

# Multiple Sample Fusion For XRF And LOI Analyzer (Simultaneous Fusion + LOI In The Same Cycle)



**Navas Instruments**

**AFS - 5000 Series .. 12 - 16 Beads**

It is well known the sample preparation (bead making) for XRF is essential to obtain accurate results in any XRF analyzer, it has been proven in many instances glass bead is the best way to obtain increased accuracy compared to the press pellet method.

Presently the bead making method by fusion furnaces is cumbersome, very much operator involvement and time consuming, it is almost like an experimental method every time since the present bead making by fusion furnaces does not provide any information on the process, this fusion furnaces simply melt the borate and the samples.

Navas fusion system + LOI analyzer is a single furnace module plus external balance and PC or laptop USB connected.

It includes two balances: one internal below furnace for LOI calculations and one external used to obtain initial crucible, sample and flux weights. Internal balance for LOI determination and external balance for flux and sample dosing.

There has been a lot of work done to standardize this process but with no tools to provide information on the fusion process it has been a trial and error method, not very effective.

Navas Instruments (Patent Pending) fusion and LOI system does make bead making for XRF, simple, repetitive, not as much operator dependent and also providing information on the fusion process that can be used by the XRF spectrometer for simplicity and accuracy.

For those still requiring LOI the conventional way by TGA, Navas Instruments fusion and LOI system can optionally provide software and quartz or ceramic crucibles to perform LOI analysis in the same fusion machine with up to 16 samples in a separate cycle than fusion and temperatures to 1150 °C

## Benefits

- Electric furnace, 1150 °C (Low power : 2 KW), NO danger of explosion, does not use gas
- Analyzes loss on ignition (LOI) and provides beads in the same instrument, simultaneously
- Simple, Reliable, Modular, Robust design and construction
- Bench type instrument with high throughput at a reasonable price
- There is no pouring, only platinum-gold moldables used
- Advanced automation technology, requires little operator involvement
- Minimal moldable cleaning needed, only after 20 - 30 uses, not required after each use
- Easy to use and intuitive software in Windows
- Up to 16 bead simultaneously
- PC or laptop controlled instrument by USB

Navas Instruments

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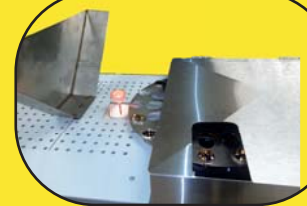
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## Navas Instruments AFS – 5000 Competitive Comparison

Feature	Navas	Competitors
Auto-loader	Fully automatic	None
Power requirements	Approx. 2 KW	Varies; up to approx. 6.8 KW (Three phase)
Enclosed furnace	Enclosed furnace saves energy, and reduces operating costs	Exposed furnace loses energy with each batch, and increases costs of reheating unit and air conditioning the lab
Variety sizes available	Tailored to meet the requirements of the individual lab. 12, 16, bead models available	1-6 Beads – Maximum
Upgradeable size	12, bead model upgradeable without requiring the purchase of an additional instrument	None
Operation and control	Desktop or laptop PC controlled by USB for versatility and expandable functionality	Limited micro controller operation
Available balances	Two balances. One internal, one external	None
Dosing included with instrument	Manual weighing of flux and sample dosing with PC, upgradeable to automatic flux dosing	None
Available L.O.I	Simultaneous L.O.I	None
Crucibles/Moldable	Crucibles are moldable. Cleaning is reduced to every 20–30 operations	Crucibles must be cleaned each use
Furnace components	Robust, all ceramic components inside furnace	Furnace with metal parts supplemented with fragile ceramic components

## Navas Instruments AFS – 5000 Technical Specifications

Number of beads	12, 16 Models available (Easily expandable)
Software features	Unlimited number of fusion programs, Open database connectivity, Customizable reports, data export to TXT, CSV and XLS files to LIMS or Microsoft Excel
LOI Weight loss/gain range	0 ~ 100 %
Balance sensitivity	0.1 mg
LOI Precision	Provided by balance resolution
Temperature range	200 ~ 1150 °C ±1 °C
Instrument control	Desktop or Laptop PC with USB
Dimensions (Width x Length x Height)	43.7" x 23.62" x 22.44" + 13" Auto-loader (111 cm x 60 cm x 57 + 33 cm)
Weight	265 LB (120 KG)
Power supply	220V AC (2 KW)



*Autoloader loading or unloading a crucible in the furnace*



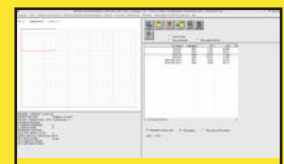
*Furnace carousel with samples inside*



*Furnace balance with 4 decimal places*



*Operator removing a bead from autoloader using a sucker*



*Easy to use Windows operational software*