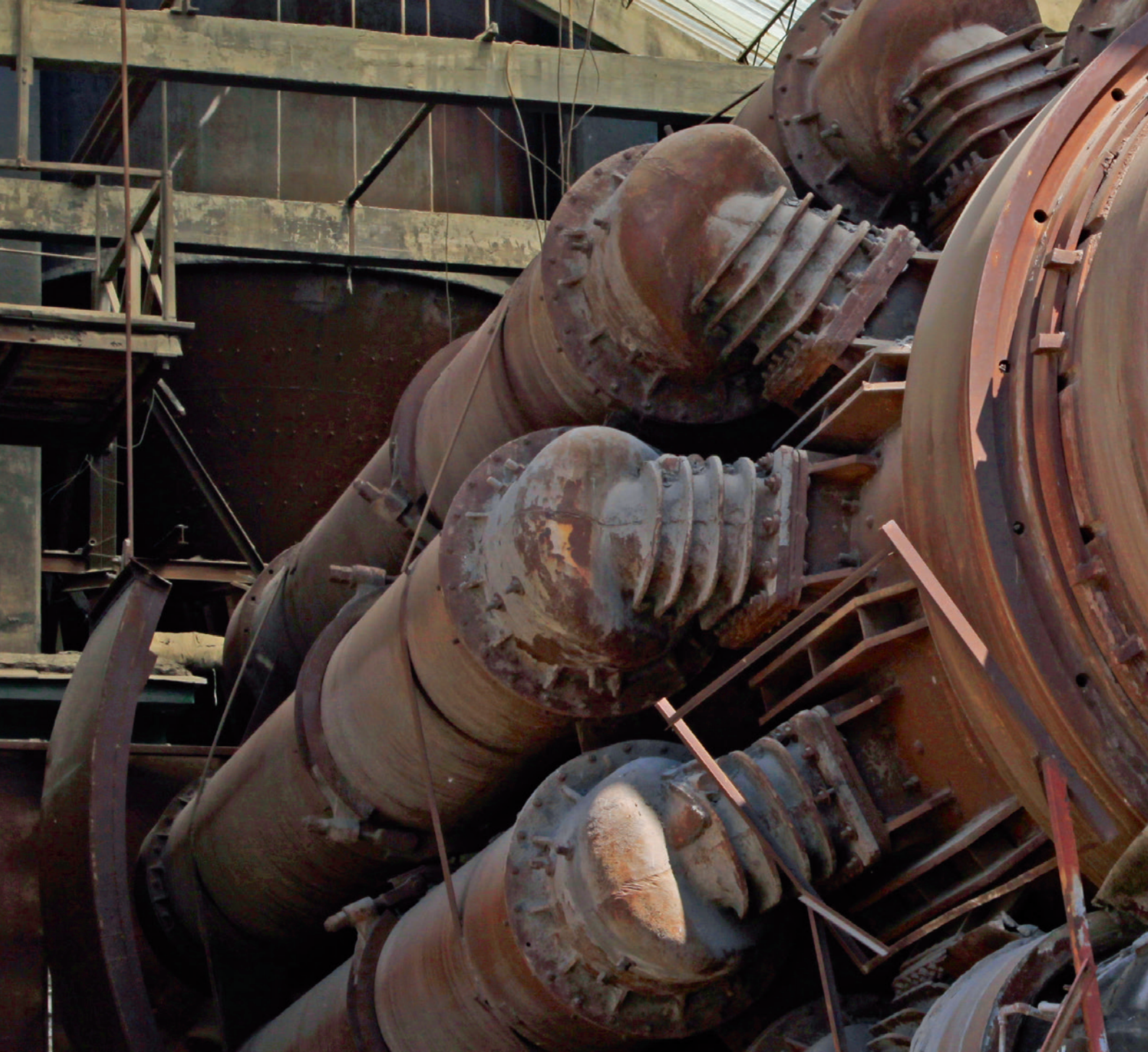




ZETIUM

Cement edition





Elemental innovation

Continuous development, improved customer experience

Scientifically-sound, benefits-driven innovations implemented in the Cement edition of the Zetium spectrometer make it the most powerful multipurpose tool for the analysis of cement and the raw materials associated with the production of cement.

