

Dear Partners

Xenemetrix opens to new markets

We are pleased to announce Xenemetrix new partnerships in the field of laboratory services and measurement standards - we now operate as an authorized distributor of **LGC, LGC standards and VHG**.

LGC is a global leader in the fields of laboratory services, measurement standards, reference materials, genomics and proficiency testing

LGC brand is born from the precision in what to provide for the customers and in how to lead the way in advancement in many areas of science.



Excellence through measurement

VHG Labs was founded in 1981 as an independent analytical testing laboratory. In 1984, VHG expanded its operation to include the commercial manufacturing of high-purity single and multi-element calibration standards for spectroscopic instrumentation. Since then, VHG's products offering expanded to include consumables instrumentation and proficient testing products.

We are looking forward to the opportunity of cooperating with LGC and its subsidiary, which will increase the potential of providing our customers with complete innovative solutions for the elemental analysis process.



For more information please contact us at: **info@xenemetrix.com** or visit our website: **www.xenemetrix.com**

Yours,
Xenemetrix Team

Tip of the Month

Calibration standards or 'Reference Materials'

Each sample consist of many different materials and elements in various forms - solid, powder, liquid. Materials to be analyzed can be defined by the elements of interest (the "analytes") and the matrix (the part of the sample that is not analyzed).

Reference material or 'Calibration Standard Samples' are samples of known elemental concentrations. They are used to calibrate the analyzer to provide quantitative analysis. Standards can be supplied in a variety of forms and matrices. Water, oil, ore, alloys and other materials are among the common matrices.

The matrix and elements of interest are unique in each sample. It is recommended that samples and the calibration standards used are of similar matrix and form.

Commercial calibration standards of a specific matrix are not always available. As an alternative, classic wet chemistry or other accurate analytical method can be used, to analyze some of the samples and be used as calibration standards for further analysis of the unknown samples.

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



Application Highlight

Quantitative analysis of precious metals (Rh, Pd and Pt) in used auto-catalysts filters using Xenemetrix EX-6600 analyzer

A catalytic converter is a vehicle emissions control device that converts toxic pollutants in exhaust gas to less toxic pollutants by catalyzing a redox reaction. Catalytic converters are used with internal combustion engines fuelled by either petrol (gasoline) or diesel. The catalysts accelerate the rate of the redox reaction by interacting with reactants and products but are not consumed or altered during the reaction. Common catalysts are the precious metals Rh, Pd and Pt, and due to their high value are in great demand in refining and recovery of the precious metals from spent auto-catalysts. EDXRF is an excellent analytic tool that can be used to quantify the content of precious metals in used automobile converters, prior to sending to the recovery process.

Experimental

Spectra of four certified standard samples (16297, 19822, 24761 and '8793) and one "blank" Cordierite ceramic sample were acquired and used to establish calibration curves for the three precious metals. Correlation data is shown in Table 1. Four samples were analyzed repeatedly five times (without moving the sample in between the acquisitions) using the calibrated analyzer. The results of the precision study are presented in Table 2.

Quantitative Results

Table 1: Correlation data of the precious metals Pd, Rh and Pt.

Element: Pd, Unit: ppm, Secondary Target: Sn Correlation 0.9986, standard deviation (2±σ) 49ppm			
Calibration Standard	Given Concentration	Calculated Concentration	Relative deviation in %
16297	878	885	0.8
19822	1306	1289	1.3
24761	1062	1105	4.0
18793	1123	1094	2.6
Cordierite - blank	0	0	0
Element: Rh, Unit: ppm, Secondary Target: Sn Correlation 0.9994, standard deviation (2±σ) 6ppm			
Calibration Standard	Given Concentration	Calculated Concentration	Relative deviation in %
16297	214	220	2.8
19822	246	244	0.8
24761	224	223	0.4
18793	238	235	1.3
Cordierite - blank	0	0	0
Element: Pt, Unit: ppm, Secondary Target: Zr Correlation 0.9993, standard deviation (2±σ) 26ppm			
Calibration Standard	Given Concentration	Calculated Concentration	Relative deviation in %
16297	939	930	1.0
19822	852	835	2.0
24761	827	847	2.4
18793	899	905	0.7
Cordierite - blank	0	0	0

Repeatability (precision) data

Table 2: Precision data of unknown samples

The average concentration measured from 5 runs with precision at %95 confidence level			
Sample ID	Pt Concentration 2± σ	Rh Concentration ± 2σ	Pd Concentration ± 2σ
27816	23±907; rsd=%2.5	5±254; rsd=%2.0	5±1116; rsd=%0.5
21690	22±887; rsd=%2.5	3±221; rsd=%1.4	%1.2 ;12±977
18793	24±899; rsd=%2.7	6±237; rsd=%2.5	%0.8 ;9±1087
17959	9±921; rsd=%1.0	7±249; rsd=%2.8	%0.7 ;7±1008

Conclusion: The results of the calibration and the repeatability obtained by the analytical method to quantify precious metals in used automobile catalytic converter, demonstrate the excellent performance of Xenemetrix ED-XRF Laboratory spectrometer EX-6600 SDD. This method is by far the most robust, simple, rapid and user-friendly analytic technique that can easily be operated by any non-professional personnel.

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

Coming Next: New Applications, Tips & Innovations