



# Fusion for AA, XRF and ICP Analysis

Sample preparation for challenging matrices

- **Katanax® Electric Fusion Fluxers**

Fluxers provide advanced sample preparation of challenging solid/semi-solid matrices for XRF and ICP analysis. Transform your workflow with electric X series fluxers, a repeatable technique for sample preparation paired with automation to produce accurate sample results.

- **Method Development Assistance**

New to fusion or updating an existing process? Our team is here to assist in seamless adoption and integration of our fusion fluxers.

- **Sample Homogenization**

Modernized mills ensure sample uniformity through efficient sample pulverization and grinding.

- **Equipment, Supplies and Consumables for ICP**

Environmental Express metals testing focus is on improving lab workflows through time-saving supplies, equipment and support.



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## X-100

### GOOD



The X-100 fluxer is a compact, entry-level model offering reliable, automated XRF and ICP analysis

## X-300

### BETTER



The X-300 fluxer provides flexible capacity with one to three sampling positions, advanced benefits, and automated operation, making it ideal for increasing sample workloads

## X-600

### BEST



Built with the most demanding high-throughput labs in mind, the X-600 fluxer combines speed, simplicity and a robust design for superior results



# Electric Fusion Fluxers

Sample preparation for AA, XRF and ICP analysis

## What is fusion?

Fusion is a sample preparation technique used to deconstruct and homogenize challenging solid/semi-solid inorganic materials in preparation for analysis by x-ray fluorescence (XRF), inductively coupled plasma (ICP), atomic absorption (AA), or traditional wet chemistry. This sample preparation process is commonly applied to a wide range of materials supporting mining, cement, ceramics, and soil industries. Fusion can produce either a homogeneous glass disk (or bead) for XRF analysis or an acid solution for other methods.

## Competitive advantages

### Reliability/Versatility

- Robust heating elements, motors, and electronics
- Precise temperature control for accurate and reproducible sample preparation
- High throughput, up-to 30 samples per hour (X-600)

### Simplicity

- Automated processes and touchscreen interface for ease-of-use
- Preloaded fusion programs and customization options for alternate protocols
- Connectivity and data logging features for diagnostic monitoring and sample tracking

### Safety

- Cold-to-cold self-contained process
- Gas-free, no hot flames or heat leakage
- No microwave, removing the need for use of dangerous acids like HF or HClO<sub>4</sub>

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Scan the QR code to find out more about our electric fusion fluxer options





## X-100 Electric Fusion Fluxer

Effortlessly transform your lab with proven fusion technology

- The most compact version of our X series fluxers for entry level laboratories
- Electric Fusion Fluxer for sample preparation versatility for XRF (beads) or ICP Analysis (solution)
- Identical reliability and accuracy to our larger X series fluxers
- Independent self-contained operation with fully automated heating and sample processing
- Limited footprint for minimal impact to existing lab space and limited site setup requirements
- Easy-to-operate with colored process indicators and touch screen user interface

### Seamless Fusion for First-Time Users

- Experience fully automated cold-to-cold sample preparation with a touch screen interface that provides real-time temperature and status updates along with colored process indicators