Elemental intelligence

Advanced analytical software for advanced analytical hardware

A quantum step for our renowned SuperQ software gives access to new technology combinations and analytical possibilities. Starring the Virtual Analyst, it enhances the user experience in setting up and operating the system.



The Cement edition of the Zetium spectrometer is a dedicated tool for the analysis of materials associated with the production of cement, such as raw materials, fuels, raw mix, clinker and final product. The fusion of elemental analysis by wavelength dispersive X-ray fluorescence (WDXRF) and reliable free lime phase quantification by transmission X-ray diffraction (XRD) make the Zetium Cement edition the ideal tool for both process and quality control in cement factories.

Elemental technology

60 years of experience and heritage, the ideal starting point

The Cement edition of the Zetium spectrometer represents the next generation of a remarkably successful series of WDXRF platforms, including the Axios, MagiX and PW2400. Proven technology has been refined and brought forward onto the Zetium platform, infusing a level of heritage and prestige.

Elemental support

Transparent and reliable support in your neighborhood

From service to expertise, training to laboratory analysis the Cement edition of the Zetium spectrometer is supported from every angle. With a worldwide network of experienced engineers and application specialists and a full suite of remote support possibilities, we ensure that your spectrometer operates at its best regardless of the location.

Superior accuracy, simplicity

The Cement edition of the Zetium XRF spectrometer delivers unrivalled analytical performance, speed and robustness through the seamless amalgamation of PANalytical's core and innovative technologies.

1 In-house expertise with Virtual Analyst
The Virtual Analyst software ensures that specialist-level expertise is available to you 24/7. Virtual Analyst is not just another wizard, it actively calculates the ideal measurement conditions, taking into account the configuration of the spectrometer, sample information, line overlaps, the required analytical range, detection limits and precision.

2 Quality free lime analysis
The THETA free lime core delivers superior free lime quantification. With Total Volume Analysis it measures up to 750 times more sample than conventional, diffraction-based free lime analyzers. Turn the page for more information.

3 Maximize instrument uptime, stability and precision
Unique drift-free SST R X-ray tubes eliminate the largest source of instrument drift. Direct optical position sensing (DOPS) technology maximizes precision. Advanced technologies minimize sample contamination including automatic sample-type recognition, turret-style sample loading, preloading dust removal, and CHI-BLUE tube window protection.

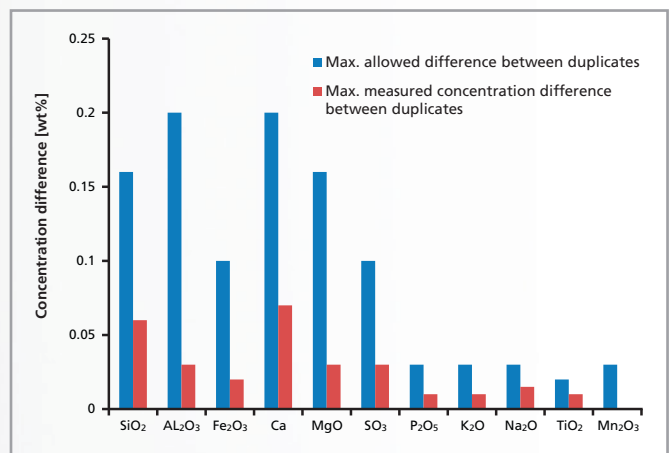


ty & reliability



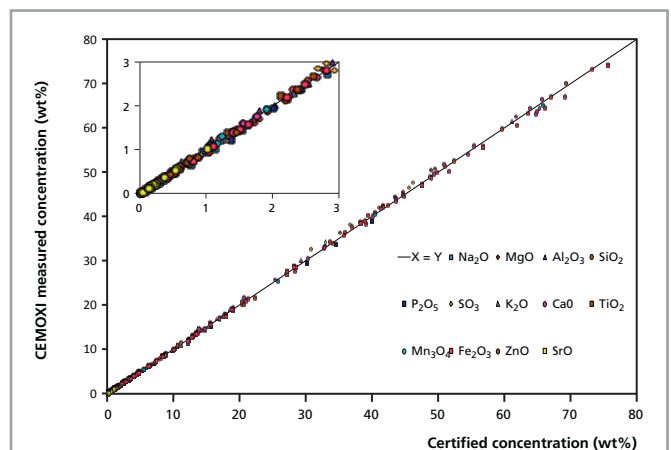
4 ASTM and ISO compliance

Ensuring your analysis and product quality, the Cement edition of the Zetium system satisfies the requirements outlined in the ASTM C114-13 and ISO 29581-2 test methods for the analysis of cement.



