UNIQUE PRODUCTS FROM ONE SOURCE

THE XRF SCIENTIFIC PRODUCT RANGE OF MACHINES

1972
First commercial XRF flux production by founding Director David Brown at Sigma Flux

1991
First "MFM" automated gas fusion machine sold

1994
First Phoenix automated gas fusion machine sold

2000
Commencement of APS Labware

2001
First Modutemp electrical fusion machine sold

2006
IPO and listing of XRF Scientific as a public company on the Australian Securities Exchange

2013
First international office in Canada

2013
Launch of first fully automated electric fusion machine xrFuse

2015
First office in Europe via acquisition of Socachim SPRL, Belgium

2016
Opening of a new office in Germany and a precious metals manufacturing facility in Melbourne, Australia

2016
Launch of next generation Phoenix 2 gas fusion machine

XRF Scientific – Experts for High End Sample Preparation

XRF Scientific Limited is an Australian listed company (ASX: XRF) based in Perth, Western Australia.
XRF manufactures equipment and chemicals, which are distributed to production mines, construction material companies and commercial analytical laboratories, in Australia and overseas, and used in the preparation of samples for analysis.

XRF has manufacturing, sales and support facilities located in Perth, Melbourne, Europe and Canada, plus a global network of distributors.
The Company has representation in the United States, South America, Africa, the Middle East and Asia.

XRF's technology is used to measure the composition and purity of materials and is mainly applied in industrial quality control and in process control for manufacturing processes in industries such as metals and mining, construction materials, chemicals and petrochemicals.

XRF's products help customers to improve product quality and performance, increase productivity and yield and reduce downtime and waste. Its businesses have established positions in their specialised markets.

SERVICE. SUPPORT. SCIENCE. UNIQUE PRODUCTS FROM ONE SOURCE.

xrf scientific

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XRF Scientific LTD
86 Guthrie Street
Osborne Park WA 6017, Australia
P: +61 (0) 8 9244 0600
F: +61 (0) 8 9244 9611

www.xrfscientific.com

xrf scientific

xrf flux and chemicals

xrf platinum labware

xrf fusion equipment

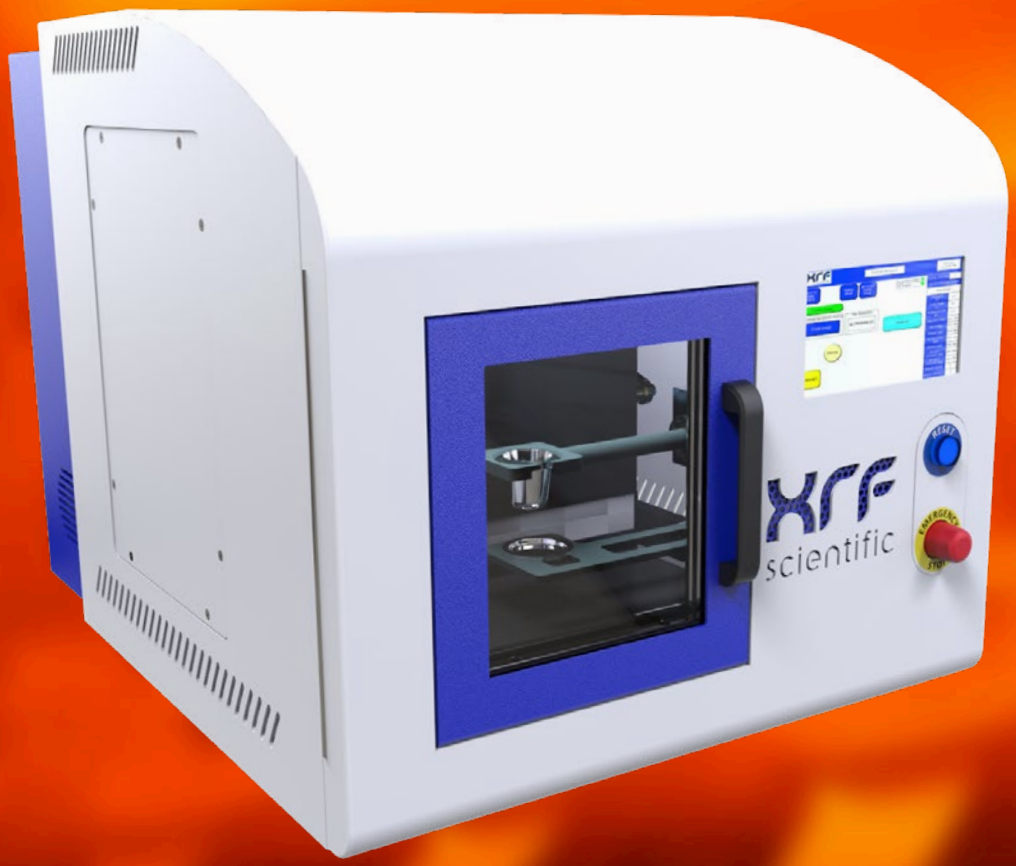
xrf precision platinum

xrf lab equipment

UNIQUE PRODUCTS FROM ONE SOURCE

ELECTRIC FUSION MACHINES

xrf fusion equipment



GOOD REASONS FOR

XrFuse 1
ELECTRIC FUSION MACHINE

OVERVIEW

The XrFuse 1 is an instrument that allows for the seamless sample preparation of glass beads for XRF and ICP solutions. The machine expands our range of industry leading electric fusion machines that are already available in two and six positions. The XrFuse 1 takes all of the robust and reliable features from the XrFuse 2 and 6, into a compact machine, ideal for lower throughput users or specialised applications. Through our proprietary quick change-out mechanism, users can alternate between XRF glass bead and ICP solutions preparations in a matter of seconds.

The unit is cold-to-cold, fully CE certified, extremely safe and easy to use.

Programmable Fusion Parameters

- Preheating temperature and duration
- Main heating temperature and duration
- Rocking duration, speed and amplitude
- Stand duration
- Pouring angle
- Cooling (2 stages)
- Pause at any time
- “Fusion complete” alarm
- XRF or ICP Mode

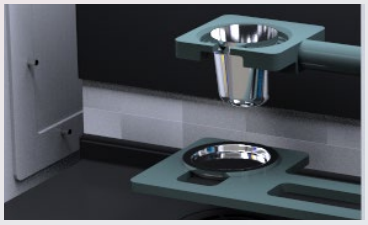
Established Technology

The XrFuse range of automated electric fusion machines has been developed based on more than 25 years of experience of fusion technology and applications.

