

Welcome to SPECTRO Live!

We are pleased to present our SPECTRO Live in its new PDF format. PDF instead of paper – it has many advantages for you and us: You now have the ability to forward interesting articles to friends and colleagues via e-mail or to obtain additional information by clicking on links. We save on the environmentally damaging printing.

The packaging is new, the contents too: We have gathered a colorful mixture of current topics that will carry you with a few mouse clicks from our headquarters in Kleve, to the ASTM Symposium in Florida and from there to faraway India.

Sit back and enjoy your trip!

If you have any questions or suggestions, please send us an [e-mail](#).

What's in, What's new?

SPECTRO GENESIS:
Small ICP OES for
environmental analysis



SPECTRO iQ:
New XRF instrument
for the light elements



**Summary of the ASTM
Symposium: Where the
future of analytics is made**



Stationary metal analyzers:
A second MAXx sets new
standards



**Circle closes: The 350th 2nd
generation SPECTROTEST
goes to Winkels**



**New Application Report:
ATLAS analyzes chlorine
in rubber**



**India – A growing market:
SPECTRO presents itself
at the Foundrex**



**Don't forget!
Current trade show dates**



Lasting New Development

The new ICP spectrometer SPECTRO GENESIS proves itself in environmental analysis and in industrial applications

SPECTRO presented the [CIROS VISION](#) at Pittcon 2004. The revolutionary [ICP OES](#) verified its market leadership in the high-end segment. At [Pittcon 2005](#), a similar milestone stands at the center of attention: With the GENESIS, SPECTRO offers plug & analyze ICP spectrometry for a small price.

A high-end instrument like the CIROS VISION has been virtually created for difficult surroundings with many different applications. „If you consider the daily conditions in a laboratory, then you realize that a smaller instrument would suffice,“ explains Olaf Schulz, product manager for ICP at SPECTRO. „The GENESIS fills this gap – opening the door to the growing market of environmental analysis.“

An overview of the GENESIS:

- ICP OES for environmental and industrial analysis
- Wavelength range from 175 nm to 777 nm
- First ICP instrument with the intelligent calibration logic, ICAL
- Measurement accuracy in the microgram per liter range
- Easy operation
- Factory calibrated for environmental applications

Learn more about the SPECTRO GENESIS on the [following pages](#).



ICP OES – It can be this simple!

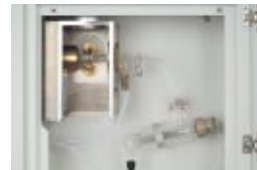
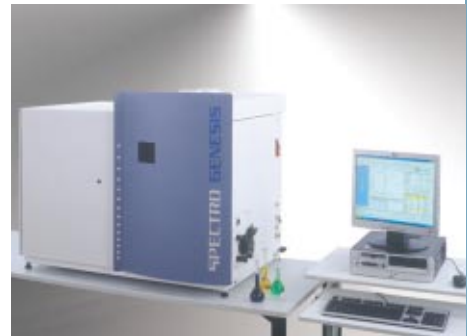
Plug in, turn on and get going: The intelligent calibration logic, ICAL, and well thought-out operation make the GENESIS truly the first plug and analyze ICP spectrometer

„Even today, ICP instruments are stuck with the reputation that you don't even need to try unless you have a doctorate in chemistry,“ reports Olaf Schulz, product manager for ICP analytical instruments at SPECTRO. „That is, of course, exaggerated, but, experience has shown: the less complicated the operation, the better the results.“ For this reason, the SPECTRO development team concentrated from the beginning on keeping the user commands simple.

- The intelligent calibration logic (ICAL) makes it possible to standardize the instrument with a single sample. This also enables the transfer of ICAL methods and calibrations to other instruments; clearly making laboratory procedures easier.
- ICAL continuously monitors the system status. Undiscovered errors? Not possible.
- The sample introduction system of the GENESIS automatically falls into place. Adjustment or optimization is not necessary.
- GENESIS is available calibrated in advance for common applications (according to international, European and American standards). Time consuming method development in the laboratory is superfluous.

More about the applications and targeted markets can be found on the [following page](#).

