Malvern Panalytical
a spectris company

Revontium

Endless possibilities

Brochure 2024

Welcome to a new age of elemental analysis

Enjoy performance without compromise

What if you could strike the right balance between powerful analysis, seamless operation, and low cost of ownership for your elemental analysis?

Gaining accurate, reliable information from elemental analysis has never been more important – it's critical to the success of applications in many industries. But finding an instrument that can keep pace with these goals is easier said than done. Instruments that are difficult to use can not only affect uptime but also lead to human error, which can make you hesitant to switch to a new system.

We're introducing the first-ever compact X-ray fluorescence (XRF) spectrometer to address this challenge: Revontium™. An ideal solution for innovation and production, this compact instrument bridges the performance of floor-standing XRF and inductively coupled plasma spectrometry (ICP) instruments, and the advantages of table-top instruments.

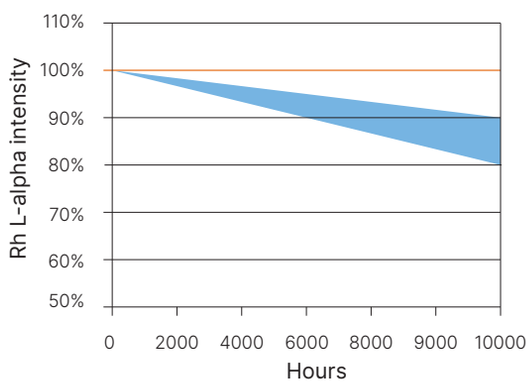
Compact XRF brings a smaller physical and environmental footprint, and a cost of ownership that can be more than 25% lower – thanks to a reduced need for consumables, extensive sample preparation, and maintenance. Alongside these benefits, Revontium's intuitive hardware and software features make operation easy, freeing time for you to focus on other tasks. The result? Reliable, high-quality elemental data, achieved more sustainably.

Benefit from...

- Accuracy that lasts
- Ultimate efficiency
- Lower cost of ownership
- Full flexibility
- A smaller environmental footprint
- Easy operation

Accuracy that lasts

Traditionally, experts performing elemental analysis have had to choose between speed and highly accurate data. Slow feedback loops created a dilemma between data that was still usable and data that was detailed enough. Instead of the instrument serving the needs of the lab, the lab had to work around the instrument.



With Revontium, you can account for every signal in your XRF spectrum – thanks to careful design and high-quality hardware and software components. Revontium's close-coupling, patented X-ray tube was designed specially for the instrument, and its zero-evaporation technology advancement (ZETA) means it has very low drift. Together with features that protect against spillage, this enables long-term stability.

Both the excitation filters on the X-ray tube and the detector filters are also optimized for accuracy. Together with the flexible low-excitation possibility of only 4 kV, which reduces line overlaps, this limits interference from unwanted escape peaks. High-current excitation of 5 mA enables better light-element analysis. And there's even a spinner to help make your results homogenous.

Ultimate efficiency

In the past, elemental analysis instruments often struggled to keep up with the demands of an ambitious lab. Each sample method required extensive training and sometimes long sample preparation times. These limitations often led to long delays in reported results.
With Revontium, you can count on getting high-quality results quickly. The instrument is designed to enable high sample throughput, speedy analysis, and a fast feedback loop. It can detect up to 6 million photons per second within the linear response of the detector. A fast-moving robotic arm on the sample changer will load and unload samples for you during unattended batch measurements.

View of Revontium with sample changer (left) and without sample changer (right)

Several features also minimize downtime. Features like the tube's Chi-blue coating reduce interruptions from spillages. And monitoring from services like Smart Manager allows you to fix any issues quickly. Finally, the intuitive software means you can train new users in under 30 minutes!

Take a glance at your possibilities

Cover with over-pressure to protect samples from dust

Low-noise air cooling removes worries of water spillage

USB and network connections

Tilted 15” touchscreen that adjusts to the user’s height for easy operation

Completely X-ray sealed for full operator protection

Big touchscreen buttons for easy operation and quick training time

Practical footprint of only 0.4 m^2

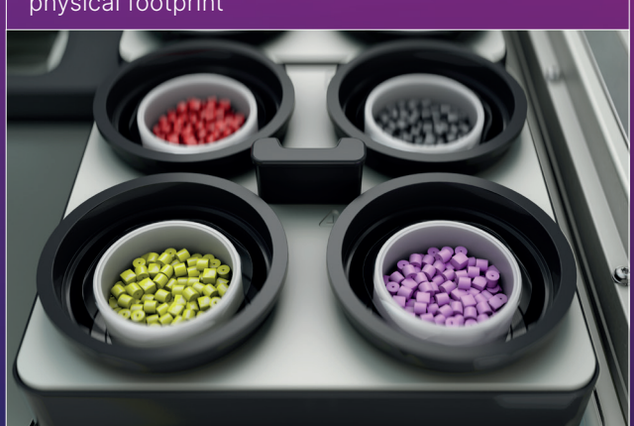
Chi-blue coating of X-ray tube for extra spillage protection

Handles temperatures between 10-30 °C

Robot arm with camera for troubleshooting

Spinner for more homogenous results

Built-in computer to minimize physical footprint



Measures up to 32 samples with 52 mm diameter

Four simultaneous detectors for fast analysis

Lower cost of ownership

The cost of owning an XRF or ICP spectrometer isn't just about the initial purchase, but also training time, investment in consumables and sample-preparation tools, and maintenance. How can you prevent these costs from adding up?