5 Struggling to find standards? Use CEMOXI!

Finding or preparing enough standards to set up reliable calibrations can be difficult and costly. That is why we have developed CEMOXI, a complete analytical solution for the analysis of 13 oxides in cement and related materials. The CEMOXI package consists of 9 synthetic standards, reliable fusion recipes, an application template and monitor samples, making it an out-of-the-box solution for the analysis of major and minor elements in raw materials, raw mix, clinker and cement.



CEMOXI measured vs. certified concentrations in a wide range of cement-related CRMs



CEMENT
edition

THETA

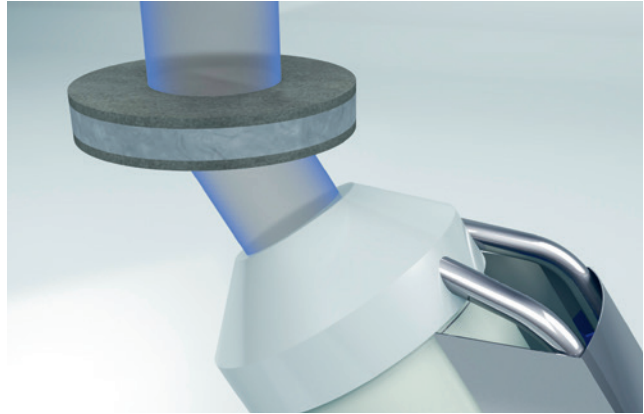
Cement edition

- High-performance sequential WDXRF spectrometer
- THETA free lime quantification tool
- Insensitive to surface lime hydration
- XRF and/or free lime quantification on the same sample
- Minimal sample preparation

Ultimate kiln control with

Quantification of free lime

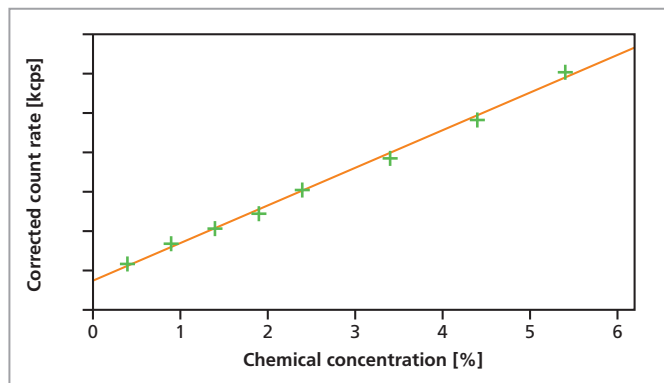
With Total Volume Analysis you probe the whole sample, significantly reducing the effect of free lime hydration.



Free-lime (CaO) quantification is essential for the optimization of energy consumption in the cement plant, while maintaining the quality of the end product.

WDXRF and free lime

The Cement edition of Zetium spectrometer is the first, fully fledged sequential WDXRF spectrometer to feature a free lime quantification tool, which we call the THETA core. This combination maintains the flexibility and superior accuracy achievable with sequential WDXRF spectrometers and allows accurate quantification of free lime for total cement production control.



THETA core

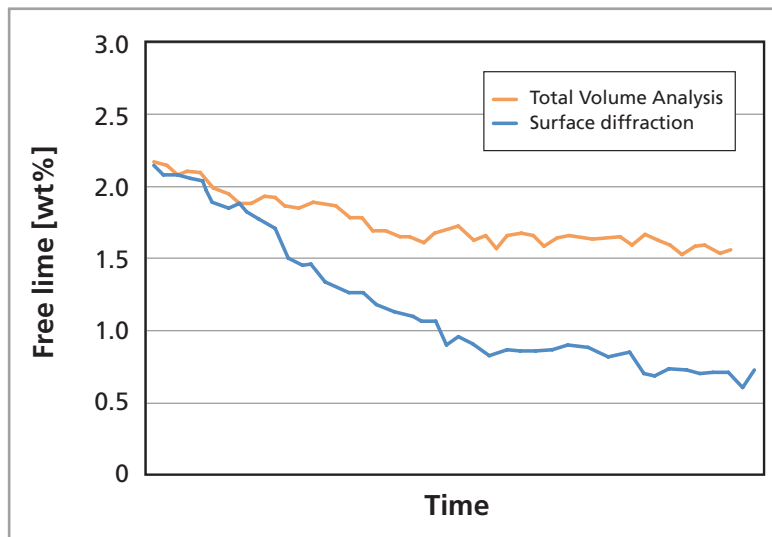
Designed to replace labor-intensive titrimetric free lime analysis, sample preparation for measurements on the Cement edition involve milling and pressing of clinker (or other) samples into pellets, which can be analyzed by XRF and/or THETA. Free lime quantification only adds a small amount of time to the total analysis time, ensuring a fast turnaround in the laboratory for superior process control.