Designed with the latest thermal imaging technology, consumer tested in the biggest XRF laboratories in the world, XrFuse is designed with the customer in mind.

XrFuse electric fusion

KEY FEATURES



Zero Contamination

The ceramic cradle and holders ensure that the environment for creating beads has zero contamination from these sources.

Safe Operation

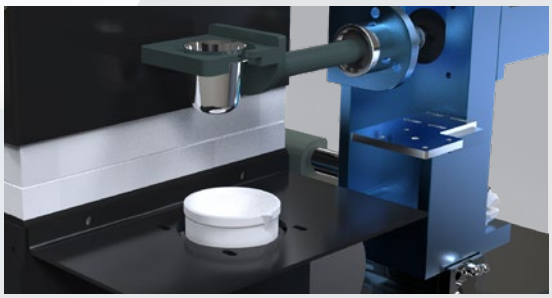
The external surfaces on the machine have been modelled and developed with the latest IR technology. This ensures all external surfaces are safe to touch. The machine is CE certified and independently tested.

Simple User Interface

Simple touch screen interface that is easy to use. Provides the flexibility to cope with simple operation or complex one off experiments.

Process Flexibility / ICP

The machine is designed for both pre-heating and ICP processes. Simple to access, control and monitor. All at the touch of a button.



Not sure if one sample position is enough to satisfy your future requirements?

Ask one of our Experts how this machine may be upgraded to meet your future requirements!

ONGOING SUPPORT

The purchase of an XrFuse is the beginning of an ongoing relationship where we provide a range of services to our customers.

Whether you are new to fusion or a seasoned professional, we have a range of services to increase the accuracy and throughput of your application.

- Advice on appropriate selection of flux and standards
- Organization of platinum remake processes
- Technical advice on difficult fusion issues
- On-site support and preventative maintenance programs

Please see our website for more details of our representatives in your area: www.xrfscientific.com

A DIVERSE RANGE OF APPLICATIONS

The XrFuse 1 user interface is designed in such a way that it can meet the need for consistency of a production laboratory, while at the same time giving the analytical chemist the flexibility to modify parameters as required. Cold-to-cold operation means it is an ideal solution where the health and safety requirements of a production environment need to be strictly adhered to. If on the other hand, method development is the critical requirement, the instrument can be configured in a custom manner to meet specific experimental needs.

THE COMPLETE SOLUTION

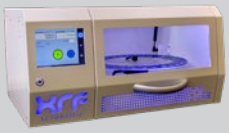
xrf flux and chemicals

Flux
We are the world's pre-eminent manufacturer of flux. We can provide standard borate fluxes or custom solutions to meet your specific needs.

xrf platinum labware

Labware
We manufacture labware for all our fusion instruments in house. We can also provide a remake service for the transfer from other labware designs.

xrf lab equipment



Weighing
The XrWeigh allows the rapid and accurate measurement of flux. Increasing laboratory throughput and process repeatability.

TECHNICAL SPECIFICATIONS XRF, ICP AND ALKALI FUSIONS

Technical specification	1 place
Construction	Single external aluminium case
Door	Cool touch glass viewing window Safety-interlocked during fusion and standby mode
Size (H x W x D)	520 x 550 x 700mm
Weight	40kg
User interface	Touch screen user interface password protected engineer levels
Programmable recipes	Up to 24 user-defined recipes with naming flexibility
Insulation	Ceramic fibre board
Maximum temperature	1200°C, real time temperature reading
Heating elements	Silicon carbide
Thermocouples	Type R
Over temperature protection	2nd thermocouple and insulation case thermostat
Power requirement	50/60Hz, 1-phase, 208–220 Volt
Power consumption	3kW
Cradle / mould holders	Hi-purity ceramic, contamination proof
Crucible	30–40g
Mould	32/40mm, 40–60g
Throughput	Up to 6 samples per hour
Safety	Emergency stop button Cold-to-cold operation Maximum external temperature of 50°C CE certified independently tested by Pilz Cat 4 rated dual safety circuit
Noise	<70db

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xrf
fusion equipment

GOOD REASONS FOR

XrFuse 2 & 6
ELECTRIC FUSION MACHINE

A DIVERSE RANGE OF APPLICATIONS

The user interface is designed in such a way that it can meet the need for consistency of a production laboratory, while at the same time giving the analytical chemist the flexibility to modify parameters as required. Cold-to-cold operation means it is an ideal solution where the health and safety requirements of a production environment need to be strictly adhered to.
If on the other hand, method development is the critical requirement, the instrument can be configured in a custom manner to meet specific experimental needs.

High Accuracy and Purity

For applications such as mineral sands where high accuracy and purity is required across a broad range of elements, the absence of contamination is a significant benefit.

Programmable Fusion Parameters

- Preheating temperature and duration
- Main heating temperature and duration
- Rocking duration, speed and amplitude
- Stand duration
- Pouring angle
- Cooling (2 stages)
- Pause at any time
- Fusion complete-alarm
- XRF or ICP Mode

Established Technology

The XrFuse range of electric fusion machines has been developped based on more than 25 years of experience of fusion technology and applications. Now available in both a 6 place high volume solution and a 2 place compact model to cater for the needs of broad range of customers. The XrFuse range represents the best elements of XRFS established electrical fusion range with significant advances in safety and design. Designed with the latest thermal imaging technology, consumer tested in the biggest laboratories in the world, XrFuse is designed with the customer in mind.

KEY FEATURES

Zero Contamination

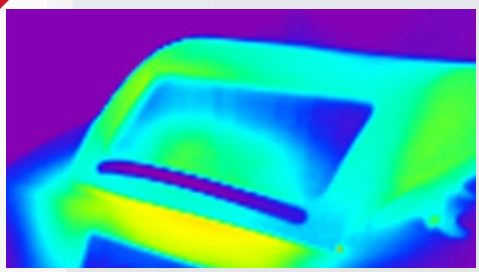
The ceramic cradle and holders ensure that the environment for creating beads has zero contamination in comparison with that typically found with Inconel based solutions.

Simple User Interface

Simple touch screen interface. The User Interface is simple to use and provides the flexibility to cope with the simplest operation on a repeatable basis or the most complex one off experiments.

Process Visibility

The glass viewing panel allows the customer to view the key elements of the fusion process in action. This is particularly important for method development.



