
ZEISS
Variable fuel.
Stable combustion.
ZEISS SPARC solutions
for the cement industry
Seeing beyond

Proven spectroscopy for a tougher fuel reality **ZEISS expertise, now focused on cement**

ZEISS has been building spectrometers for more than 150 years. That experience includes inline applications for demanding industrial environments, from food production and animal by-product processing to agricultural harvesting and slurry application.

ZEISS Spectroscopic Process Analysis & RDF/SRF Control (SPARC for short) brings that expertise to one of the cement industry's most demanding challenges: controlling RDF/SRF quality in real time. Developed for plants using alternative fuels, it helps turn complex, variable material streams into reliable process data before fuel variability becomes a combustion problem.

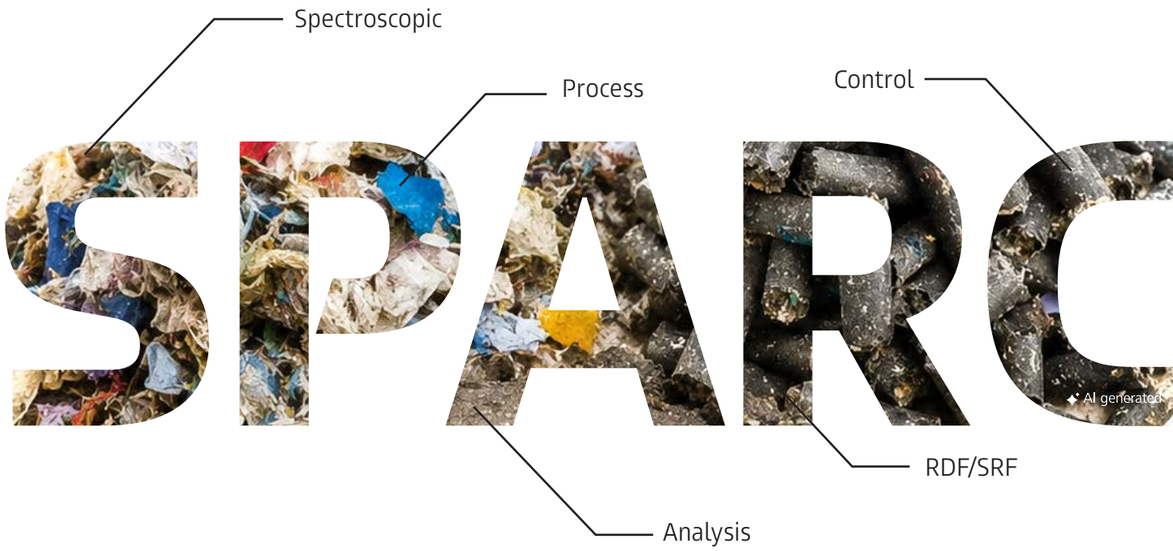
Alternative fuels make cement production more flexible and can help reduce fossil fuel use. But they also introduce variability. Moisture, calorific value and chlorine can change from delivery to delivery, source to source and even within the same fuel stream.

With ZEISS SPARC, you can get the insight you need to manage that variability earlier, adjust faster and make more confident decisions for a more stable kiln process.

NIR, perfected by ZEISS
Experience that shows

Near-infrared spectroscopy, or NIR, analyzes how material interacts with near-infrared light. From that spectral information, key material properties can be determined quickly, reliably and without interrupting the process.

For cement plants using RDF/SRF, that means important parameters such as moisture, calorific value and chlorine can be measured directly in the material flow. Instead of relying only on delayed lab results or isolated samples, you get real-time insight where it matters: before fuel variability affects combustion.



Determine RDF/SRF quality before it reaches the flame
ZEISS SPARC turns variability into process data

ZEISS SPARC is a comprehensive solution developed specifically for cement plants using alternative fuels. It combines ZEISS spectrometer hardware with proven ZEISS NIR technology, application-specific accessories, InProcess software and process integration support in one tailored package.

