FLUXANA®

XRF Application Solutions

XRF Fusion

- Patented -

VITRIOX® ELECTRIC

Electrical Fusion Technology

VITRIOX® GAS

Gas Fusion Technology

BORAMAT®

Automatic Dosing

NEW: VITRIOX® ELECTRIC 4+

The VITRIOX® ELECTRIC 4 + is a fully automatic fusion machine with cold to cold operation for 4, 8, 12 or 16 samples (4 samples at a time). It has been designed to achieve the best possible results in day-to-day XRF laboratory routine while offering a high throughput. It offers:

Flexibility:
- 4 different applications in one run
- modular design
- continuous operation

Comfort:
- autosampler handles samples automatically
- sample observation via mirror
- touch display with easy to use software
- USB and RJ45 port
- ready for LIMS

Safety:
- casting dish monitoring
- flux resistant **FLUX***inert*® ceramics
- safety drawer with autolock function

EU Patent: 2 901 131
US Patent: 9 651 463
JP Patent: 6 322 633
AU Patent: 2 0133 322 930
CA Patent: 2 866 103

Highest precision:
- closed oven design with lift bottom for precise temperature control
- unique high speed 3D rotation for agitation
- equal temperature distribution

Applications:
- 100 applications possible
- volatile element anaylsis
- use of quartz crucibles
- use of lids

Service:
- expert laboratory support
- service team for international support
- complete XRF solutions
- wide range of calibrations possible
- installation and maintenance online courses
- online support

NEW: Get **free access** to installation, maintenance and application courses on **www.fluxaminar.com**

Technical Data	VITRIOX® 4+
Samples:	4 per fusion
Sample holders:	1 - 4 (4 crucibles each)
Temperatures:	Up to 1250°C
Power:	7500 W
Power Supply	3 ~ AC/ 16 A
Voltage:	400 V/50 Hz
Permiss. Air Pressure:	6 bar
Air Consumption:	max. 2.1 m^3/h
Protection Category:	IP20
Weight:	~ 530 kg
Length:	150 cm
Width:	75 cm
Height:	180 cm

simultaneous fusion of 4 samples

optional modules for the continuous operation of up to 16 samples

VITRIOX® ELECTRIC

The VITRIOX® ELECTRIC automatically handles 1, 2, 4 or 6 samples (1 sample at a time) in cold to cold operation. It is ideal for demanding quality control, method development and special applications due to it's high flexibility and precision.

Flexibility:
- modular design
- continuous operation

Comfort:
- autosampler handles samples automatically
- oven room observation via mirror
- touch display with easy to use software
- USB port
- Ready for LIMS

Safety:
- casting dish monitoring
- flux resistant **FLUX***inert*® ceramics
- safety housing with autolock function

VITRIOX® 1 station
- Patented -

Highest precision:
- closed oven design with lift bottom for precise temperature control
- unique high speed 3D rotation for agitation
- equal temperature distribution

Applications:
- volatile element anaylsis
- use of quartz crucibles
- use of lids

VITRIOX® 4 stations with ICP option
- Patented -

Service:
- expert laboratory support
- service team for international support
- complete XRF solutions
- wide range of calibrations possible
- installation and maintenance online courses

Option:
quartz crucibles

- Patent pending -

EU Patent: 2 901 131
US Patent: 9 651 463
JP Patent: 6 322 633
AU Patent: 2 0133 322 930
CA Patent: 2 866 103

Technical Data	1 Station	2 Stations	4 Stations	6 Stations
Stations:	1 XRF / ICP	2 XRF / ICP	4 XRF / ICP	6 XRF / ICP
Voltage:	230 V/50-60 Hz	230 V/50-60 Hz	230 V/50-60 Hz	230 V/50-60 Hz
Power:	3000 W	3000 W	3000 W	3000 W
Power supply:	1~ AC / 16 A	1~ AC / 16 A	1~ AC / 16 A	1~ AC / 16 A
Temperatures:	0-1,250 °C	0-1,250 °C	0-1,250 °C	0-1,250 °C
Permiss. air pressure:	6 bar	6 bar	6 bar	6 bar
Air consumption:	max. 1.5 m^3/hr	max. 1.5 m^3/hr	max. 1.7 m^3/hr	max. 1.9 m^3/hr
Protection category:	IP20	IP20	IP20	IP20
Length:	800 mm	1107.5 mm	1307.5 mm	1507.5 mm
Width:	760 mm	760 mm	760 mm	760 mm
Height:	862 mm	862 mm	862 mm	862 mm
Weight:	~ 120 kg	~ 120 kg	~ 135 kg	~ 150 kg
Samples per h:	3	4	5	6

Other versions on request. Please ask for installation requirements!