THETA core

Total Volume Analysis

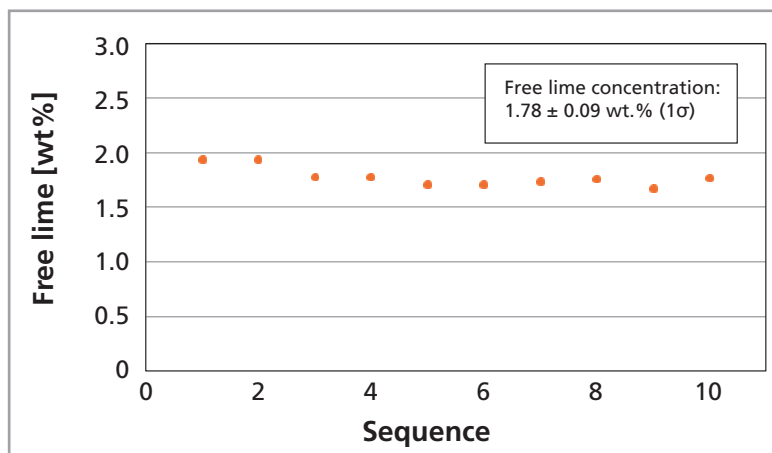
The THETA core works on the principle of Total Volume Analysis in order to deal with the rapidly hydrating free lime at the surface of the sample. Using transmission diffraction, the entire sample is measured and not just the surface is analyzed. Total Volume Analysis delivers true free lime quantification for a realistic view of what is happening in the kiln.



Free lime as a function of time

Accurate and reliable free lime quantification

By using the THETA core very robust calibration lines can be achieved even for clinkers with highly varying chemical and mineralogical composition. Excellent reproducibility with a variety of sample preparation equipment can be achieved for reliable feedback into the process.