With proven technologies such as Corona® extreme and Corona® process, ZEISS SPARC helps plant operators stabilize combustion and increase fuel flexibility, even when RDF/SRF quality is highly variable. The result is greater transparency from fuel intake to kiln feed, more predictable process control and stronger confidence in every adjustment.

“As input streams become more diverse, we need real-time visibility of their composition. ZEISS SPARC gives us fast, reliable predictions of moisture, calorific value and chlorine, so we can detect fluctuations earlier and respond more precisely. That helps us deliver high-quality, consistent RDF/SRF to our cement-industry customers, supporting higher substitution rates and stable combustion. The system is compact, robust and easy to integrate.”

D. Scheu, ELM Ersatzbrennstoff GmbH & Co. KG

Better insight for better decisions
Real-time RDF/SRF analysis to support stable kiln performance

ZEISS SPARC combines proven spectroscopic hardware, RDF/SRF-specific parameters and process expertise to give plant operators greater control over combustion, even with highly variable alternative fuels. The result is real-time visibility of their composition, a more predictable burn and fewer disruptions.

Keep your process steady
Maintain consistent kiln performance even with RDF/SRF. ZEISS SPARC delivers real-time predictions of calorific value, moisture and chlorine – enabling faster, more precise adjustments and protecting the process from instability.

Integrate quickly into your plant
ZEISS SPARC is compact, robust and designed for seamless integration into existing cement plant environments, without long shutdowns or major modifications.

Increase your substitution rate
By giving operators real-time insights over RDF/SRF quality, ZEISS SPARC supports higher thermal substitution rates and helps reduce reliance on coal or PCI for process correction. Depending on plant conditions, the system can support the move towards substitution rates of up to 100 %.

Reduce downtime and repairs
Unstable fuel can cause ring formation, deposit build up, temperature swings and equipment wear. ZEISS SPARC brings fuel insight into the control loop, helping avoid thermal shocks, extend equipment life and minimize unsched-uled maintenance.

Achieve fast amortization
Greater control of RDF/SRF quality helps reduce energy waste, fossil fuel use and process disruption. With just 1% savings in energy costs, ZEISS SPARC can potentially pay for itself in less than two years.

Hit sustainability targets
Improve RDF/SRF integration without compromising combustion quality.
By stabilizing your burn and reducing fossil fuel use, ZEISS SPARC helps you meet CO_2 targets and unlock carbon credit potential.

Measure quality where it makes a difference

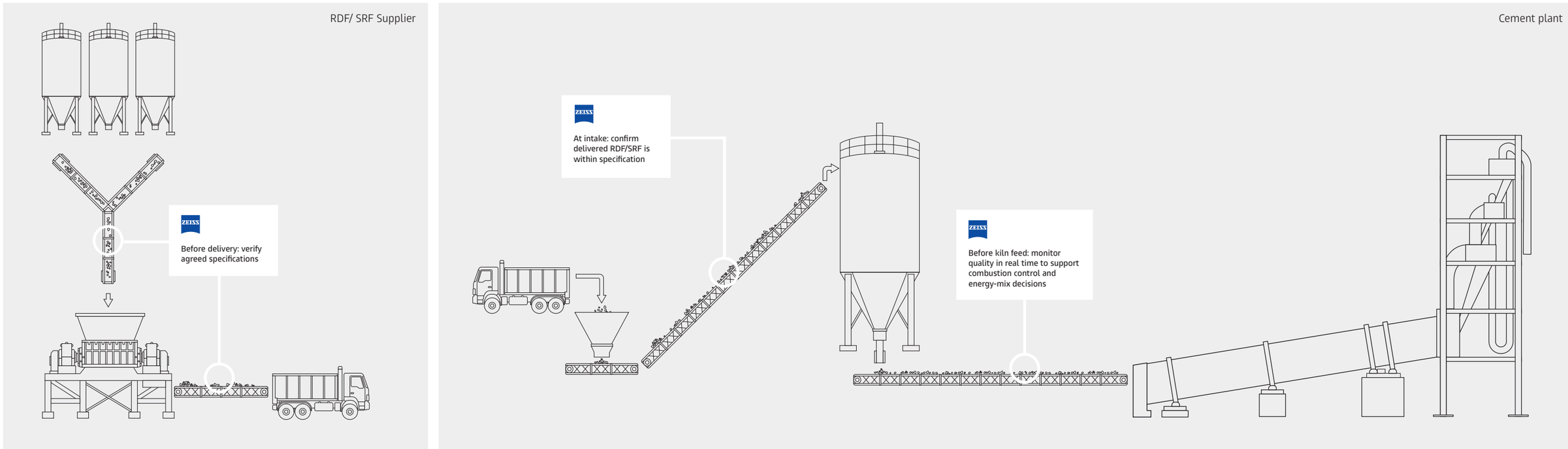
Perfect choice from supplier blending to kiln feed