VITRIOX® GAS

The VITRIOX® GAS is a gas operated fusion machine with cold to cold automation and up to 6 positions that can operate simultaneously. Its technology is based on many years experience in XRF fusion and analysis.

Flexibility:
- upgradeable
- ICP/AAS and peroxide option
- USB port for application exchange

Reliability:
- robust design and high quality parts ensure a long product life

Safety:
- optional platinum mould sensors
- customer-specific safety housing and fume hood
- gas detector
- safety pilot

Precision:
- great advantages over pressed pellets preparation
- high temperature control

Comfort:
- touch display for the storage of multiple application settings and fusion programs
- easy-to-use software

Service:
- expert laboratory support
- service team for international support
- installation and maintenance online courses

ICP/AAS Option

Peroxide Option

Technical Data	VITRIOX GAS 2XRF	VITRIOX GAS 4XRF	VITRIOX GAS 6XRF
Stations:	2 XRF	4 XRF	6 XRF
Voltage:	110 V/60 Hz 230 V/50 Hz	110 V/60 Hz 230 V/50 Hz	110V/60 Hz 230V/50 Hz
Power:	150 W	200 W	200 W
Temperatures:	0-1,450 °C	0-1,450 °C	0-1,450 °C
Permiss. air pressure:	4 bar	4 bar	4 bar
Recomm. natural gas pressure:	250 mbar	250 mbar	250 mbar
Recomm. propane gas pressure:	250 mbar	250 mbar	250 mbar
Recomm. oxygen gas pressure:	2 bar	2 bar	2 bar
Air consumption:	max. 1 m^3/hr	max. 2 m^3/hr	max. 3 m^3/hr
Oxygen consumption:	max. 0.3 m^3/hr at 3 bar	max. 0.8 m^3/hr at 3 bar	max. 1.2 m^3/hr at 3 bar
Natural gas consumption:	max. 0.48 m^3/hr	max. 0.98 m^3/hr	max. 1.44 m^3/hr
Or LPG* liquified petroleum gas	max. 0.33 m^3/hr	max. 0.48 m^3/hr	max. 0.61 m^3/hr
Length:	500 mm	500 mm	500 mm
Width:	650 mm	650 mm	705 mm
Height:	300 mm	300 mm	300 mm
Weight:	~ 35 kg	~ 40 kg	~ 45 kg
Samples per h:	5 - 7	8 - 10	16 - 20

* LPG, bottled gas

Other versions on request. Please ask for installation requirements!

Safety Setup

Fume Hood with Ventilator

Fume hood made of high-grade steel.

- Motor (230 V/50 Hz/90 mA) continuously variable to 2760 r.p.m., 110 V version also available
- Height 300 mm, length 840 mm, width 640 mm

Table

Table with integrated drawer for all required accessories. Made of robust steel.

- Height 730 mm, length 910 mm, width 760 mm

Example for VITRIOX® GAS

Safety Housing

Recommended safety housing to prevent hot surface contact by the user.

For VITRIOX® GAS, a fume hood is attached to the safety housing.

For VITRIOX® ELECTRIC, the safety housing is part of the machine. A separate table and fume hood on top are recommended.