With Revontium, your total cost of ownership will be over 25% lower than with wavelength-dispersive XRF (WDXRF), atomic absorption spectroscopy (AAS), or ICP.

Unlike with ICP, there's less need for consumables such as acids and high-purity gases, and less maintenance required. Revontium also doesn't require the daily calibration that ICP does, making it more available for the actual analysis. Revontium can run in air, which isn't possible for all WDXRF instruments. And, unlike with high-powered WDXRF instruments, there are no chiller costs, thanks to internal cooling.

Finally, you don't need any special infrastructure to install Revontium, and its autonomous operation lets you work more cost-efficiently by doubling up on tasks.

Full flexibility

If you're regularly switching between different types of samples, we've got good news: Revontium can handle almost any type of XRF application.

You can analyze both solids and liquids in the same batch of samples, and the Omnian software option is compatible with any sample type. Plus, the EDXRF spectra and archives give you access to extra – perhaps even unexpected – information to supplement your results.

Of course, for optimum sensitivity, you may need different settings for different samples, which is why the X-ray tube, generator, and software settings are all flexible. And when you've finished your XRF analysis with Revontium, you can even use the same sample with a complementary method like ICP, AAS, or XRD.

A smaller environmental footprint

Whatever your industry, reducing the environmental impact of your operations is probably on your mind. Instruments can be energy-intensive and generate significant waste – and with new regulations continually taking shape, there is a need to bring processes up to the latest standards.

Revontium can contribute to these efforts. Thanks to many sustainability-oriented features, Revontium's power consumption is only 250 watts per hour, compared with 2,000 watts for traditional WDXRF – even with its touchscreen and built-in computer.

You can operate Revontium at anywhere between 10 and 30 °C. Because it works in air as standard, there's no need for helium gas or a vacuum oil pump. If you do use helium, the instrument only consumes 0.5 liters per minute. And not needing gases, potentially dangerous acids, or a chiller helps improve your operations' energy-efficiency and safety even further.

Easy operation

Forget the giant machines of yesterday with their thousands of buttons and complex manuals. Instead, imagine an instrument that is so easy to use that you can focus on your analytical work without worrying about anything else.

This is what Revontium offers. Big buttons and an intuitive overview displayed on a 15" touchscreen make operation smooth and seamless. You can create as many applications as you need yourself with our cutting-edge SuperQ software – or we can support you with this. The built-in monitor will automatically update the applications for you, saving time for other tasks.

Features such as air cooling and the tube's Chi-blue coating also protect against spillages and interference from dusty environments. This means you can operate wherever you like, so there's no need to install extra infrastructure. And wherever you choose to use Revontium, it won't take up much of your valuable workspace, at only 0.4 m².

Open even more possibilities...

...by adding an unlimited number of these software applications to your Revontium instrument.

Omnian: Elemental screening for troubleshooting and working with samples that don't have certified reference materials

Smart Manager: Daily remote monitoring, support, and insight services to optimize your instrument's uptime and usage

Here for you throughout your Revontium's lifespan

Our support won't stop after your Revontium purchase. Backed by more than 60 years of experience in developing and manufacturing XRF equipment, we'll be here to help with maintenance, repairs, upgrades, and advice to help you get the most from your instrument.

Ready for the new age of elemental analysis? Contact us today!

About Malvern Panalytical

We draw on the power of our analytical instruments and services to make the invisible visible and the impossible possible.

Through the chemical, physical and structural analysis of materials, our high precision analytical systems and top-notch services support our customers in creating a better world. We help them improve everything from the energies that power us and the materials we build with, to the medicines that cure us and the foods we enjoy.

We partner with many of the world's biggest companies, universities and research organizations. They value us not only for the power of our solutions, but also for the depth of our expertise, collaboration and integrity.

We are committed to Net Zero in our own operations by 2030 and in our total value chain by 2040. This is woven into the fabric of our business, and we help our employees and customers think about their part in creating a healthier, cleaner, and more productive world.

With over 2300 employees, we serve the world, and we are part of Spectris plc, the world-leading precisionmeasurement group.

Malvern Panalytical. We're BIG on small™

Service & Support

Malvern Panalytical provides the global training, service and support you need to continuously drive your analytical processes at the highest level. We help you increase the return on your investment with us, and ensure that as your laboratory and analytical needs grow, we are there to support you.

Our worldwide team of specialists adds value to your business processes by ensuring applications expertise, rapid response and maximum instrument uptime.

- Local and remote support
- Full and flexible range of support agreements
- Compliance and validation support
- Onsite or classroom-based training courses
- e-Learning training courses and web seminars
- Sample and application consultancy

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