### Designed for Laboratory Safety

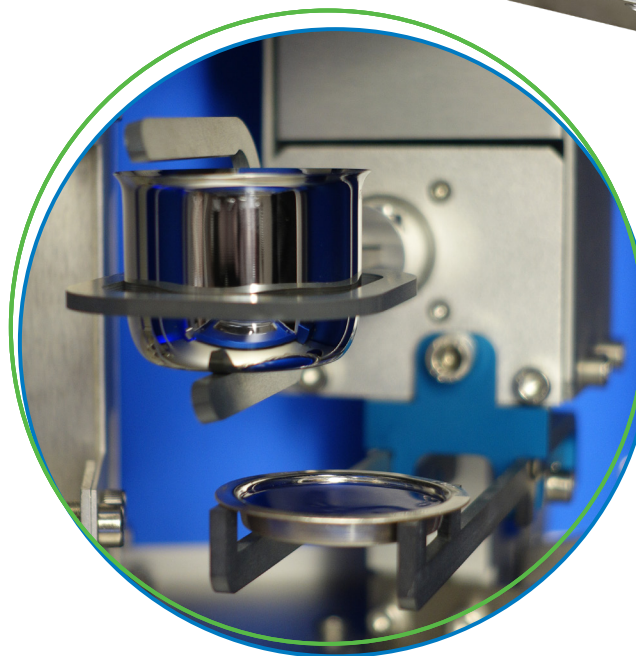
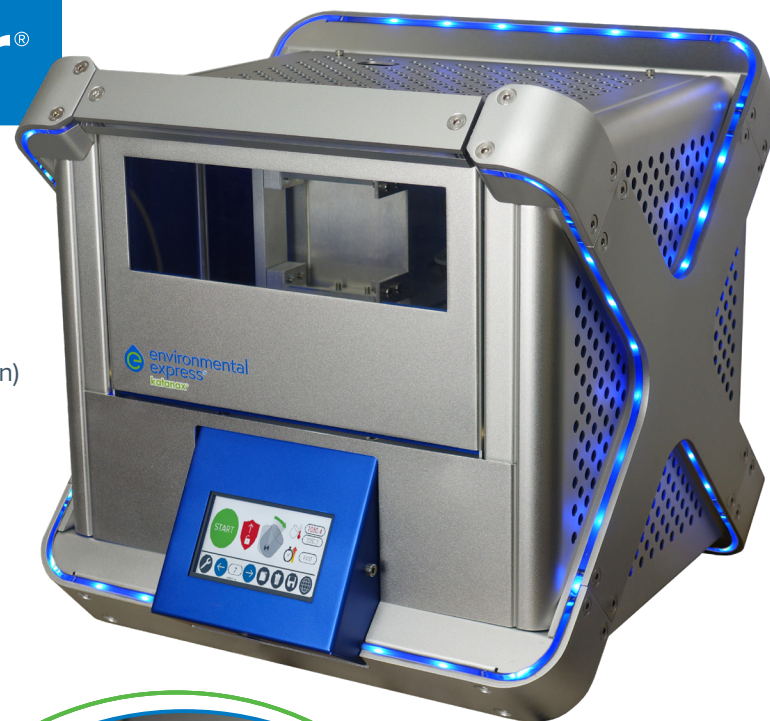
- Eliminates the need for dangerous HF methods
- Self-contained preparation method, cold-to-cold
- Compact cubic size of only 42 cm with no external power supplies

### Reliability and Dependable Accuracy

- Achieve reproducible results with fully automated X series Fluxer functionality and customizable methods for single sample capacity
- Ensure optimal pouring conditions with integrated mold and crucible and cartridge-based heating elements resistant to flux and chemicals

### Versatility for any Metals Testing Workflow

- Produces glass disks for XRF analysis and dissolved metal solutions for ICP-MS analysis, including peroxide or pyrosulfate fusions
- Switch between disk and solution modes quickly and easily with capabilities for both solid and liquid oxidation



## Method Development Assistance

### Complimentary Fusion Method Development Service

Interested in discovering how your sample can be processed using fusion? Unlock the potential of your samples with our free fusion method development service.

Scan the QR code below to complete the questionnaire, send us your ground sample, and our team will assist in the development of a customized fusion method tailored to your needs.



## Consumables and Supplies

### Lithium Borate Fluxes

Katanax® provides a full range of high-quality, high-purity fusion fluxes used in combination with our top-of-the-line fluxers.