Tools

Item No.	Description
FS-OZ327	Crucible tongs, platinum shoes, length 230 mm, ca. 5 g Pt
VU-US1.9kit	Ultrasonic bath with heating, Vol. ca. 1.9 l for cleaning
WZ-0004a	Handling tool for beads and pellets
VU-Tiegel_Al2O3	Aluminium oxide crucible for determination of LOI (loss on ignition). Inexpensive and very robust alternative to platinum
VU-0020	Holder for cleaning moulds in ultra sonic bath

Quartz Crucible

Item No.	Description
VI-0540	Quartz crucible for VITRIOX® ELECTRIC
FS-VIH01	Platinum holding ring for quartz crucible, ca. 13g Pt

Ultrasonic Bath VU-US1.9kit

Handling Tool WZ-0004a

Quartz Crucible with Holder VI-0540, FS-VIH01

BORAMAT® 18/30

Dosing of up to 18 samples of flux with the automatic dosing machine BORAMAT® 18. Greatly improve the efficiency and precision of your weighing routine and save time during sample preparation in your XRF laboratory. The intelligent software and monitoring functions minimize error and increase security in the whole weighing process.

Flexibility:
- bottle for up to 3 kg of flux
- easy cleaning and refilling
- USB port for data exchange

Comfort:
- automatic weighing of 18 or 30 samples
- easy-to-use software
- weighing protocols
- ready for LIMS

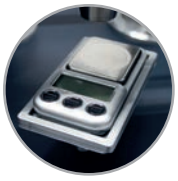
Weighing Modes:
- sample/flux ratio
- catch weight
- absolute weight

Precision:
- fast, precise dosage, free from contamination
- intelligent flow behavior optimization
- integrated high quality scale

Adaptability:
- adapters for different crucibles and beakers
- additional scale for sample weighing

Service:
- expert laboratory support
- service team for international support
- installation and maintenance online courses

Roughly weigh in your sample and the machine precisely adds the right amount of flux.



NEW: BORAMAT® 30

• automatic weighing of up to 30 samples
• specially designed for glass vials used for storage

Technical Data	BORAMAT® 18 / 30
Weight	66 kg
Power connection	100-240 V 50/60 Hz
Length	860 mm
Width	560 mm
Height (without bottle)	980 mm
Supply bottle	Thread GL45
Maximum bottle size	3 kg
Minimal balance precision	0.0001 g
Uncertainty (P = 95%)	0.0020 g
Software	Windows 10
Scale requirements	High precision scale integrated

Example weighing 8 g of FX-X65-2P

Pos	Flux / g	Pos	Flux / g
1	8.0008	11	7.9998
2	8.0001	12	7.9997
3	7.9997	13	7.9996
4	7.9996	14	8.0001
5	8.0000	15	7.9998
6	7.9999	16	8.0002
7	8.0001	17	8.0001
8	8.0000	18	8.0005
9	7.9998	Mean	8.0000
10	8.0007	Stdev	0.0003

BORAMAT® Mono

The BORAMAT® Mono is an automatic dosing machine for flux in XRF analysis. It is designed to improve day-to-day routine in the laboratory, allowing the user to weigh faster and monitor every weighing. Since it is compatible with all common laboratory scales, it can be installed in most laboratories without having to invest in a new scale.

Flexibility:
- bottle for up to 3 kg of flux
- easy cleaning and refilling
- USB port for data exchange

Comfort:
- easy-to-use software
- weighing protocols
- ready for LIMS

Weighing Modes:
- sample/flux ratio
- catch weight
- absolute weight

Precision:
- fast, precise dosage, free from contamination
- intelligent flow behavior optimization

Adaptability:
- compatible with scales from various manufacturers

Service:
- expert laboratory support
- service team for international support
- installation and maintenance online courses

Scale

The BORAMAT® Material Doser is compatible with all common professional laboratory scales that have an RS232 serial port. This will allow most customers to **use a scale that is already in their laboratory**. If you require a new scale, we can provide a scale optimized for dosing with the BORAMAT®.

Technical Data	BORAMAT® Mono
Weight	17 kg
Power connection	100-240 V 50/60 Hz
Length	390 mm
Width	370 mm
Height (without bottle)	760 mm
Supply bottle	Thread GL45
Maximum bottle size	3 kg
Minimal balance precision	0.0001 g
Uncertainty (P = 95%)	0.0020 g
Software	Windows 10
Scale requirements	Max. capacity: 220 g Readability: 0.1 mg Connection: RS232

Lithium Borates

Anhydrous homogeneous pre-fused lithium borates (fluxes) with guaranteed purity. They have a low loss on ignition and are non-hydroscopic. With these fluxes, the sample is totally dissolved in a borate glass with a perfect surface. With every delivery of flux you will receive a specification.