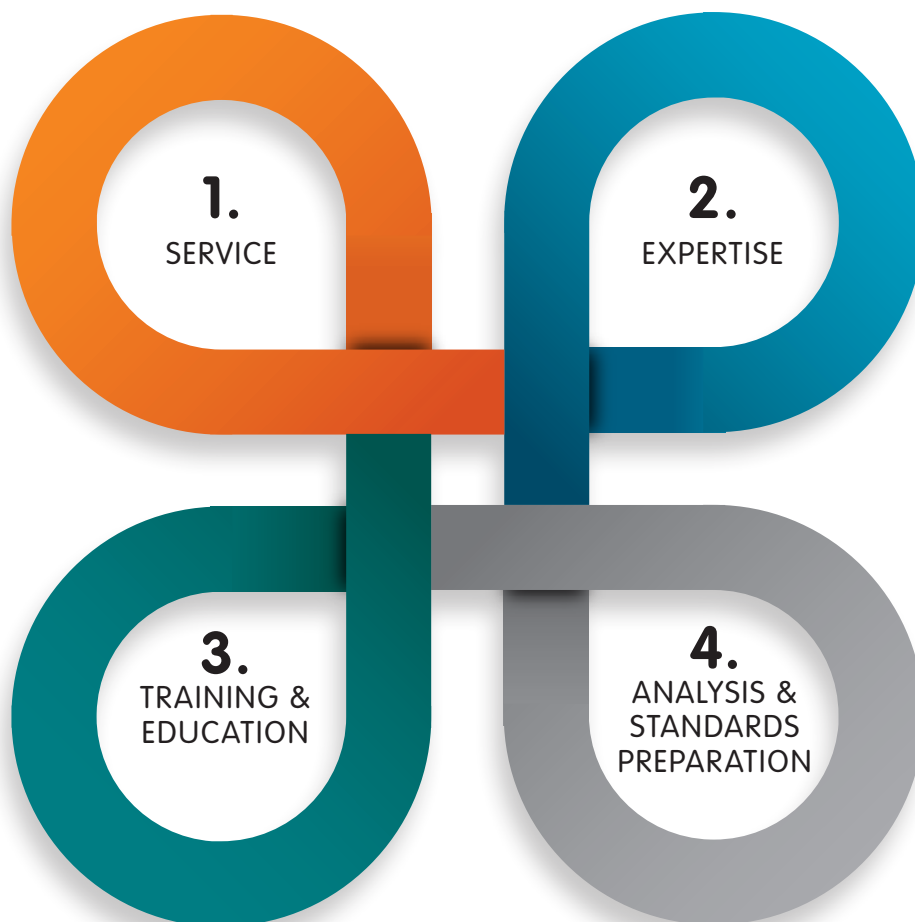


Reproducibility





Elemental support



1. SERVICE

Worldwide network of experienced engineers backed by regional and headquarter specialists

Tailor-made support packages with three tiers of support by phone, by remote connection, or on site

Performance certificates after every service

Rapid dispatch of spare parts

Guaranteed 10 year replacement of parts after production of your instrument

Software and hardware upgrades are available if your requirements change or if new innovations arise.

2. EXPERTISE

Access to the industry's largest pool of application specialists either by phone, remote connection or on-site visit.

Complete analytical solutions including:

- Sample preparation
- In-house fusion expertise
- Ready-to-go application solutions
- Design and integration of automation solutions
- Method development and optimization
- Method maintenance to ensure independent validation
- Multi-laboratory standardization - SOP

Participation in development of international norms

3. TRAINING & EDUCATION

Regular courses worldwide in various languages

Customized training to cater for beginners and advanced users, delivered on-site or at one of our competence centers

Access to a wide and expanding published knowledge center

Regular webinars with on-demand access

Regional workshops and user days

4. ANALYSIS & STANDARDS PREPARATION

Analytical services to ISO 17025 compliance at a dedicated facility: PANalytical Nottingham

Accredited analysis of customer samples e.g. in-house standards

Production of customized standards

About PANalytical

PANalytical's mission is to enable people to get valuable insight into their materials and processes. Our customers can be found in virtually every industry segment, from building materials to pharmaceuticals and from metals and mining to nanomaterials. The combination of our software and instrumentation, based on X-ray diffraction (XRD), X-ray fluorescence (XRF) and near-infrared (NIR) spectroscopy as well as pulsed fast thermal neutron activation (PFTNA), provides our customers with highly reliable and robust elemental and structural information on their materials and is applied in scientific research and industrial process and quality control.

PANalytical employs over 1,000 people worldwide. The company's headquarters are in Almelo, the Netherlands. Fully equipped application laboratories are established in Japan, China, the US, Brazil, and the Netherlands. Supply and competence centers are located on two sites in the Netherlands: Almelo (X-ray instruments) and Eindhoven (X-ray tubes), in Nottingham, UK (XRF applications and standards), in Quebec, Canada (fusion sample preparation) and in Boulder CO, US (near-infrared instruments). A dedicated research activity is located on the campus of the University of Sussex in Brighton (UK).

PANalytical is active in all but a few countries of the world with a worldwide sales and service network that ensures unrivalled levels of customer support.

The company is certified in accordance with ISO 9001 and ISO 14001.

Visit www.panalytical.com for more information about our activities.

PANalytical is part of Spectris plc, the productivity-enhancing instrumentation and controls company.

Access to expertise

With the largest service network we are able to offer the most comprehensive support package possible.

Expertise:

- On-site training available
- XRF training courses
- Performance optimization
- Customizable expertise programs
- Assistance with multi-laboratory standardization

Care Agreements

Our customer support solutions have been developed with your business in mind. They are formulated as a family of four Care Agreements which can be tailored to your specific needs and provide fast, secure and reliable support.

- **ECONOMY:** indispensable coverage for self-sufficient operations
- **ADVANCED:** cost-effective support for routine usage
- **PREMIUM:** flexible package for high equipment usage
- **ELITE:** most comprehensive package for demanding environments

Global and near



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