ZEISS SPARC can be configured for multiple measuring points across the RDF/SRF fuel chain: during blending or final inspection at the supplier, at incoming inspection in the cement plant and in real time between fuel storage and kiln feed.

By predicting calorific value, moisture and chlorine at these points, SPARC helps verify agreed specifications, confirm delivered material is within specification and support more stable combustion and energy-mix control.

Measuring point	**Measured parameters**	**Added value**
RDF/SRF blending and final inspection at supplier	Calorific value, moisture, chlorine	Helps maintain agreed fuel specifications before delivery
Incoming RDF/SRF inspection at the cement plant	Calorific value, moisture, chlorine	Checks whether delivered material is within specification
Between fuel storage outlet and kiln feed	Calorific value, moisture, chlorine	Real-time RDF/SRF quality control for optimal rotary kiln management and energy-mix control

AI generated



Corona® extreme mounted on chain conveyor

SPARC with Corona® extreme

For enclosed delivery systems

SPARC with Corona® extreme is engineered for screw conveyors, piping systems and other enclosed RDF/SRF transport environments. Designed for thermal, mechanical and chemical resistance, it delivers real-time fuel measurement insight without compromising uptime.

Product highlights

- Suitable for high-dust, high-shock, high-temperature environments
- Designed for enclosed transport systems such as screws and chutes
- Continuous inline measurement of calorific value, moisture and chlorine
- Delivers accurate data even under extreme conditions