- Outstanding purity and homogenous pre-fused composition for interference free analysis
- Fluxes are available in pure analytical (99.99% purity) and ultra-pure (99.998+% purity) grades
- **Micro-bead form:** spherical flux particles limit water absorption properties to prevent humidity issues, eliminate dust to avoid weighing errors, and feature high density to prevent crucible overflows
- **Granular form:** optimal mixing properties ensure the sample adheres to the crystals and prevents layer segregation, crystallin uniformity reduces the risk of phase shift and the popcorn effect, and high density prevents crucible overflows



### Platinum Crucibles and Molds

- Available in standard, reinforced, and shallow
- Fluxers accept standard crucibles with a 30 ml capacity, straight-walled with flared top design, 32 mm height, 40.5 mm outer diameter, and are made of 95% Pt-5% Au for borate fusions or 100% zirconium for peroxide fusions



## Sample Homogenization

Thorough sample pulverization and versatile grinding options

A critical step for preparing fusion samples, modernized mills streamline the sample preparation process, ensuring a homogeneous and finely ground sample that enhances the repeatability and uniformity of prepared samples ultimately leading to more consistent and accurate results.

### Cole-Parmer® Spex® Mixer/Mill® High-Energy Ball Mills

Easily pulverize hard or brittle samples to analytical fineness in minutes

- Grind rocks, minerals, grains, pharmaceuticals, plant and animal tissue, cement, and ceramics
- Accepts a wide selection of grinding and mixing vials
- Programmable 100-minute timer
- Each clamp grinds up to 10 grams or mix up to 50 mL of sample

### Cole-Parmer® Spex® ShatterBox® Versatile Ring and Puck Mill

Grind your samples with minimal loss in a soundproof enclosure

- Accommodates various grinding setups for various materials
- Sound-insulated steel cabinet
- Electronically controlled, fully reproducible grinding methods



## Sample Prep Equipment and Accessories

Available at [coleparmer.com](http://coleparmer.com)

Product	Description	Item number
BM-450 Mixer/Mill	Dual-Clamp High-Energy Ball Mill; 115 VAC, 60 Hz	<b>EW-04578-10</b>
	Dual-Clamp High-Energy Ball Mill; 230 VAC, 50 Hz	<b>EW-04578-11</b>
	Single-Clamp High-Energy Ball Mill; 115 VAC, 60 Hz	<b>EW-04578-12</b>
	Single-Clamp High-Energy Ball Mill; 230 VAC, 50 Hz	<b>EW-04578-13</b>
SM-300 ShatterBox	Versatile Ring and Puck Mill; 115 VAC, 60 Hz	<b>EW-41010-83</b>
	Versatile Ring and Puck Mill; 230 VAC, 50/60 Hz	<b>EW-41010-84</b>
Grinding Vial Set	8001 - Hardened Steel, 65 mL	<b>EW-04576-56</b>
	8004 - Tungsten Carbide, 55 mL	<b>UX-04576-59</b>
Grinding Container	8501 - Hardened Steel, 270 mL	<b>UX-04576-75</b>
	8504 - Tungsten Carbide Lined, 240 mL	<b>UX-04576-76</b>





