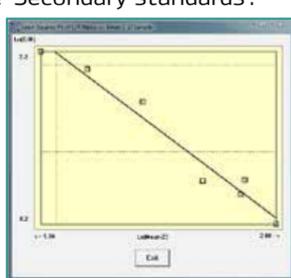
The method uses information from the Rayleigh and Compton scatter peaks to provide information on the mean atomic number of the light matrix elements that are not detected in the ED-XRF spectrum.



Advantage: The method provides a quantitative fundamental parameter-based analytic method for composition analysis of samples that also includes, in addition to the elements to be analyzed, low atomic number elements that are not detected in the ED-XRF spectrum.

Requirements:

1. All samples must be acquired with sufficient voltage (30-35kV) in order to detect the tube spectrum with the "Compton" and "Rayleigh" characteristics.
2. At least one standard needs to be analyzed and included in the calibration of "Theoretical Calibration Coefficients" (TCC) per each element.
Standard = sample of known concentration of element of interest, not necessarily of the same type as the samples to be analyzed.
3. "Secondary Standards" (recommended a set of 6) with varying mean atomic number (from low Z, such as carbon, to medium Z, such as Ti) to calibrate the SIR-FP. The calibration will construct a Least Squares Fitting of Compton to Raleigh ratio vs. mean Z of the 'Secondary standards'.



Note: FP standards, SIR standards and unknown samples must all be analyzed with identical acquisition conditions.

Combination of the SIR and TCC calibrations into one template file will be used in the analysis of unknown samples.

For more tips & support please contact us at: info@xenemetrix.com

Application Highlight

Quantitative analysis of fine particles collected on air filters using Xenemetrix EX-6600 AFM analyzer

Routine air filter analysis is a common method for monitoring air quality in major cities and environmentally sensitive areas. ED-XRF is the established method for monitoring air filters since it can rapidly analyze more than 50 elements at very low concentrations. Toxic metals, such as lead and arsenic, are frequently found in the air and must be monitored as part of a long term environmental strategy. Other toxic metals, such as mercury, may appear less frequently and indicate the presence of a new source of toxins. The Xenemetrix EX-6600 AFM is the ED-XRF analyzer of choice for measuring elemental composition of fine particles collected on air filters.

Excitation: 60kV and 400W oil-cooled X-ray tube with Rh anode

Eight Secondary Targets: Gd, Si, Ti, Fe, Ge, Zr, Mo and Sn.

Eight X-Ray tube filters/collimator: Open, Collimator, Ti, Fe, W, Mo, Rh and Sn.

Detection: Special light element sensitive Silicon Drift Detector, 123eV resolution at 5.9keV.

Atmosphere: Helium purge for light elements, air for all others.

Procedures using secondary targets and X-Ray tube filters

Table 1: Recommended Secondary Targets or X-ray tube filters for elements used in this study

Target/Filter	Elements	Helium/Air	Voltage, kV	Emission current mA
Open, no filter	Si	Helium	5	5.8
Ti sec target	Cl, K, Ca	Helium	28	5.8
Fe sec target	V, Cr	Air	30	5.0
Ge sec target	Mn, Fe, Co, Ni, Cu, Zn	Air	40	5.5
Zr sec. target	As, Se	Air	47	5.8
Mo sec. target	Pb	Air	55	5.8
Rh filter	Sn, Sb	Air	55	5.8
W filter	Cd	Air	55	5.8

Minimum Detection Limits

Table 2: Minimum Detection Limits at 1 sigma measured on certified air filters reference material on Nucleopore filters

Element	Secondary Target or X-Ray Tube Filter	MDL (1σ) ng/cm ²	EPA IO-3-3 (1σ) ng/cm ²
Si	Open, no filter	3.8	21.2
Cl	Ti sec target	5.0	5.6
Ca	Ti sec target	2.4	8.7
K	Ti sec target	1.4	5.6
V	Fe sec. target	1.3	5.5
Cr	Fe sec. target	1.1	3.0
Mn	Ge sec target	0.8	0.8
Fe	Ge sec target	1.2	1.0
Co	Ge sec target	0.5	0.4
Zn	Zr sec. target	1.5	1.1
As	Zr sec. target	1.0	0.9
Sn	Rh filter	17.0	31.5
Sb	Rh filter	9.5	26.7

Conclusion: Excellent performance can be achieved with Xenemetrix EX-6600 AFM Spectrometer for elemental determination of fine particles collected on air filters. The powerful X-ray tube can be used in both direct and secondary target excitation mode to provide the minimum detection limits, which is a prerequisite for successful air filter analysis. Results are rapid, accurate and the analysis is easily performed, even by non-laboratory personnel.

For the full report and more details please contact us at: info@xenemetrix.com

Coming Next: New Applications, Tips & Innovations



Xenemetrix is a leading designer, manufacturer and marketer of Energy-Dispersive X-Ray Fluorescence (EDXRF) systems. With more than 30 years experience, Xenemetrix continues to develop highly innovative technologies and solutions suitable for today's ever-growing analytical challenges. Xenemetrix combines the latest technological developments with innovative engineering, to provide cost-effective solutions to a wide range of industries and applications.

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