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Yes, send us more information please!

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BRUKER ADVANCED X-RAY SOLUTIONS



Tailored **XRF & XRD**
Solutions for a more
efficient **process and**
quality control

Reduce your
production
costs!



All configurations and specifications are subject to change without notice.
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Tailored XRF & XRD Solutions

The next step to reduce production costs

The elemental and mineralogical phase analysis of raw materials, intermediate and finished products enables new process optimization concepts, such as

- controlling the setting behaviour by monitoring relevant clinker phases (Alkali sulfates, C3A cubic, C3A orthorhombic),
- optimizing the raw meal mixture, and
- optimizing the cement milling process (Gypsum, Hemihydrate, Anhydrite).

Accurate phase analysis within minutes

While elemental analysis via XRF is well established, quantitative phase analysis via XRD is a relatively new tool for process optimization. Bruker AXS' unique DIFFRAC^{plus} TOPAS software combined with the powerful D4 ENDEAVOR diffractometer offers the fastest and most accurate phase analysis possible. After on-site installation, the D4 ENDEAVOR will perform routine analysis right from the start. A highly trained specialist for operation is no longer required.

Automated S4 PIONEER and D4 ENDEAVOR



S4 PIONEER and S4 EXPLORER for the most demanding applications

An increasing number of cement plants use alternative raw materials and fuels to reduce production costs. These materials contain additional trace elements that need to be quantified because they have an impact on the production process. Bruker AXS offers wavelength dispersive spectrometers (S4 EXPLORER, S4 PIONEER) for these most demanding applications. The S4 spectrometers are easy to use and can be pre-calibrated for a wide range of alternative fuels. This saves labor and time right from the beginning.

S2 RANGER – Touch 'n Analyze

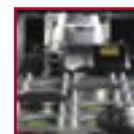
Traditionally, energy dispersive spectrometers (EDX) were just used for raw meal control, as they only quantify the four main oxides. Bruker AXS' S2 RANGER can be used for a wider range of applications, because it can reliably quantify additional oxides like MgO, SO₃ and Mn₂O₃.

The S2 RANGER is operated via its unique touch screen interface making routine analysis as easy as possible. Combined with various pre-calibrated applications it is ready to use right out of the box.

Maximize your analytical efficiency

Tailored combinations of our analyzers, application know how and global support make Bruker AXS' instruments the perfect analytical solution. They provide significant advantages for the cement industry:

- can be operated by non-specialists
- accurate phase analysis within minutes
- outstanding elemental quantification
- highest sample throughputs
- reliable performance
- can be integrated into any automation solution



Examples of supported advanced XRF applications

- Hotmeal
- Alternative fuels
- Oils
- Blast furnaces slags
- Animal meal
- Microsilica
- Bauxite

Bruker AXS offers fully automated phase quantification of

- Portland Cement Clinker
- Portland Cement (type CEM I)
- White Cement
- Oil Well Cement
- Calcium Aluminate Cement
- Raw Materials
- Process Samples (Bypass, Hot Meal, ...)

Quantitative phase analysis results with D4 ENDEAVOR and DIFFRAC^{plus} TOPAS

The results were achieved by repeated measurements, the standard deviation is shown in parentheses.

Compound	TOPAS Results	NIST
Alite C3S	65.50 (0.40)	64.97 (0.56)
Belite C2S	17.57 (0.57)	18.51 (0.58)
Aluminate C3A	5.05 (0.30)	4.34 (1.35)
Ferrite C4AF	11.85 (0.58)	12.12 (1.50)

S2 RANGER