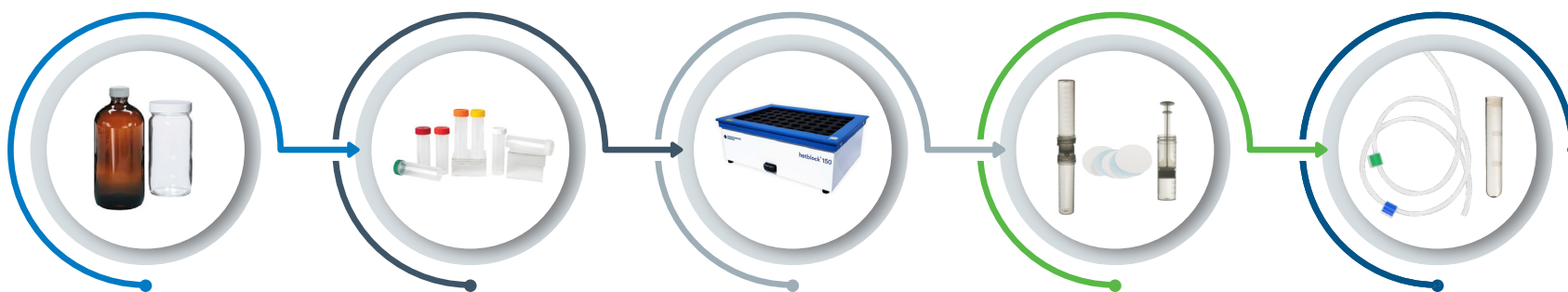
## Supplies and Consumables for ICP

Sampling and digestion of trace metals for all method requirements

- Environmental Express digestion tubes are molded clarified homopolymer polypropylene, safe at standard digestion temperatures with greater chemical resistance than the commonly used co-polymer polypropylene
- Certified at multiple levels of metals background spanning most international regulation for metals analysis, i.e. EPA, ASTM, NIOSH
- Each tube is designed for sampling, transport and/or digestion, and fits perfectly into the HotBlock® or AutoBlock® systems
- Single-use tubes eliminate the need for glassware and associated cleanup
- Linerless caps and accessories such as reflux caps, watch glasses, and filtration devices available



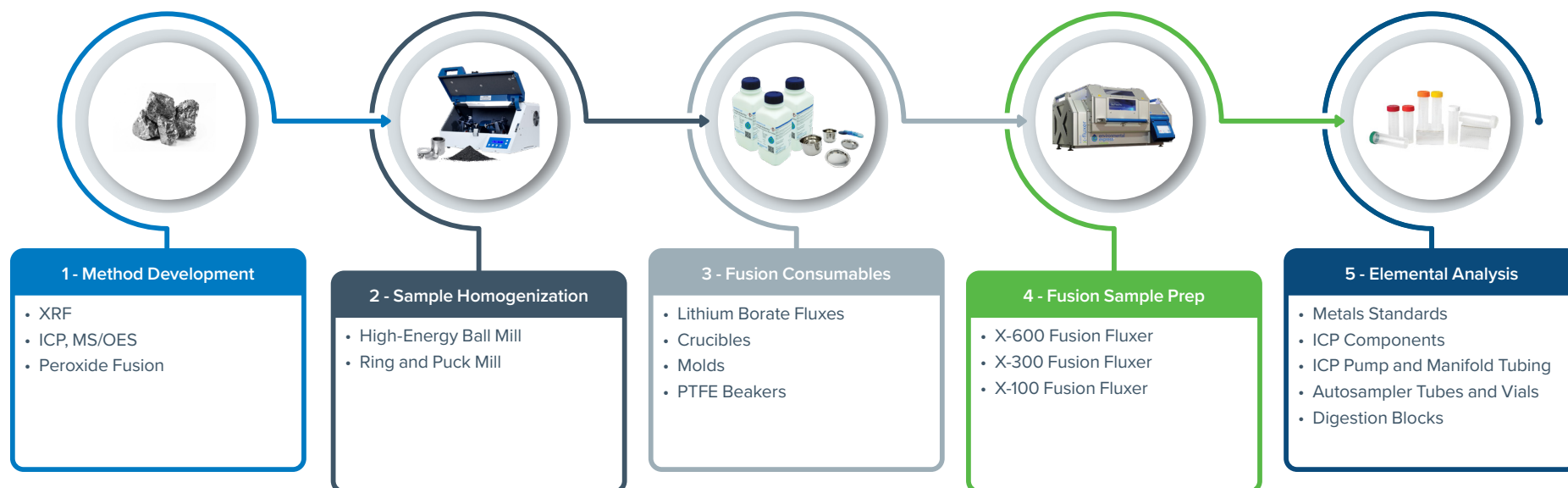
## Trace metals analysis: From sample collection to results



Additional equipment, supplies and consumables to support metals analysis workflows are available on [environmentalexpress.com](http://environmentalexpress.com)



## Inorganic Sample Preparation by Fusion for AA, XRF and ICP analysis



The combination of Environmental Express, Cole-Parmer, and Katanax provides a total solution for preparing challenging matrices for testing, producing accurate and reproducible results day in and day out.