Safe Operation

The external surfaces of the instrument have been modelled and developed with the latest IR technology to ensure all contact surfaces are safe to touch.

Process Flexibility – XRF or ICP mode

The machine is designed to allow for both XRF or ICP processes. Simple access, control and monitor, at the touch of a button.

Built to Last

The XrFuse range has evolved from robust and reliable technology developed for high volume, high up time applications in the Iron Ore industry in Australia. This tough environment has driven the development of machines with component lifetimes of up to 3 times of that of our major competitors. When you buy an XrFuse, it's built to last!

ONGOING SUPPORT

The purchase of an XrFuse is the beginning of an ongoing relationship where we provide a range of services to our customers.

Whether you are new to fusion or a seasoned professional, we have a range of services to increase the accuracy and throughput of your application.

- Advice on appropriate selection of flux and standards
- Organization of platinum remake processes
- Technical advice on difficult fusion issues
- On-site support and preventative maintenance programs

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THE COMPLETE SOLUTION

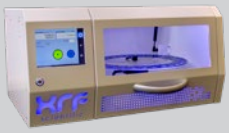
xrf flux and chemicals

Flux
We are the world's pre-eminent manufacturer of flux. We can provide standard borate fluxes or custom solutions to meet your specific needs.

xrf platinum labware

Labware
We manufacture labware for all our fusion instruments in house. We can also provide a remake service for the transfer from other labware designs.

xrf lab equipment



Weighing
The XrWeigh allows the rapid and accurate measurement of flux. Increasing laboratory throughput and process repeatability.

TECHNICAL SPECIFICATIONS
XRF, ICP AND ALKALI FUSIONS

Technical specification	2 place	6 place
Construction	Single external aluminium case	
Lid	Cool touch glass viewing window Safety-interlocked during fusion and standby mode	
Size (H x W x D)	580 x 780 x 800mm H 800mm with lid open	580 x 1110 x 800mm H 800mm with lid open
Weight	80kg	100kg
User interface	Touch screen user interface password protected engineer levels	
Programmable recipes	Up to 12 user-defined recipes with naming flexibility	
Insulation	Ceramic fibre board	
Maximum temperature	1250°C, real time temperature reading	
Heating elements	Silicon carbide	
Thermocouples	Type R	
Over temperature protection	2nd thermocouple and insulation case thermostat	
Power requirement	50/60Hz, 1/3-phase, 208–220 Volt	50/60Hz, 3-phase, 380–415 or 208–220 Volt
Power consumption	4kW	6kW
Cradle / mould holders	Hi-purity ceramic, contamination proof	
Crucible	30–40g	
Mould	32/40mm, 40–100g	
Throughput	Up to 10 samples per hour	Up to 30 samples per hour
Safety	Emergency stop button Cold-to-cold operation Maximum external temperature of 50°C CE certified independently tested by Pilz Cat 4 rated dual safety circuit	
Noise	<70db	

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xrf scientific

xrf flux and chemicals

xrf platinum labware

xrf fusion equipment

xrf precision platinum

xrf lab equipment

UNIQUE PRODUCTS FROM ONE SOURCE

GAS FUSION MACHINES

fusion equipment

GOOD REASONS FOR

PHOENIX
GAS FUSION MACHINE

BROADEST RANGE OF SAMPLES

When you are dealing with a difficult application you need the flexibilty to control process parameters.

- The Phoenix allows you to add ammonium iodide at just the right time in the process in a repeatable and controllable manner. (Alumina)
- It has the ability to vary the cooling rate to find that delicate balance between cracking and crystallisation. (Copper)
- It ensures all preoxidation has occurred with a two stage heating process.

In addition to the above, there are also a range of custom modifications that can be made for your individual requirements.

Established Technology

Phoenix gas fusion machines have been at the forefront of XRF sample preparation for over twenty years.

In that time our products have built a reputation for fusing the most difficult samples in a repeatable and reliable manner.

The Phoenix machine is in operation all over the world from Mongolia to Saudi Arabia and beyond.

KEY FEATURES

Visibility

You can see all stages of the fusion process unfold in the crucible, this is crucial when trying to understand the complexities of each reaction.

Flexible Programming

Up to 7 user-customizable fusion programs can be stored in the microprocessor memory, each involving up to 4 different steps; Pre-heating (oxidation), fusion, fusion with swirling, casting and cooling.

Reliability

Our machines are built to last, we have installations where the same machine has run continuously for 15 years.

Safe Operation

Cold-to-cold, fully automated – requiring no manual intervention. Sophisticated electrical and gas safety systems make the Phoenix one of the safest machines on the market.

ONGOING SUPPORT

The purchase of any XRF Scientific fusion machine, gas or electric, is the beginning of an ongoing relationship where we and our distributors provide you with access to a broad range of support and technical services to meet your fusion needs.

Whether you are new to fusion or a seasoned professional, we have a range of services to increase the accuracy and throughput of your application.

- Advice on appropriate selection of flux and standards
- Organization of platinum remake processes
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xrf platinum labware

Labware
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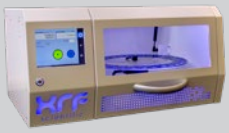
xrf lab equipment



Weighing
The XrWeigh allows the rapid and accurate measurement of flux. Increasing laboratory throughput and process repeatability.

TECHNICAL SPECIFICATIONS
XRF, ICP AND ALKALI FUSIONS

Technical specification	Phoenix S	Phoenix R	Phoenix M
Maximum temperature	1250°C (1600°C flame temperature)		
Number of beads produced simultaneously	1	1–3	1–6
Individual burner selection	–	✓	✓
Fully automatic	✓	✓	✓
VFD blue screen with touch buttons	✓	✓	✓
Recipe database	✓	✓	✓
Pre-melting	–	✓	✓
Variable speed swirling and frequency	✓	✓	✓
Separate mould preheating	✓	✓	✓
Adjustable speed pouring and angle	–	✓	✓
Two stage cooling	–	✓	✓
Cold-to-cold operation	✓	✓	✓
Emergency stop button	✓	External	✓
Automatic gas cut-off safety system	✓	✓	✓
Crucible	30–40g		
Mould	32/40mm, 40–100g		
Separate oxygen injector	–	Optional	Optional
Ammonium iodide injector	–	–	Optional
ICP fusion mode	Optional	Optional	Optional
Size (H x W x D)	200 x 350 x 290mm	250 x 620 x 450mm	310 x 880 x 630mm
Weight	15kg	65kg	90kg

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xrf fusion equipment

GOOD REASONS FOR

PHOENIX II
GAS FUSION MACHINE

A NEW ERA IN GAS FUSION TECHNOLOGY

The oxygen enriched gas fusion machine has always been the machine of choice for the best analytical laboratories. The Phoenix II uses the latest IR and control technology to significantly extend the capability of the technology. The improvements in control and consistency will enhance result accuracy and repeatability, while the absolute measurement of temperature will increase the existing broad range of uses. In the hands of an experienced user the possibilities are endless.