To request information material about the SPECTRO GENESIS or to stay informed about new application reports, please contact info@spectro.com.



The Environmental Expert

The SPECTRO GENESIS was developed for the growing market of environmental analysis. „Today, every second ICP instrument stands in a government or private environmental laboratory,“ explains Olaf Schulz. Testing of conformation with constraints for drinking or wastewater, in soils, emissions or sludge is a typical environmental application. Or, as the specialist Olaf Schulz puts it, „Environmental analysis focuses on elemental analyses in the range between 175 and 777 nanometers with a measurement accuracy in the ppb range.“

The SPECTRO GENESIS was specifically designed for this clearly defined task – and it is unbeatable in this quarter. Schulz, „The GENESIS is as accurate and reliable as a high-end ICP, but it is much easier to operate and a great deal less expensive.“

The GENESIS is available pre-calibrated with the following environmental applications:

- Drinking water
- Wastewater
- Sewage sludge
- Soils
- Filtrates

In the market for environmental analysis, the new SPECTRO GENESIS also presents itself as a powerful alternative to atomic absorption spectrometry (AAS).

The most important advantages are:

- Higher sample throughput due to simultaneous analysis
- No monitoring necessary
- Fewer matrix effects
- Larger dynamic range
- Higher measuring sensitivity



***Not just clean, but pure:
SPECTRO GENESIS tests
the quality of drinking
water.***



Heavy Stuff for the Light Elements

SPECTRO iQ New XRF analytical instrument

The XRF product family grows: SPECTRO will present the new SPECTRO iQ bench top analytical instrument at Pittcon 2005.

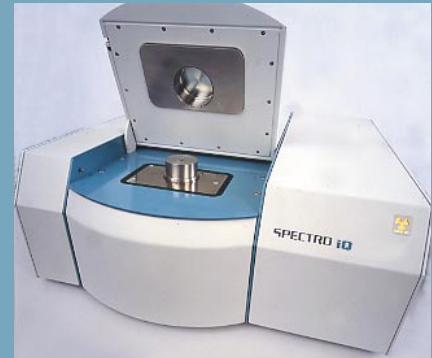
The new addition is a proven specialist for the analysis of the light elements: Sodium, magnesium, aluminum, silicon, phosphorous, chlorine and sulfur are detected reliably, exactly, reproducibly and quickly, even at the lowest of concentrations.

„The SPECTRO iQ is a new development based on our customer's suggestions,“ reports Dirk Wissmann, product manager for the XRF instruments at SPECTRO. Based on tested XRF technology from SPECTRO – read: polarized excitation – the SPECTRO iQ is just as precise and tireless as a [XEPOS](#).

While the latter functions as an all-round instrument for overview analyses of all elements, the SPECTRO iQ shines in a completely different application area: „A typical iQ customer would be a refinery, for example, where the sulfur content in fuels must be routinely ascertained every minute of the day,“ explains Dirk Wissmann. The iQ can do here what it does best – determine the contents quickly and reliably. „And for this, it is unbeatable in its price class.“



Read more about the new SPECTRO iQ on the [following pages](#).



„Unbeatable in its price class: the new SPECTRO iQ.“

Dirk Wissmann, product manager for XRF at SPECTRO

The Youngster With its Own Personality

The family resemblance to XEPOS is clear at a glance. But the SPECTRO iQ will certainly not remain in the shadow of its big brother. What makes the newest member of the family so unique?

„As an analytical instrument for the targeted sampling of lighter elements, the SPECTRO iQ is the perfect addition to our XRF portfolio.“

Dirk Wissmann, product manager for XRF at SPECTRO



- The insides are especially compactly arranged. In this way, the excitation source and detector are positioned very close to the sample. This minimizes scattering in both directions and ensures higher measuring accuracy.
- The SPECTRO iQ is equipped with the new C-force optic to improve sensitivity. This enables a never before seen measuring accuracy for the analysis of the lighter elements.
- The SPECTRO iQ does not have a sample changer. Doesn't sound very effective? It is though: Process controlling usually focuses on single samples with a high throughput. A sample changer would only be in the way. The simple sample container guarantees a constant experimental procedure and delivers more reproducible results.
- New samples can be introduced with the excitation source turned on. This improves reproducibility and lengthens the lifetime of the x-ray tubes.