	Description	2kg	25kg	Granular	Beads	LiBr, LiI or NH_4I
	Lithium metaborate	✓	✓	✓	✓	✓
	Lithium tetraborate	✓	✓	✓	✓	✓
	Lithium tetraborate : Lithium metaborate*	✓	✓	✓	✓	✓
examples	Lithium tetraborate : Lithium metaborate 35.3:64.7 1.2:2.2	✓	✓	✓	✓	✓
examples	Lithium tetraborate : Lithium metaborate 50:50	✓	✓	✓	✓	✓
examples	Lithium tetraborate : Lithium metaborate 66:34	✓	✓	✓	✓	✓

*Customer-specific mixtures available

Granular or Beads?

Both shapes of flux - granular or beads - share the same chemical properties and will give the same result when used in fusion. Only in the process of weighing, the differences of these types come into play. Granular flux is used in manual weighing, whereas beads need to be used when using automatic weighing machines like the BORAMAT®.

Additives

In fusion, additives are used whenever a sample is not producing a stable fused bead. Our recipes for various applications contain instructions on how to use anti-wetting agents or oxidizing agents, for example, to prevent crystallization or breakage of the glass.

Item No.	Description
FX-ADD3	Single additive non wetting agent
FX-CAT8	Single catalyst for ferroalloys FeTi, FeCr, FeV
FX-OXY6-500	Single oxidizer for ferroalloys and metals
FX-OXY7	Single oxidizer for slags, ferro alloys
FX-OXY8	Single oxidizer for sulfides
FX-SUL1	Borate flux for sulfide ores
FX-SUL2	Borate flux for sulfide ores

Platinum Ware

Platinum ware made from platinum/gold 95/5 for fusion machines and laboratory needs. Old platinum ware is accepted for recycling as credit against your next order. All deliveries are insured by FLUXANA®.

We also offer all platinum ware in FKS. This surface finishing increases the lifetime of your crucibles and moulds.

Platinum Ware for VITRIOX® ELECTRIC

Item No.	Description	Inner/Outer Diameter in mm	Height mm	Bottom mm	Weight g
FS-VIT01	Crucible VIT. E	20 / 34	38	0.5	45
- FS-VID01	Lid for FS-VIT01	-	-	-	8
FS-VIT02	Crucible VIT. E Viscous	22.9 / 39.1	36	0.5	54
FS-VIT03	Crucible VIT. E Ferro	22.9 / 39.1	36	0.5	55
- FS-VID02	Lid for FS-VIT02/03	-	-	-	11
FS-VIA4012	Mould VIT. E	29 / 31	3.8	0.8	30
FS-VIA4011	Mould VIT. E	32 / 34	3.8	0.8	30
FS-VIA4010	Mould VIT. E	34 / 36	3.8	0.8	46
FS-VIA4009	Mould VIT. E	39 / 41	3.8	0.8	46
FS-VIA4015	Mould VIT. E	39 / 41	3.8	1.4	80

For your order in FKS platinum, just add "FKS" to the part number! Other sizes and thicknesses on request. Moulds with 1.4 mm bottom available.

Platinum Ware for VITRIOX® GAS

Item No.	Description	Inner/Outer Diameter in mm	Height mm	Bottom mm	Weight g
FS-OT866	Crucible VIT. GAS	20 / 34	38	0.5	45
FS-OT867	Crucible VIT. GAS	22.5 / 36	38	0.5	54
FS-OA434	Mould VIT. GAS	29 / 31	3.8	0.8	31
FS-OA877	Mould VIT. GAS	32 / 34	3.8	0.8	31
FS-OA438	Mould VIT. GAS	34 / 36	3.8	0.8	45
FS-OA439	Mould VIT. GAS	39 / 41	3.8	0.8	46

For your order in FKS platinum, just add "FKS" to the part number! Other sizes and thicknesses on request. Moulds with 1.4 mm bottom available.