Programmable Fusion Parameters

- Preheating temperature and duration
- Main heating temperature and duration
- Swirling duration, speed and frequency
- Pouring angle and speed
- Cooling (2 stages)
- “Fusion complete” alarm
- XRF or ICP Mode

Innovative Fusion Technology

The reputation of the Phoenix has been established in nearly 1000 installations worldwide in the last 20 years. In that time it has shown itself to be the reliable and flexible workhorse of the fusion laboratory; beloved by chemists and laboratory managers alike.

The Phoenix II takes that base of reliability and adds a number of class leading features that makes it the most advanced fusion machine on the market.

KEY FEATURES

ABCS: Adaptive Burner Control System

The revolutionary adaptive burner control system allows the user to set the burner temperature electronically at the user interface. The ABCS then automatically modifies flow parameters to ensure this temperature is achieved and maintained throughout the fusion cycle.

Safe Operation

The Phoenix II is the safest gas machine on the market. The gas burners and all high temperature items are enclosed behind a glass door. All external surfaces are safe to touch and are considerably cooler than comparable machines. The gas shut-off and electrical safety systems also meet the highest possible standards.

Established Reliability

The core features of this machine are the same as the original phoenix or have been re-designed based on the lessons learned from millions of hours of operation. The machine has been extensively validated and undergone rigorous customer testing.

Advanced User Interface

The Phoenix II user interface has the look and feel of a modern laboratory instrument. The simple touch screen user interface is easy to use and allows the simple programing of recipes, visual tracking of the status of the machine and easy access to higher level functionality and service.

ONGOING SUPPORT

The purchase of any XRF Scientific fusion machine, gas or electric, is the beginning of an ongoing relationship where we and our distributors provide you with access to a broad range of support and technical services to meet your fusion needs.

Whether you are new to fusion or a seasoned professional, we have a range of services to increase the accuracy and throughput of your application.

- Advice on appropriate selection of flux and standards
- Organization of platinum remake processes
- Technical advice on difficult fusion issues
- On-site support and preventative maintenance programs

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THE COMPLETE SOLUTION

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Flux
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xrf platinum labware

Labware
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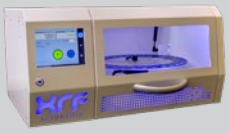
xrf lab equipment



Weighing
The XrWeigh allows the rapid and accurate measurement of flux. Increasing laboratory throughput and process repeatability.

TECHNICAL SPECIFICATIONS
XRF, ICP AND ALKALI FUSIONS

Technical specification	3 or 6 place
Construction	External aluminium case
Lid	Cool touch glass viewing window
Size (H x W x D)	600 x 900 x 650mm H 900mm with lid open
Weight	110kg
User interface	Touch screen user interface
Programmable recipes	Up to 20 user-defined recipes with naming flexibility
Maximum temperature	1150°C (1600°C flame temperature)
Burner	PHOENIX GAS / O2 24 point head
Temperature measurement	Infrared temperature control sensors
Power requirement	50/60Hz, 1-phase, 110/220 Volt
Maximum energy consumtion	5 MJ/HR per burner
Maximum gas flow* 3 place	Full machine main + mould: LPG 4.73 Nl / min; Oxygen 5.4Nl / min
Maximum gas flow* 6 place	Full machine main + mould: LPG 9.46Nl / min; Oxygen 10.8Nl / min
Cradle / mould holders	Inconel or palladium
Crucible	30–40g
Mould	32/40mm, 40–100g
Throughput	Up to 30 beads per hour (with the 6 place)
Safety	Emergency stop button Cold-to-cold operation
Noise	<70db

* regarding gas consumption

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xrf fusion equipment

GOOD REASONS FOR

PHOENIX GO
GAS FUSION MACHINE

A NEW ERA IN GAS FUSION TECHNOLOGY

Advances in our R&D program have allowed us to bring to market this new Phoenix machine that uses gas only, without the need for oxygen and compressed air. You can now experience all of the great features of our Phoenix fusion machine, in a compact and more economical format.

Flexibility

Phoenix GO is designed for the preparation of fused glass disks (XRF) and solutions (ICP). It's also used for fusions with carbonates or peroxides.

Applications for a Wide Range of Industry:

- Iron Ore & Steel Manufacturers
- Bauxite – Alumina & Aluminium
- Mineral Sands including Rutile, Ilmenite, Zircon
- Glass & Ceramics
- Cement
- Industrial minerals – Lime, Limestone, Dolomite, Magnesite and Magnesia
- Geological materials such as Aluminosilicates
- Base Metal (Pb, Zn, Cu, Ni) including Sulphides, Sinters, Silicate, Slags, Mattes
- Ferro Alloys

Programmable Fusion Parameters

- Preheating temperature and duration
- Main heating temperature and duration
- Temperature ramping and set points
- Swirling duration, speed and frequency – multiple speeds in one cycle
- Pouring angle and speed
- Multiple stage cooling
- "Fusion complete" alarm
- XRF or ICP Mode

KEY FEATURES

Simplicity at its best

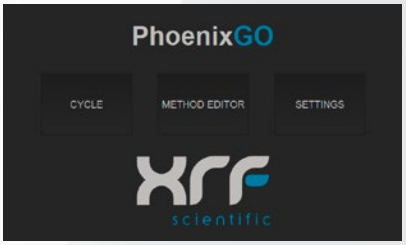
This machine will allow you to plug, play and Phoenix GO. It requires Gas Only to reach the super high temperatures required for even difficult sample fusions.
The design is extremely robust, as is the case with all Phoenix fusion machines.
The perfect flame of a Phoenix is unrivalled and will give your laboratory complete control over the fusion process.