More about the targeted markets for the SPECTRO iQ can be found on the [following page](#).

The Customer Always in Sight

First package of applications available for target markets

No one works on new developments in a vacuum – Least of all, SPECTRO. „The iQ came into being through dialogue with our customers,“ reports Dirk Wissmann, „From the very beginning we had a very clear idea as to how it would be used.“ At the [Pittcon 2005](#), SPECTRO will carry a complete set of applications for the SPECTRO iQ with them in their luggage. The most important target markets and application scenarios are:



1. Petrochemical Industry

- Measuring low sulfur contents in automobile fuels according to [ASTM](#) and EI.
- Examination of additives and wear particles in oils.

2. Cement Industry

- Measuring of the calcium content in cement according to [ASTM C 114](#) and [ISO DIS 680](#).
- Interesting as a backup system; the SPECTRO iQ can take over when larger laboratory instruments are out of operation.



3. Iron and Steel Industry

- Examination of slags.

4. Ceramic and Refractory Materials

- Examination of ceramics.
- Examination of refractory materials.

In addition, a general purpose SPECTRO iQ with a standardless FP method is available.



Forming the Future

SPECTRO at the ASTM Symposium for the Analysis of Fuels and Lubricants

When the ASTM meets, the path for the future of analysis is laid. The [American Society for Testing and Materials](#) is one of the highest authorities when it comes to laying down standard procedures and analytical guidelines.

„There is no larger honor for an analytical company as to be asked to address an ASTM Symposium,“ states Tom Milner, director of product management at SPECTRO. This is especially true when one considers that the ASTM rarely invites anyone to join them. [The current event](#) took place in Tampa, Florida in December 2004. The theme of the symposium was the analysis of fuels and lubricants. SPECTRO was asked to come to the podium several times: Dirk Wissmann, Scott Fess and the consultant John Rhodes – three active SPECTRO experts presented their special fields.

Learn more about the symposium and the subjects of the presentations on the [following page](#).

„The future of analysis is presented at the ASTM Symposium – and we had the unique opportunity of being able to collaborate in its formation.“

Tom Milner, director of product management at SPECTRO



The analytical guidelines for petrochemistry have wide-reaching consequences.

At the Podium for SPECTRO

Speakers at the ASTM Symposium:

- ...Dirk Wissmann (SPECTRO, Kleve) reported „The Newest Developments in the Analysis of Low Sulfur Contents in Automotive Fuels with Polarized XRF.“ The presentation centered on the SPECTRO XEPOS and – even though it was not yet available at that time – the SPECTRO iQ.
- ...Scott Fess (SPECTRO, Marble Falls) described „On-Line Examination of the Sulfur Content in Crude Oils with the XRT Technology.“ Viscous products are examined under immense pressure and at very high temperatures during this difficult application.
- ...John R. Rhodes (Rhodes Consulting, Austin) presented „The Capabilities of a New On-Line Analytical Instrument for the Measurement of Very Low Sulfur Contents with [Electrochemical Technology](#).“ The consultant went to bat for electrochemical analysis: It defies other on-line analytical procedures, according to Rhodes. To request additional information material, please contact us.

In addition to the many presentations, the symposium offered SPECTRO the chance to maintain existing contacts and to make new acquaintances in the petrochemical industry. „As a manufacturer, we entertained one evening in a well visited hospitality suite. Specialists could discuss the presentations and learn all about the SPECTRO products here,“ explains Dirk Wissmann, product manager for XRF.



A New MAXx Sets New Standards

A new design and new technology should enable the SPECTROMAXx to beat the success of its forerunner

700 instruments sold in two years: The SPECTROMAX was the most successful bench top spectrometer in the SPECTRO catalogue. Now the manufacturer is taking it out of its program. Why? „That’s what our marketing experts asked – with the same disbelieving looks on their faces,“ laughs Kay Tödter, product manager for Stationary Metal Analyzers at SPECTRO.

Tödter’s answer is simple: „We’ve developed a successor that can do more.“ The new metal analyzer, dubbed the SPECTROMAXx after its predecessor, is intended for small and mid-sized foundries that need a reliable, accurate and fast instrument for quality management.