Applications

We offer ready-to-go calibration sets for X-ray fluorescence analysis.

The calibration samples in our sets come as **powders** or **glass powders** (if you want to include your sample preparation technique) or already prepared as **glass beads.**

In addition to the calibration samples you will receive:

Validation Samples

Drift Monitors

Sample Preparation Kit

Onsite or Online Calibration

Participation in Round Robins

Examples of Calibration Sets

Our "ready-to-go" calibration sets contain everything necessary to perform a complete calibration for your material. Here are two examples of the many available sets:

FLUXANA CEM (cement, raw meal, clinker)

- Calibration set cement, according to ISO 29581-2 standard, as powder or already prepared as glass beads
- Validation set
- Drift monitors for XRF instruments
- Performance of calibration on customer´s XRF
- Sample preparation kit (flux, additives, etc.)

FLUXANA RAW (raw materials for cement, glass and steel industry)

- Calibration set raw materials, as powder or already prepared as glass beads
- Validation set
- Drift monitors for XRF instruments
- Performance of calibration on customer´s XRF
- Sample preparation kit (flux, additives, etc.)

For more information visit **www.fluxana.com/products/applications**

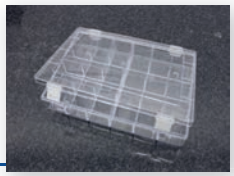
Sample Storage

It is important to keep samples prepared as beads or pellets in a dust free and dry environment.

There is a wide range of boxes and containers for single or multiple samples and standards for XRF.

For storing your beads and pellets, we would recommend:

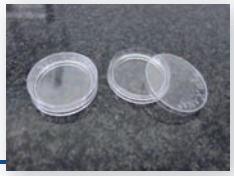
BX-0001-18, BX-0001-24:
Transparent boxes with lockable lid.



BX-0004-XX:
Transparent boxes for individual samples (32-50 mm). See table below.

Tip: Use our **WZ-0004a** tool to avoid finger contact with the sample.

NEW!
BX-0004-47:
Boxes with bead protection at the inner edge of the box. It prevents damage to the bead by avoiding contact of the bead surface to the box.



BX-0002-5, BX-0003-5:
Cabinets with drawers suitable for storage of non-hygroscopic samples.

BX-0010, BX-0011:
Desiccators to store your sensible calibration and monitor samples.
Ideal combination with BX-0002-5,BX-0003-5 or BX-0001-24.

Item No.	Description	Compartments
BX-0001-18	Box 210x120x35 mm with lid	18x max 32 mm Ø pellets
BX-0001-24	Box 330x220x53 mm with lid	24x max 52 mm Ø pellets
BX-0002-5	Drawer cabinet with 5 drawers, each with 42 partitions for max 34mm Ø, Height 17 mm (ideal for pellets max 34 mm Ø)	210x max 34 mm Ø pellets
BX-0003-5	Drawer cabinet with 5 drawers, each with 25 partitions for max 34mm Ø, Height 17 mm (ideal for pellets max 42 mm Ø)	125x max 42 mm Ø pellets
BX-0004-39	Box for single pellet H 15 mm, set of 100 pcs.	max 34 mm pellets
BX-0004-46	Box for single pellet H 16 mm, set of 100 pcs.	max 42 mm pellets
BX-0004-47	Box for single pellet H 6 mm, set of 100 pcs.	max 46 mm pellets
BX-0004-50	Box for single pellet H 25 mm, set of 100 pcs.	max 50 mm pellets
BX-0006-P	Plastic Tweezer for beads	
BX-0010	Desiccator W350 x H334 x D410 mm incl. dry pearls, tray for dry pearls and hygrometer to combine with storage case 1x BX-0002-5 or 1x BX-0003-5 or 3x BX-0001-24	
BX-0011	Desiccator W640 x H550 x D410 mm incl. dry pearls, tray for dry pearls and hygrometer to combine with storage case 4x BX-0002-5or 4x BX-0003-5 or 12x BX-0001-24	

Additional drawers to add to the cabinet are available in various colors. Other dimensions on request.

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