Zetium

Metals edition

In the metals industry, rigorous process and quality control is essential – and excellent elemental analysis can help meet the strictest analytical requirements.

With robust hardware and a choice of pre-calibrated solutions for specific metals, the Zetium Metals Edition is designed to deliver the most accurate analytical results fast – from raw materials to final and secondary products, and whatever your budget and application requirements.

Elemental innovation

Continuous development, improved customer experience
Benefit-driven innovation on the Zetium Metals edition has made it the most powerful multipurpose tool for the analysis of a wide range of raw materials, production samples, and final metal products.

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 Metals 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.

One solution for the whole supply chain

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

Superior uptime, long-term stability

Uptime and stability are essential in metals production – and drift can significantly affect them. Luckily, the Zetium Metals 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 or even years.

Accuracy across the periodic table

The Zetium metals edition combines a thin X-ray tube window, dedicated multilayer and curved crystals, and high-yield collimators – so you can get results even for light elements. What's more, the combination of Hi-Per scint and duplex detectors means you can rapidly analyze transition row and heavy elements. And you can analyze two elements simultaneously using the HiPer channels – meaning minimal analysis time.

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!

Saving valuable time and money

With the Zetium's advanced sample handling and completely integrated solutions, you can minimize the time you spend on manual operations – and maximize your return on investment. You can also configure fully automated systems for optimized process control – including complementary technologies like optical emission (OES) and X-ray diffraction (XRD).

Combined technologies, unlimited benefits

The Zetium uses innovative SumXcore technology, where wavelength-dispersive (WDXRF) and energy-dispersive (EDXRF) technologies are combined. This means you can perform sequential and simultaneous analysis on a single platform – for fast, powerful screening.

During routine analysis, you can collect the entire spectrum, allowing you to detect contaminants quickly. And the instrument can even feature small spot-mapping – so you can determine trends and troubleshoot anomalies with ease.
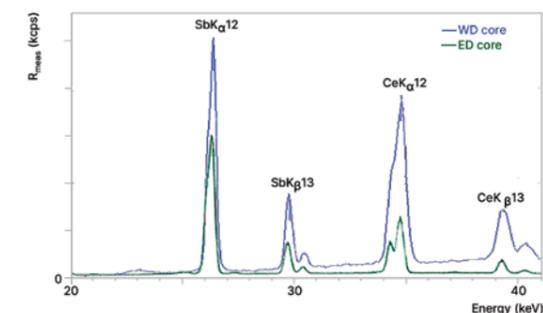
Ready for all kinds of materials

Designed for flexibility, the Zetium spectrometer can analyze a wide range of materials, from incoming raw materials to process control samples and finished

products. Choose from our unique WROXI (our Certified Reference Material package for major and minor oxide analysis) or application modules for metal sample analysis, like NiFeCo, LAS and Cu-base.

And if you need to carry out grade composition monitoring and melt correction? You can also use specific software applications such as Type Standardization to optimize production control and maximize throughput. We've got you covered!

Top-quality multilayered materials

What about measurements for multilayered materials and coatings? Just leave it to our expert Virtual Analyst software! It'll recommend the best choice of measurement and analysis settings for you using the Stratos software package. By automating these steps, you can be confident about meeting your specifications for all coatings on metallic substrates – single and multilayer alike.

Top-quality coatings analysis

STRATOS

Metal coatings are often applied on sheet-steel to boost corrosion-resistance – especially important in automotive applications. To ensure top performance, you need to monitor the coating process by analyzing the thickness and composition of your layers.

The Zetium Metals edition makes this easy, thanks to Stratos. That's a comprehensive layer analysis software module with built-in intelligence. Advanced Fundamental Parameter

The data below shows the layer thicknesses Zetium and Stratos can analyze on different types of coated steel.

Repeated measurements of each sample demonstrate the Zetium's stability and the high precision algorithms correct for fluorescence variances in complex layered stacks.

The Virtual Analyst is here to help you set up these complicated applications. Based on a definition of the sample structure, it simulates the sample's fluorescent response and chooses the best analysis settings. No more time-consuming trial-and-error experiments!

it can achieve. All in all, a great solution for coating production control!
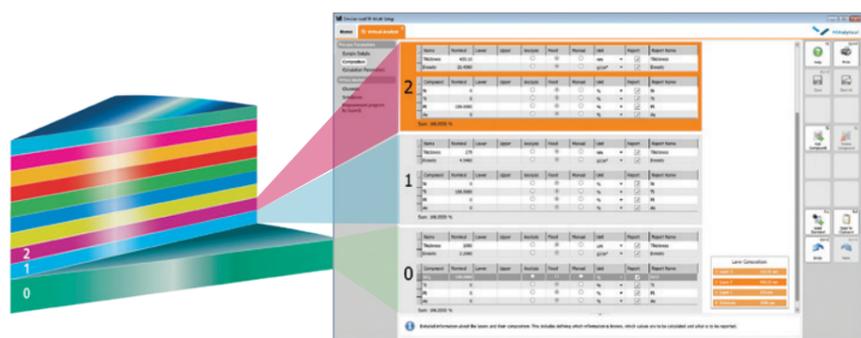
Ni on steel

	NBS 1331	NBS 1334
	Ni (µm)	Ni (µm)
Nominal	3.81	18.3
Stratos	3.71	18.3
RMS Rel %	0.05	0.14

Ti/Sn on steel

	Sample 20100062 B3		Sample 20100059 B3	
	Ti (mg/m^2)	Sn (mg/m^2)	Ti (g/m^2)	Sn (g/m^2)
Nominal	3.1	NC*	1.6	NC*
Stratos	2.7	2.7	1.2	2.7
RMS Rel %	0.7	0.2	1.3	0.2

Cr on steel

	Sample 304	Sample 305
	Cr (mg/m^2)	Cr (mg/m^2)
Nominal	570	250
Stratos	591	253
RMS Rel %	0.1	0.2

Cr/Zn on steel

	Sample 17		Sample 14	
	Cr (mg/m^2)	Zn (g/m^2)	Cr (mg/m^2)	Zn (g/m^2)
Nominal	31	NC*	15	NC*
Stratos	32	54	15	84
RMS Rel %	0.2	0.1	0.3	0.3

Comparison of the thicknesses measured by Zetium with the nominal thickness provided for four different coated steel samples . Repeatability data (RMS Rel%) are based on ten consecutive measurements for type of sample

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
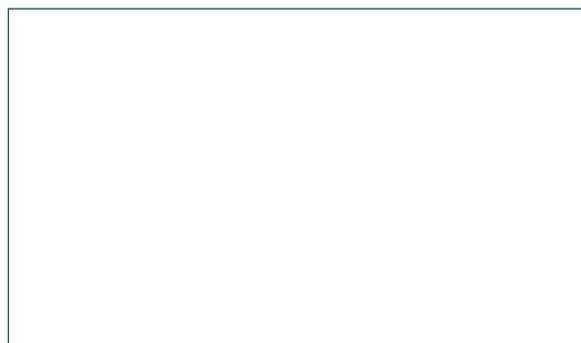
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