Saving Costs by Using FLUXANA Calibration Sets

Introduction

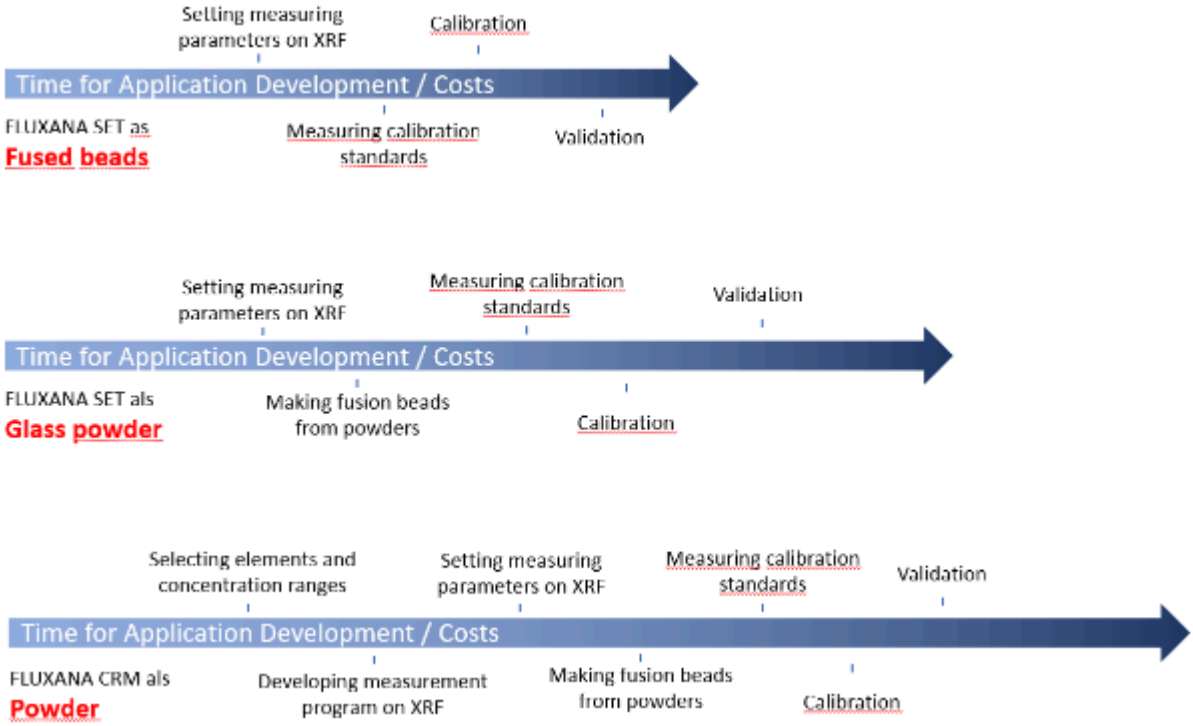
In order to use X-ray fluorescence analysis (XRF) quantitatively, the analytical system must be calibrated. Calibration standards are required for this. The usual procedure begins with the purchase of reference materials as powders, these samples are prepared as, e.g., fusion beads, they are measured as calibration standards and, finally, calibration and validation are conducted.

Depending on the user's experience level, the entire method development procedure is more or less cost and time intensive.

FLUXANA has spent a great deal of time with the task of reducing these costs and, thus, also the development time for the user.

Saving Costs by Using FLUXANA Calibration Sets

Comparison of Development Costs and Time Required



The purchase of certified reference materials is expensive and time consuming. Since FLUXANA has most of the materials available in its laboratory, the first step to reducing costs is to purchase only as much material as is actually needed to conduct a calibration. FLUXANA offers pre-conditioned calibration sets with 10 g per bottle for several applications, e.g., cement or raw materials.

In this case, however, it is still always necessary to prepare the powder as fusion beads. FLUXANA can also save this step by providing the user with a ready-to-use calibration set already prepared as fused beads. This works whenever the user utilizes a FLUXANA VITRIOX GAS or ELECTRIC. Because then the compatibility of FLUXANA is guaranteed.

The use of glass powders constitutes an intermediate step. Here, the CRM are already fused with the flux, but then ground back to glass powder. The advantage for the user is that weighing in has already been precisely carried out and it is only necessary to fuse approximately 9 g glass powder in the fusion machine of choice.

In all the examples mentioned above, FLUXANA does most of the work for the user, which always leads to savings in costs and time in method development.

Saving Costs by Using FLUXANA Calibration Sets

Types of Calibration Standards from FLUXANA

Depending of the requested application set, FLUXANA offers three different ways to deliver calibration standards:

Powder:

The user receives a bottle with certified reference material in powder form.
This can be used to prepare a calibration standard for XRF, e.g. pressed pellet or fused bead.

Advantage: the user retains all flexibility in sample preparation.

Glass Powder:

The customer receives a glass powder that contains a standard and flux. By directly filling the powder into the platinum crucible, a glass bead can be melted as a calibration standard for XRF without accurate weighing.

Advantage: the user can use any fusion method.

Beads:

All users with FLUXANA® fusion machines can purchase calibration standards directly as glass beads, thus saving time and money on sample preparation.

Advantage: the user receives a complete calibration package, which includes more than 10 years experience in sample preparation and XRF analysis.

Saving Costs by Using FLUXANA Calibration Sets

Frequently Asked Questions About Calibration Sets

Saving Costs by Using FLUXANA Calibration Sets

Example of a calibration set by FLUXANA (Cement)

Item No.	Application	Description
CS-0001-CB	Cement	Calibrationset, **21 glass beads 40mm**, made from international reference materials
or: CS-0001-CP10b	Cement	Calibrationset, **21 powders a 10g**, made from international reference materials
CS-0001-VP10a	Cement	Validationset, **2 powders a 10g**, made from international reference materials
FLX-Z1	Cement	Drift monitor
FLX-Z2	Cement	Drift monitor
FLX-C3	Cement	Drift monitor
CS-0001-SE	Cement	Sample preparation kit (flux, additives, etc.)
or: CS-0001-SG	Cement	Sample preparation kit (flux, additives, etc.)
CS-0001-K	Cement	Performance Calibration on customers XRF incl. 2 days of working time on site for calibration
	Cement	Extra requirements: none

Calibration Sets Available from FLUXANA

Item No.	Application	Item No.	Application
CS-0001-CB	Cement	CS-0003i-CB	FeW
CS-0007-CB	RAW Materials	CS-0003j-CB	FeMn/SiMn
CS-0005-CB2	RAW Oxides Professional	CS-0008-CB	CC - Continious Casting
CS-0002-CB	Ash	CS-0017-CB	Slag
CS-0003a-CB	FeMo	CS-0030-CB	SiC
CS-0003c-CB	FeSi	CS-0032-CB	Raw CC
CS-0003d-CB	FeCr	CS-0033-CB	Iron Ore
CS-0003e-CB	FeTi	CS-0031-CP	Cement pressed pellet
CS-0003g-CB	FeV	CS-0016-CD	Glass
CS-0003h-CB	FeNb	CS-0022-CB	Raw Glass

Saving Costs by Using FLUXANA Calibration Sets

Literature

[1] Rainer Schramm, Röntgenfluoreszenzanalyse in der Praxis, korrigierte Auflage II, FLUXANA (2017).

[2] www.fluxana.com