Safe Operation

The gas burners and all high temperature items are enclosed behind a glass door.
All external surfaces are safe to touch.
Burner safety includes fan detection, airflow detection, flame detection on every burner (via thermocouple), standard pilot safety, plus double redundancy on the valve train.

Established Reliability

The Phoenix GO takes all of the great features established by Phoenix fusion machines through millions of hours of operation across the world. If you have ever owned a Phoenix machine before, you will know how low the cost of ownership is and how easy they are to maintain. Just ask us about one of the many customer reference points where a Phoenix has been operating for over 20 years!



Advanced User Interface

The Phoenix GO user interface has the look and feel of a modern laboratory instrument. This simple touch screen interface is easy to use and allows the programming of recipes, visual tracking of the status of the machine and easy access to higher functionality and service.

TECHNICAL SPECIFICATIONS PHOENIX GO

Technical specification	
Construction	External aluminium case
Door	Cool touch glass viewing window
Size (H x W x D)	530 x 763 x 598.2mm
Weight	75kg
User interface	Touch screen user interface
Programmable recipes	Up to 100 user-defined recipes with naming flexibility
Maximum temperature	1100+ °C (typical process temperature)
Burner	Gas-only fan-forced burner – 4-positions
Temperature measurement	Thermocouple near flame (indicative)
Power requirement	50–60Hz, 100–240 Volt AC
Maximum energy consumtion	19.2 MJ/HR per burner
Maximum gas flow*	LPG 27.5Nl/min – All burners operating
Cradle / mould holders	Inconel, hastalloy or palladium
Crucible	30–40g
Mould	32/40mm, 40–100g
Throughput	20 beads per hour
Safety	Emergency stop button, Active burner monitoring Cold-to-cold operation
Noise	<70db

* regarding gas consumption

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ONGOING SUPPORT

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xrf platinum labware

Labware
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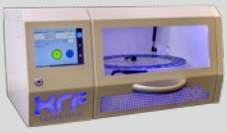
xrf lab equipment



Weighing
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xrf scientific

xrf flux and chemicals

xrf platinum labware

xrf fusion equipment

xrf precision platinum

xrf lab equipment

UNIQUE PRODUCTS FROM ONE SOURCE

WEIGHING AND DRIFT MONITOR

xrf flux and chemicals

UNIQUE PRODUCTS FROM ONE SOURCE

XRF DRIFT MONITORS DATA CALIBRATION MATERIAL

KEY FEATURES

Monitor Composition

The monitors are manufactured as stable fortified glass discs that are used to correct for day to day drift in the x-ray output. It is intensities that matter.
These are not intended as primary standards but are normally used for XRF calibration drift. Each type of monitor has element compositions that are appropriate for the mineral type. Trace element intensities are adjusted to be well above background.

Disc Size

The XRF Drift Monitor discs are manufactured to suit all XRF spectrometers. They have a thickness of approximately 4mm and are polished flat so that they can be mounted precisely and are easily cleaned.

Better Analysis

Because of its efficiency, fusion is often the method of choice for preparing a wide range of samples for analysis by x-ray fluorescence (XRF).
To maintain accurate and consistent results, it is prudent to use Drift Monitors for correction of ageing x-ray tubes and sample preparation variances.

Background

Based upon years of experience Dr Keith Norrish developed Coltide drift correction monitors to ensure ongoing data collected via XRF spectrographic sources was correlated and relative to the sample composition and source.

Dr Norrish has spent his career with Australian CSIRO developing innovative equipment and methods for analyzing soils and clays by x-ray fluorescence. He is recognized as an authority in this field and is a Fellow of the Australian Academy of Science.

XRF Drift Monitors

The main use of an XRF monitor sample is to correct for instrumental drift over time. It is not necessarily a Certified Reference Material (CRM) or calibration standard but can be used to correct for any changes in the calibration due to variation in instrument performance. The monitor should have good long term stability so that XRF instrument programs can be used for long periods without recalibration.

The prime requirement of a monitor is that the count rates for the elements it contains do not change over time. It is not necessary that the count rates of the elements be near those of the samples being analysed, but certain potential errors are reduced if there is an order of magnitude correspondence between the count rates from the monitor and the samples being analysed. Apart from other considerations this minimizes counting times.

AUSMON Monitors

manufactured by XRF Scientific, have excellent long term stability and this enables them to be used to monitor instrument performance and count rates over extensive periods. Where very low concentrations are being determined, the count rate of the monitor is set not to match the analytes, but it is set to obtain a counting error smaller than required for analysis in a short counting time. Where major elements are being determined, and where the spectrometer has a high sensitivity to those elements, the count rate from the monitor has been adjusted not to exceed count rates that cannot be accurately handled by modern measuring equipment.

Instrument Maintenance

The data obtained from regular analysis of the monitor can also be used to evaluate instrument performance and the laboratory environment. Because these drift monitors do not change with time, intensity changes are indicative of some change in the instrument. A decrease in intensities may indicate instrument maintenance is required. For example, it is common for scintillation counters to decrease in efficiency due to moisture reacting with the NaI crystal. When this happens, the shorter wavelengths (eg SnKa) are minimally affected while there is a large decrease in intensity for longer wavelengths, (eg FeKa).

Checking Instrument Performance

Since the monitors vary very little, different laboratories can compare intensities from the monitor to check that the instruments are giving acceptable performance.

AUSMON – "Silicates & General" contains 53 elements, so it is possible to make a comparison using all the selectable parameters, ie changing crystals, detectors and collimators, etc.

Composition

This monitor contains the following elements as majors:

Fe_2O_3	MnO	TiO_2	CaO	K_2O	SO_3
2.7%	1.0%	1.0%	1.5%	1.9%	1.7%

P_2O_5	SiO_2	Al_2O_3	MgO	Na_2O	F
1.5%	24%	11.7%	10.3%	5.7%	5.7%

Additionally the sample contains approximately 0.2 – 0.5% of each of the following:
Sc, V, Cr, Co, Cu, Ni, Zn, Ga, Gd, Ge, Se, As, Rb, Sr, Br, Cl, Y, Zr, Nb, Mo, Ag, Cd, Sn, Sb, Te, Cs, Ba, La, Ce, Nd, Pr, Sm, Yb, Hf, Ta, W, Bi, Pb, Tl, Th & U.