In the meantime, the SPECTROMAXx has had several opportunities to present itself to the public: The new instrument was the unchallenged highlight at the MTQ, which took place in Dortmund, Germany from November 9–12, 2004. The metal analyzer also raised a lot of dust in the international press. Read all about it: [\[icon\]](#) [\[icon\]](#) [\[icon\]](#) [\[icon\]](#) [\[icon\]](#)

It looks like the SPECTROMAXx won’t have any problems following in the footsteps of its forerunner. We’ll let you in on more details on the [following page](#).



Ahead of its Time...

The targeted markets for the SPECTROMAXx are small and mid-sized foundries. As suppliers for the automotive industry, they must deliver strict proof of quality assurance. In the past, this was only possible with very expensive laboratory instruments. The new SPECTROMAXx is an economical alternative.

- SPECTROMAXx uses two separate optics: One for wavelengths from 140 to 233 nm, the second, taken from the [SPECTROTEST](#), for the range from 233 to 670 nm. This makes the instrument more flexible and accurate than other comparable metal analyzers.
- A new argon block combined with the spark stand, using the technology from the larger [SPECTROLAB](#) models, reduces the consumption of the noble gas by 40 to 60 percent – reducing the subsequent costs.
- The intelligent calibration logic, ICAL, is standard. ICAL monitors the system status and requires only a single control sample.
- The read-out system shortens the measuring cycle. This saves the user valuable seconds and improves the measurement accuracy.
- Even the design has been completely redone. The SPECTROMAXx is immediately available as a bench top instrument or floor model.

„The SPECTROMAXx measures the nitrogen content in steel even at a concentration of only 20 ppm. With it, we are several years ahead of our competitor's comparable products.“

Kay Tödter, product manager for Stationary Metal Analyzers at SPECTRO

More about the SPECTROMAXx can be found on our [product pages](#).



Keeping It Close to Home

The 350th second generation SPECTROTEST stays in Kleve

The deal will be settled in March. But we can't wait to let you in on this success story. SPECTRO sold its 350th [2nd generation SPECTROTEST](#). That alone would be enough for a good story, but it gets better! The buyer is [Winkels GmbH](#), located hardly 500 meters away from SPECTRO Kleve.

A manufacturer of highly specialized containers and parts of plants and facilities made of steel and stainless steel, Winkels has controlled its incoming and finished products for decades with SPECTRO technology. „Our analytical needs were relatively insignificant for years and we used leased instruments and testing companies,“ reports Dipl.-Ing. Reinhard Hidde, managing director of technology at Winkels. „Today we analyze materials for our customers in so much detail and so often that buying an analyzer was justified.“

That the instrument featuring the easy to remember serial number 350 was delivered to Winkels was purely coincidence. „We would have kept this instrument in mind even if it had a less easily remembered number,“ grins Marcus Freit, product manager for [Mobile Metal Analyzers](#) at SPECTRO.



Hard Facts about a Soft Subject

Application Report: SPECTRO ATLAS measures chlorine in rubber

Rubber is truly the most pliable of all materials. Large scale buyers of the flexible material can be found in all branches: Automobile manufacturers, machine engineers, furniture makers as well as the food processing industry treasure vulcanized rubber.

Manufacturers shrewdly control firmness and surface properties of the rubber with the addition of chlorine. Because variations in the chlorine content have grave consequences for the product, the companies rely on exact analytical results during the production process.

X-ray fluorescence analysis is the analytical method of first choice as it is non-destructive and quick. The smallest XRF instrument from SPECTRO makes its big debut with this application. The SPECTRO ATLAS accurately determines chlorine contents from only 0.02 percent; deviations are relegated to the range of lower single digit percents.

The SPECTRO ATLAS, weighing in at a mere 1.5 kilos has shouldered its way into being the instrument for quality control during continuous operation. The user simply selects the application on the ATLAS display, presses the measuring probe at the front onto the sample and holds it in position. The result is on hand within 30 seconds.

The application report „SPECTRO ATLAS: Analysis of Chlorine in Rubber“ can be obtained [here](#).

