



**Malvern
Panalytical**
a spectris company

Zetium

Petro edition





When you monitor your petrochemical processes closely, you benefit from efficient quality control and early detection of detrimental elements – helping meet the demanding requirements of regulated environments.

The Petro edition of the Zetium spectrometer provides compliant quantitative elemental analysis of petrochemicals, oils, fuels, catalysts, pipe-scaling, and more. To meet your customer's expectations, you can even customize it to your specific budget and performance requirements.

Elemental innovation

Continuous development, improved customer experience

Benefit-driven innovation on the Zetium Petro edition has made it the most powerful multipurpose tool for the analysis of a wide range of fuels, oils, catalysts, and chemicals.

Elemental intelligence

Advanced analytical software for advanced analytical hardware

Now, our SuperQ software is enabling even more technology combinations and analytical possibilities for the Zetium. Its Virtual Analyst also makes setting up and operating the system simpler.

Elemental technology

60 years of experience: The ideal starting point

The Zetium Petro edition is the next generation in a long line of wavelength-dispersive XRF platforms, including Axios, MagiX, and PW2400. Over the years, we've fine-tuned this proven technology – providing a strong foundation for the Zetium platform.

Elemental support

Reliable support – whatever the location

From service and training to laboratory analysis, we support you all the way. With a worldwide network of experienced engineers, plus the industry's largest pool of application scientists, we're always here to help.

Guaranteed compliance

By seamlessly combining our core and innovative technologies, the Zetium Petro edition delivers unrivaled analytical performance, speed, and robustness.

Long-term measurements across the power range

The petrochemical industry contains multiple applications, so the Zetium Petro edition caters for multiple requirements. You can configure it as an economical 1 kW configuration, all the way up to 4 kW – for the fastest results and lowest detection limits. What's more, the Zetium Petro edition's unique drift-free SST R-mAX X-ray tubes eliminate the largest source of drift. The result? Stable calibrations that last for months.

Faster fuel and oil analysis

The Zetium's laterally curved crystals deliver 30% more intensity. That means you can achieve excellent detection limits even faster.

Combined technologies, unlimited benefits

The Zetium uses innovative SumXcore technology, combining wavelength-dispersive (WDXRF) and energy-dispersive (EDXRF) technologies. This means you can perform sequential and simultaneous analysis on a single platform – for fast, powerful screening. You'll get norm compliance for both technologies.

What's more, you can rapidly collect the entire spectrum during routine analysis – so you can quickly detect contaminants during process control.

Virtual Analyst: Wave goodbye to guesswork

Analysis is a complex task with many critical choices and variables. SuperQ's Virtual Analyst software can help

you make those choices – just like having an application specialist available 24/7. The software actively calculates your ideal measurement conditions, taking into account spectrometer configuration, sample information, line overlaps, required analytical range, detection limits, and precision. No more guesswork!

Keep up with compliance

We know how important accurate, compliant results are. That's why we support them with independent checks using NIST traceable reference materials. The fuels and lubrication oils compliance package is factory pre-calibrated according to ASTM D2622 and D6443 standard test methods. It contains application templates, a Quick Start Guide to creating your own petrochemical methods, the official documents of the standard test methods together with a calibration set, and a QC sample to verify the pre-calibration.

Find the right standards for catalyst refinement

Need to find the best calibration materials for accurate analysis of refining catalysts? Whether it's fluid cracking, hydro-treating, or something else, you can use the Zetium's WROXI calibration module! WROXI contains methods and setup samples for the accurate analysis of 21 elements – including Mg, Al, Si, Mo, V, Fe, Ni, Co and Hf.

Catch catalyst killers with ease

Detecting those 'catalyst killer' elements – such as V and Ni – is ultra-important. The Zetium Petro edition further reduces the detection limits for these elements, thanks to its unique duplex detector. No more worries about them interfering with your processes!



WDXRF and EDXRF compliance with SumXcore

What builds trust in your elemental analysis? Compliant measurements and results! And the Zetium Petro edition is compliant with international petrochemical analysis methods for both WDXRF and EDXRF.

That's because these technologies converge to make up SumXcore: the Zetium's powerful analytical heart that delivers unique benefits for petrochemical applications.

Analyzing sulfur in gasoline using SumXcore technology

To demonstrate compliance, we analyzed sulfur (S) in gasoline using certified reference materials. Of the most commonly used EDXRF and WDXRF test methods for this analysis (ISO 13032, 20884 and ASTM International D4294, D2622), we chose two of the strictest methods.

Specifically, we analyzed an iso-octane certified reference material containing 15 mg/kg sulfur according to norm requirements. Iso-octane is commonly used to simulate gasoline in XRF, as its hydrocarbon composition is similar to gasoline's.

Compliant with D2622 (WDXRF) and ISO 13032 (EDXRF)

The results, summarized in the table, demonstrate that repeatability is well within the boundaries of both of the strictest ISO and ASTM International standard test methods. In short: the Zetium Petro edition meets requirements for both EDXRF and WDXRF international test methods.

	EDcore	WDcore
Average sulfur concentration (mg/kg)	14.8	14.9
Maximum repeatability difference (mg/kg)	0.9	0.4
Maximum repeatability difference allowed ISO13032 (mg/kg)	1.1	-
Maximum repeatability difference allowed ASTM D2622 (mg/kg)	-	1.1

WD CORE + ED CORE = SUMXCORE

- Dual compliance
- - Analysis times up to 50% shorter
- - Unexpected elements identified and flagged
- - Fast sample screening
- - Spectrum archiving



SMART MANAGER, SMART ZETIUM

The distractions and demands of quality control management can make it difficult to get the most out of your instruments. To make it easier, we've connected the Zetium to our Smart Manager platform – making it a Smart Zetium.

Meet your new trusted team member

This cloud-based 'control room' connects all your Zetium instruments, giving you a clear picture of their performance – wherever they are in the world. So you can keep on top of performance, optimize usage, reduce downtime, and unleash the potential of your data. Just like having a new, trusted member of your team!

Maximum data security

And rest assured: all your data remains yours, and is only visible to Malvern Panalytical. Smart Manager uses the latest Microsoft Azure cloud technology, ensuring that your data is safe and secure at all times. We don't collect data from your own samples unless you explicitly request it.



Why choose us?

When you make the invisible visible, the impossible is possible.

Our analytical systems and services help our customers to create a better world. Through chemical, physical and structural analysis of materials, they 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.

With over 2200 employees, we serve the world, and we are part of Spectris plc, the world-leading precision measurements group.

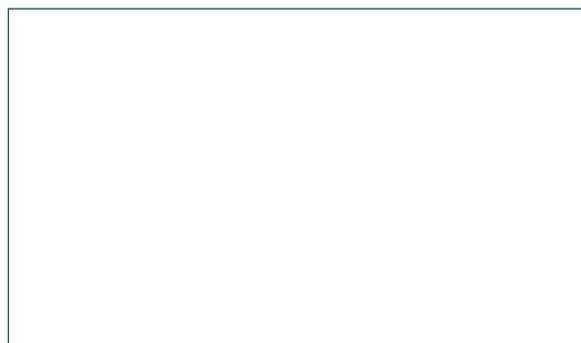
Malvern Panalytical. We're BIG on small™

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



Malvern Panalytical

Groveswood Road, Malvern,
Worcestershire, WR14 1XZ,
United Kingdom

Tel. +44 1684 892456
Fax. +44 1684 892789

Lelyweg 1,
7602 EA Almelo,
The Netherlands

Tel. +31 546 534 444
Fax. +31 546 534 598

www.malvernpanalytical.com/zetium