Corona® process mounted over conveyor belt

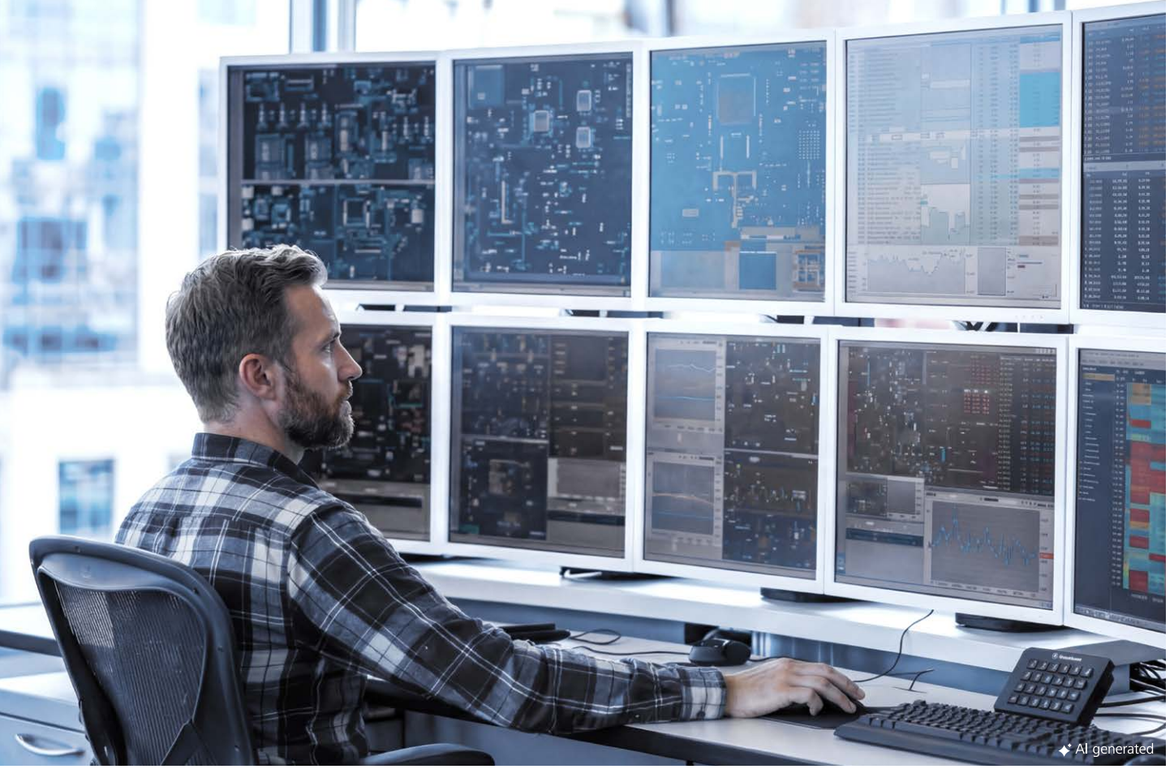
SPARC with Corona® process

For open conveyor belt systems

SPARC with Corona® process provides inline analysis of incoming RDF/SRF on open transport lines. Mounted above the conveyor, it captures real-time data with no material contact, making it ideal for retrofits or belt-based RDF/SRF delivery.

Product highlights

- Designed for mounting above conveyor belts or open RDF/SRF lines
- Continuous monitoring of calorific value, moisture and chlorine
- Proven NIR technology tailored to RDF/SRF requirements



Turn measurement data into combustion decisions
Making RDF/ SRF quality visible, traceable and easy to act on

ZEISS InProcess software delivers the data you need fast, precise and fully aligned with your cement operation. From moisture and chlorine levels to calorific value, you get instant insight where it counts. The software is highly customizable to match your exact process requirements and works seamlessly with major industrial standards including OPC UA, Modbus, Profinet, Profibus and Ethernet/IP. That means full connectivity, transparent control, and greater confidence in every decision, from the control room to the kiln floor.

- Use predefined channels for simple communication with the process control system
- Ensure transparency, traceability and efficiency thanks to automatic ID generation and label printing for samples on site
- Use predefined templates for the creation of measurement sequences
- Monitor multiple systems and customize the parameters displayed
- Define threshold and limit values to quickly detect and react to possible deviations and filter unwanted spectra
- Freely configure displays and views
- Use the software in various languages and add multiple users with different levels of access

Quality = Service²
We're there for you – for the lifetime of a device

For us, service means not just being there for you around the clock but being there for you for a device's lifetime. That's why we're by your side from first contact to final purchase and see you primarily as a partner – throughout the entire life cycle of the product.

That's our claim and that's what the ZEISS name stands for. A claim that we fulfill every day. Not just in terms of our technological soltions, but also in terms of our client-specific service conditions. This means that we don't offer you a prefabricated service contract, but rather develop an individual service package with you that's tailored to your project.

You can rely on our global distribution and service network as well. Regardless of whether it's gratings, modules, spectrometers or solutions, hardware, software or calibration, we're the only ones who develop and offer all spectrometer components. Exclusive service packages guarantee optimal performance, increase service life and provide many years of reliable and precise results. The best thing about it: digitalization makes our distance maintenance service particularly user friendly, as there are no waiting times and we are able to provide location-independent solutions quickly. And if something does need to be repaired on site, then our service technicians are already on their way.

Our expert service at a glance

- Installation of equipment and software
- Application support for the whole product lifetime
- Preventive maintenance
- Customer-specific maintenance contracts
- On-site and in-house repairs
- Remote diagnostics, maintenance and repair

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