More information about the SPECTRO ATLAS can be found [here](#).



SPECTRO XRF Application Note

No. ST85
— IN SPECTRO.COM

SPECTRO ATLAS

Analysis of Chlorine in Rubber

Ariane Deser, SPECTRO Analytical Instruments, Marlin Falls, Texas

Summary

This report demonstrates the suitability of the SPECTRO ATLAS™ handheld XRF Analyzer for determining the concentration of chlorine as an additive in rubber. Use of this instrument will deliver improvements in product quality by accurately and rapidly determining the amount of chlorine applied to the material. Chlorine is often used as surface lubricant or as a hardening agent in rubber.

It can also be seen that there is another advantage in easily and quickly measuring the chlorine content during many facets of rubber manufacturing. Namely, by ensuring that the chlorine content along the process is controlled at all times in order to maximize quality and cost efficiency. Therefore, significant reductions in operational costs can be achieved.



Introduction

EDAX® is a fast, precise, simple and non-destructive analysis technique well suited for the analysis of chlorine in rubber and plastics, latexes or other materials. SPECTRO offers a full line of EDAX® non-destructive fluorescence XRF analyzers like the SPECTRO ATLAS. A powerful trace scanning system like the SPECTRO ATLAS 2000 for complex applications, e.g. the fast-pipe analysis of environmental samples.

The operational principle employed in the SPECTRO ATLAS is to use a radioactive as its source of excitation, and is rugged, time-proven proportional counter as its detector system. This ensures that the optimum sensitivity is achieved for the element chlorine. The proportional counter detector is renowned for its ability to handle high input count rates that, in turn, results in superior analytical precision.

Calibrations were performed by measuring a series of assigned calibration standards. Data handling and results storage is done via the attached Personal Data Assistant (PDA) and data can easily be downloaded onto a desktop computer. The calibration process is a 'once and' procedure. Calibration curve revalidation is achieved by treating a simple non-certified reference that automatically logs the calibration back to original status.



Growing Market in India

SPECTRO is present at the Foundrex India



Territory in view: SPECTRO has been active in India for two decades and knows the territory better than anybody. Given the right opportunity, we accelerate from zero to one hundred in no time.

While headlines about the booming economy in China appear almost every day in our news media, little is heard about the second billion-dollar market in Asia, namely India. This reserved attitude is, however, not justified: Just like its northern neighbor, the economy in India presents considerable index numbers. „An incredible growth market,“ Kay Tödter, product manager for Stationary Metal Analyzers is enthusiastic. A boom from which SPECTRO also profits: „We’ve sold more than 30 [metal analyzers](#) there in the last three months alone. That is a total of almost 250 instruments since 1999.“

SPECTRO has been active in India for almost 20 years. They work closely with their partner Unispec for sales on the subcontinent. In 2005, the partners presented themselves together at the Foundrex India foundry trade show. Kay Tödter, who climbed into the plane for Kolkata in January to present the new SPECTROMAXx, returned excited about the distant business trip, „About 4,000 top-class specialists visited the Foundrex from all over Asia on the four days of the trade show – a good indication of the increasing importance of this market in the future.“



Don't Forget!

The current analytical trade show calendar

March

- **Foundry China 2005**, March 14–17, 2005, Peking, China
- **Metals Fair 2005**, March 18–20, 2005, Guangzhou, China
- **The 3rd Guangzhou Analytical Exhibition**, March 18–20, 2005, Guangzhou, China
- **INCOM**, March 29–30, 2005, Duesseldorf, Germany

April

- **CAST Expo**, April 16–19, 2005, St. Louis, MO, USA
- **ISRI**, April 26–28, 2005, USA
- **CONTROL**, April 26–29, 2005, Sinsheim, Germany

May

- **DGZfP**, May 2–4, 2005 Rostock, Germany
- **Aluminium China 2005**, May 18–20, 2005, Shanghai, China

June

- **Sheffield Symposium**, June 20, 2005, Sheffield, UK
- **The 6th China (Guangzhou) International Exhibition of Die Casting, Casting and Industrial Furnace**, June 29 – July 2, 2005, Guangzhou, China

Published by: SPECTRO

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