Standard Types*

Standard Types*	No. of Elements	Stock Code
Silicates & General	53	1201010
Majors	Si, Al, Mg, Na, Fe, Mn, Ti, Ca, K, F, S, P	
Minors	Sc, V, Cr, Co, Cu, Ni, Zn, Ga, Gd, Ge, Se, As, Rb, Sr, Br, Cl, Y, Zr, Nb, Mo, Ag, Cd, Sn, Sb, Te, Cs, Ba, La, Ce, Nd, Pr, Yb, Sm, Hf, Ta, W, Bi, Pb, Tl, Th, U	
Iron Ores	30	1201020
Majors	Fe, Si, Al, Ca, F, Na, Mg, Ti	
Minors	P, S, Cl, K, V, Cr, Mn, Co, Ni, Cu, Zn, As, Br, Sr, Zr, Sn, Ba, Pb, Mo, Cd, Sb, Bi	
Bauxite	31	1201030
Majors	Al, Fe, Si, Ca, F, Na, Mg, Ti	
Minors	P, S, Cl, K, V, Cr, Mn, Co, Ni, Cu, Zn, As, Br, Sr, Zr, Sn, Ba, Pb, Mo, Cd, Sb, Bi, Ga	
Mineral Sands	40	1201040
Majors	Ti, Fe, Zr, Si, Y, La, Ce, F, Na, Mg, Al	
Minors	P, S, K, Pr, Nd, Yb, Cl, Ca, Sc, V, Mn, Cr, Co, Ni, Cu, Zn, Br, As, Sr, Nb, Mo, Cd, Sn, Sb, Ba, Hf, Pb, Th, U	
Cement	23	1201050
Majors	Ca, Si, Al, Mg, Fe, Na, Cl, S, F	
Minors	P, K, Ti, Cr, Mn, Ni, Zn, Sr, As, Se, Br, Ba, Tl, Pb	
Manganese Ores	15	1201070
Majors	Mn, Fe, Si, Na, Mg, Al, Ti, Ba, V	
Minors	P, K, Ca, Sr, Br, Pb	
High Nickel Products	25	1201080
Majors	Ni, Fe, S, Si, F, Na, Mg, Al	
Minors	P, Cl, K, Ca, Ti, Mn, Cr, Co, Cu, Zn, As, Se, Br, Mo, Ag, Pb, Bi	
Rare Earths	39	1201090
Majors	La, Ce, Nd, Y, Al, Mg, Si, P, Na, Fe	
Minors	Pr, Sm, Eu, Tb, Gd, Dy, Ho, Er, Tm, Yb, Lu, F, S, Cl, K, Ca, Sc, Ti, Mn, Ni, Br, Sr, Zr, Nb, Ba, Hf, Pb, Th, U	
Sulphides	Copper, Lead, Zinc & Nickel Sulphide Ores 32	1201100
Majors	Pb, Zn, Fe, Cu, Ni, S, Na, Mg, Al, Si, P, Ca, As, Sb, Bi	
Minors	Cl, K, Ti, Co, Cr, Mn, Se, Ag, Cd, Sn, Ba, U, Mo, Te, Tl, F, Sr	

*Available in both 40mm & 32mm diameter size

Additional types and sizes available upon request.

- We reserve the right to change the design or specification of our products without notice.
- Some of the information contained in this brochure is general in nature and customers should check that it is applicable to their individual circumstances.

DO YOU CATCH THE “DRIFT”?

Recent discussion within the industry has highlighted the importance of monitoring the intensity drift of X-ray tubes operating within XRF spectrometers used in the analysis of wide ranging materials. XRF Drift Monitors allow you the analyst the ability to produce accurate and factorial information that can be relied upon each time.

By running the Drift Monitor within the spectrometer on a regular basis the deterioration of intensities can be monitored and known adjustments made to calculate the most accurate data available. Obviously this is one of the many products in the chain of XRF sample preparation process and assists in liquid, pressed powder pellet and glass disk analysis.

XRF Scientific manufacture high quality Drift Monitors across the commonly known Ausmon range through to specific characterisations applicable to dedicated industries.

Purity of raw materials and low lithium borate content enables us to produce stable, long life, high quality disks. All disks are individually precision ground to obtain a meticulous flat surface and microscopic inspections ensure consistent high quality products every time.

THE COMPLETE SOLUTION

In addition to high-quality XRF Drift Monitors, XRF Scientific also supply and support, through a worldwide distribution network, a wide range of products for your XRF analyses.

Every time you buy from XRF Scientific, you can be assured of:

- Prompt deliveries internationally;
- Quality products; and
- Ongoing support.

xrf fusion equipment

Fusion machines

We manufacture fully automated electric or gas operated fusion machines. Safe, easy and reliable to operate and suitable for various numbers of samples handled per day.

ONGOING SUPPORT

The purchase of any XRF Scientific fusion machine, gas or electric, is the beginning of an ongoing relationship where we and our distributors provide you with access to a broad range of support and technical services to meet your fusion needs.

Whether you are new to fusion or a seasoned professional, we have a range of services to increase the accuracy and throughput of your application.

- Advice on appropriate selection of flux and standards
- Organization of platinum remake processes
- Technical advice on difficult fusion issues
- On-site support and preventative maintenance programs

Please see our website for more details of our representatives in your area: www.xrfscientific.com

xrf flux and chemicals

Flux

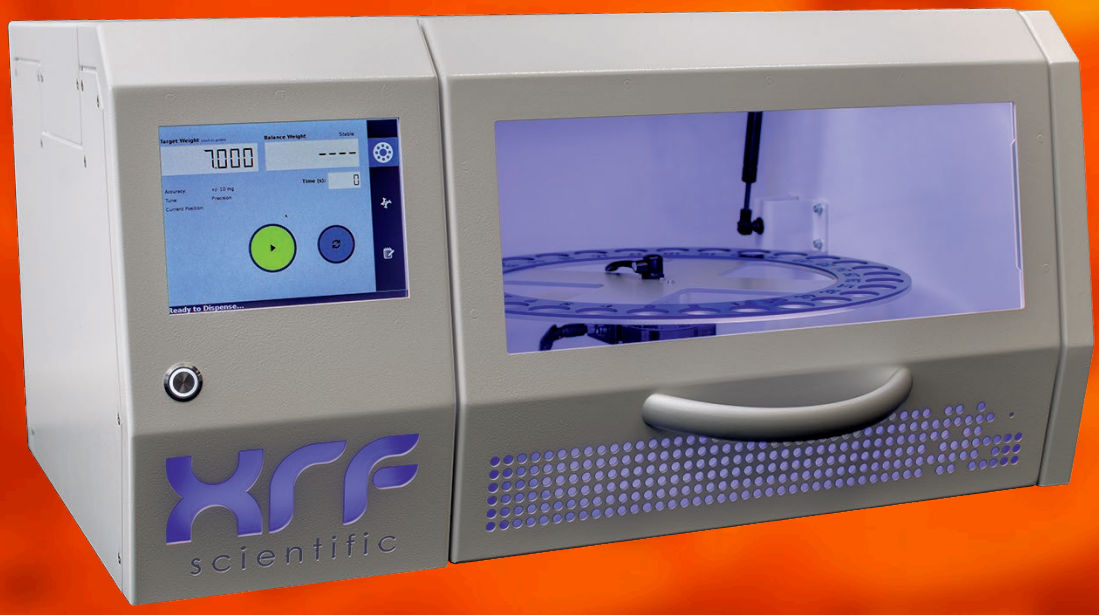
We are the world’s pre-eminent manufacturer of flux. We can provide standard borate fluxes or custom solutions to meet your specific needs.

