

Sample Preparation and Calibration Packages for High Precision XRF Analysis

Accurate, precise and reproducible results in XRF analysis depend on a number of factors including manual sample handling; tractability of reference materials; the stability and performance of automatic sample processing equipment; the quality of the calibration and the performance of the spectrometer itself. A range of complete application packages is now available, including the preparation, installation and validation of the calibration on your spectrometer.

FuseCal™ For Wide Range Minerals Applications

The FuseCal™ package includes

- Sample preparation method and recipes
- Certified Reference Materials for calibration and validation
- Preparation of Calibration Standards
- Drift Correction Samples
- Vulcan MA series fusion machine, accessories and consumables
- Installation of equipment, method and full application training
- Calibration of your XRF spectrometer, method / calibration validation

The application range for FuseCal™

- Refractories, Cement, Ceramics
- Slags, Fly Ash
- Limestone, Dolomite, Clay
- Feldspar
- Silicates, Iron Ore
- Environmental

Basic and extended calibrations

The calibrations are based on selected Certified Reference Materials (CRM) so that analyses can be included in your appropriate quality management system.

The basic concentration ranges will be from the lower limit of detection (LLD) to the upper levels, shown in table 1. The actual LLD will depend on the type and model of spectrometer you are using. An extended calibration, shown in table 2, can be provided, which, depending on the elements of interest may require a different recipe.

Basic calibration (Table 1)

Oxide	% max	Oxide	%max	Oxide	% max	Oxide	% max
Na ₂ O	10.0	P ₂ O ₅	2.0	TiO ₂	13.0	Fe ₂ O ₃	30.0
MgO	35.0	SO ₃	3.0	V ₂ O ₅	1.0	ZnO	4.0
Al ₂ O ₃	100.0	K ₂ O	12.0	Cr ₂ O ₃	0.5	SrO	1.0
SiO ₂	100.0	CaO	100.0	MnO	4.0	BaO	5.0

Extended calibration (Table 2)

Oxide	% upper	Application	Oxide	% upper	Application
Fe ₂ O ₃	100.0	Iron ore	TiO ₂	100.00	Rutile, Ti slag
MgO	100.0	Magnesite	Cr ₂ O ₃	60.0	Cr Magnesite
P ₂ O ₅	40.0	Phosphate	ZrO ₂	100.0	Zr Refractories
SO ₃	60.0	Gypsum	HfO ₂	2.0	Zr Refractories

Automatic fusion apparatus. The Vulcan MA series

The new Vulcan MA range of fusion machines uses gas burners with an optimum combination of gas, air and oxygen, controlled by automatic valves, enabling exactly reproducible adjustment of the fusion temperature. Up to ten different fusion programs can be stored permanently in memory, for instant recall.

The Vulcan MA is available for simultaneous fusion of two, four or six samples.

More detailed information on the Vulcan range of fusion machines is available in a separate publication.

Validation

A certified reference material, which is not part of the calibration, is provided with the package as a validation standard. This allows validation of the complete analytical process including the fusion machine and XRF spectrometer. A portion of the standard is fused and analysed at defined periods for quality assessment.

In addition, a set of stable glass based setting up samples is provided for routine monitoring and spectrometer drift correction



The application package and calibration service is provided in partnership with the XRF Support Group, comprising, Fluxana GmbH & Co. KG, H D Elektronik GmbH and Dr Schlotz XRF Consulting and Training.

If you would like a quotation or just to discuss your applications and review the options for sample preparation equipment please contact Analysco, directly or through our web site.



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