xrf platinum labware

Labware

We manufacture labware for all our fusion instruments in house. We can also provide a remake service for the transfer from other labware designs.

xrf lab equipment



GOOD REASONS FOR

XrWeigh Carousel
FLUX DOSING EQUIPMENT

ACCURACY AND PRODUCTIVITY WHEN YOU NEED IT MOST

The XrWeigh Carousel has been developed for the fast accurate measurement of flux and other powder based chemicals for precision applications. In a typical laboratory environment the introduction of the XrWeigh Carousel will reduce the time needed for manual weighing by up to 75%.

The instrument is also simple to use with an easy to follow user interface, requiring little or no training. A range of weights and tolerances are configurable and can be optimized for the combination of speed and accuracy for each method.

THE BOTTLE SWITCHING BENEFIT

To change between different types of flux or to store the remaining flux when the system is not in operation is just a simple turn of the bottle away.

The small amount of flux in the distribution system will automatically be removed. This keeps moisture effectively away from the flux as well.

KEY FEATURES

Simple Bottle Switching
The XrWeigh system makes it easy and cost efficient to operate the flux storage. The flux simply stays in the bottle.
A specially designed lid guarantees a secure connection between the bottle and the flux distribution system of the XrWeigh.

Simple Operation
“One touch” operation, just turn it on! Attach flux bottle, set your target and let the Carousel do the rest.

Reliable
Based on the existing single system architecture, simple modular design, extensively tested.

Easy Clean
Simple flux bottle replacement, easy access for cleaning, low maintenance.

Fast
Weigh 30 vials of flux in less than 20 minutes.

Streamline your Process!

The XrWeigh Carousel takes the hard work out of flux weighing, removing a repetitive task from your laboratory while improving accuracy and traceability.

ONGOING SUPPORT

The purchase of an XRF Scientific weighing machine is the beginning of a relationship where we provide access to a range of support and technical services to meet your fusion needs.

Whether you are new to fusion or an experienced user we have a range of services to increase the productivity and throughput of your application.

- Advice on appropriate selection of flux and standards
- Organization of platinum remake processes
- Technical advice on difficult fusion issues
- On-site support and preventative maintenance programs

Please see our website for more details of our representatives in your area: www.xrfscientific.com

THE COMPLETE SOLUTION

xrf flux and chemicals

Flux
We are the world's pre-eminent manufacturer of flux. We can provide standard borate fluxes or custom solutions to meet your specific needs.

xrf platinum labware

Labware
We manufacture labware for all our fusion instruments in house. We can also provide a remake service for the transfer from other labware designs.

xrf fusion equipment

Fusion machines
We manufacture fully automated electric or gas operated fusion machines. Safe, easy and reliable to operate and suitable for various numbers of samples handled per day.

TECHNICAL SPECIFICATIONS

Technical specification	Carousel
Capacity	30 vials
Speed*	> 90 vials per hour (depending on volume and accuracy requirements)
Accuracy	≤ 1mg (speed dependent)
Height	420mm
Width	750mm
Depth	600mm
Weight	35kg

*dependant on flux type

We reserve the right to change the design or specification of our products without notice. Some of the information contained in this brochure is general in nature and customers should check that it is applicable to their individual circumstances.

xrf scientific

xrf flux and chemicals

xrf platinum labware

xrf fusion equipment

xrf precision platinum

xrf lab equipment

UNIQUE PRODUCTS FROM ONE SOURCE

FLUX

flux and chemicals

GOOD REASONS FOR

PURE & PRODUCTIVE FLUXES

KEY FEATURES

Quantifiable Pure Products

- Lithium Borate
- Internal Standard
- Fully Integrated Additives

Prior Preparation – Ready for Fusion

Open the flux vial, place upon the analytical balance adding the sample weight, recap and shake to mix.

Pre-weighed Plastic Vials

- Pre-weighed flux vials provide the laboratory with a clean & efficient way for sample.
- Store in rack ready to use preparation.

Available Material Structure

- granular
- beaded (spherical)

Immediate Use

Open the pre-weighed flux vial, pour directly into the crucible and add the corresponding sample weight.

Couldn´t find the perfect match ...?

Just contact us and we find the matching product together. We manufacture custom-made products exactly to your specification. Or our application chemists will help you develop and implement the needed solution.

Standard Flux Types

Standard Fluxes without additives	Granular		Micro Beads
	Standard 2 kg Poly Jar	1 kg Poly Jar*	1 kg Poly Jar
LT-100 (Lithium Tetraborate 100%)	1020100	1020100KG	1020100MB
66:34 (LiT 66.0% : LiM 34.0%)	1013800	1013800KG	1013800MB
50:50 (LiT 50.0% : LiM 50.0%)	1007300	1007300KG	1007300MB
12:22 (LiT 35.3% : LiM 64.7%)	1003200	1003200KG	1003200MB
LM-100 (Lithium Metaborate 100%)	1017800	1017800KG	1017800MB

Fluxes plus release (non wetting) agent Lithium Bromide (LiBr)	Granular		Micro Beads
	Standard 2kg Poly Jar	1kg Poly Jar*	1kg Poly Jar
LT-100 (Lithium Tetraborate 100%) + 0.5% LiBr)	1019200	1019200KG	1019200MB
66:34 (LiT 66.0% : LiM 34.0%) + 0.5% LiBr	1012500	1012500KG	1012500MB
50:50 (LiT 50.0% : LiM 50.0%) + 0.5% LiBr	1008500	1018500KG	1008500MB
12:22 (LiT 35.3% : LiM 64.7%) + 0.5% LiBr	1001300	1001300KG	1001300MB
LM-100 (Lithium Metaborate 100%) 0.5%LiBr	1017820	1017820KG	1017820MB

Fluxes plus release (non wetting) agent Lithium Iodide (LiI)	Granular		Micro Beads
	Standard 2kg Poly Jar	1kg Poly Jar*	1kg Poly Jar
LT-100 (Lithium Tetraborate 100%) + 0.5% LiI	1019300	*	*
66:34 (LiT 66.0% : LiM 34.0%) + 0.5% LiI	1012600	*	*
50:50 (LiT 50.0% : LiM 50.0%) + 0.5% LiI	1008600	*	*
12:22 (LiT 34.3% : LiM 64.7%) + 0.5% LiI	1001400	*	*
LM-100 (Lithium Metaborate 100%) +0.5%LiI	1017825	*	*

Mold Release Agents

Release Agents / Non-Wetting Agents (NWA)	Size	
Lithium Bromide Assay >99.5%min	1016700	1kg Poly Jar
Ammonium Iodide anhydrous Powder >99.5% min	1016400	500g Poly jar
Ammonium Iodide tablets	1016500	1500 tablets per Jar

Notes:

* 1 kg Poly Jar available upon request

Many other custom formulations available on request

Standard Flux Plus:
Oxidisers & / or Non Wetting Agents (NWA)

Lithium Nitrate ($LiNO_3$) Fluxes	Granular		Micro Beads
	Standard 2kg Poly Jar	1kg Poly Jar*	1kg Poly Jar
LT100 Granular + 5.0% Lithium Nitrate	1022005	*	*
12:22 Fine Grind + 4.0% Lithium Nitrate	1005800	*	*
12:22 Fine Grind + 5.0% Lithium Nitrate	1005900	*	*
12:22 Granular + 10.0% Lithium Nitrate	1001800	*	*
12:22 Granular + 2.0% Lithium Nitrate	1002200	*	*
12:22 Granular + 4.0% Lithium Nitrate	1002500	*	*
12:22 Granular + 4.0% Lithium Nitrate + 0.5% Lithium Bromide	1002510	*	*
50:50 Granular + 10.0% Lithium Nitrate	1010450	*	*
66:34 Fine Grind + 4.0% Lithium Nitrate	1015300	*	*

Sodium Nitrate ($NaNO_3$) Fluxes	Granular		Micro Beads
	Standard 2kg Poly Jar	1kg Poly Jar*	1kg Poly Jar
12:22 Fine Grind + 12.82% Sodium Nitrate	1005400	*	*
12:22 Fine Grind + 20.0 % Sodium Nitrate	1005700	*	*
12:22 Fine Grind + 20.0 % Sodium Nitrate + 0.025% Lithium Bromide	1006200	*	*
12:22 Fine Grind + 5.0% Sodium Nitrate	1006000	*	*
12:22 Granular + 10.0% Sodium Nitrate	1001900	*	*
12:22 Granular + 12.82% Sodium Nitrate	1002000	*	*
12:22 Granular + 15.0% Sodium Nitrate	1002100	*	*
12:22 Granular + 20.0% Sodium Nitrate	1002400	*	*
12:22 Granular + 5.0% Sodium Nitrate	1002700	*	*
12:22 Granular + 12.82% Sodium Nitrate + 0.5% Lithium Bromide	1002010	*	*
50:50 Granular + 12.82% Sodium Nitrate + 0.5% Lithium Bromide	1008850	*	*
66:34 Fine Grind + 20.0% Sodium Nitrate	1015200	*	*
66:34 Granular + 12.82% Sodium Nitrate + 0.5% Lithium Bromide	1013200	*	*

Miscellaneous

Silicon Dioxide (SiO_2, granular 75-150 µ), assay 99.99% min.	1 kg Poly Jar	1016900
Synthetic Iron Ore Calibration Standard	100g Jar	1017300

Notes:

* 1 kg Poly Jar available upon request

Many other custom formulations available on request

OVERVIEW

From raw material through to final product our flux uniquely provides the modern laboratory with a quality that enables elemental analysis with limited background interference.

The source of our raw material is monitored and provides the basis to consistent and quantitative results.

Our product range delivers you with choice, across the various ratios of Lithium Tetraborate and Lithium Metaborate in both **granular** and **beaded (spherical)** form.

XRF Fluxes are non-hygroscopic vitreous particles across both product forms either granular or beaded (spherical). With a density level to ensure the flux in the crucible does not exceed more than 50% capacity and **a consistent low LOI (water content <0.04%)** that will maintain the sample:flux ratio in line with good analytical results.

All XRF Fluxes are **fully analysed and documented across 20 relevant elements** providing you, the analyst, with the reassurance of not having to necessarily re-calibrate the spectrometer with each delivery/batch.

Integrated additives such as $LiNO_3$ and $NaNO_3$ support the oxidization consistently and thoroughly. These compounds may be combined with LiI or LiBr as a release / non-wetting agent (NWA) to maintain dependable quantitative results. The end user can be assured that no matter which formulation is used, either with or without additives, the basis to your best practice analytical process will remain constant.

Our stock holdings are maintained at a level to **eliminate delays in supply**, providing you with the comfort and continuity of production.

XRF Scientific Ltd is the World's pre-eminent manufacturer of **quality, cost effective, borate fluxes**. We can provide standard borate fluxes or custom blends to meet your specific needs.

xrf lab equipment

Weighing

The XrWeigh machines allow the rapid and accurate measurement of flux.

- Problem-free sample preparation
- Simple individual flux weighing
- Increasing laboratory throughput and process repeatability
- Inclusion of auto-sample ratio calculation
- Pre-weigh 30 vials in 20 minutes

xrf fusion equipment

Fusion Machines

We manufacture fully automated electric or gas operated fusion machines. Safe, easy and reliable to operate and suitable for various numbers of samples handled per day.

xrf platinum labware

Labware

We manufacture labware for all our fusion instruments in house. We can also provide a remake service for the transfer from other labware designs.

BENEFIT FROM OUR GLOBAL NETWORK

SERVICE. SUPPORT. SCIENCE. UNIQUE PRODUCTS FROM ONE SOURCE.

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