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Arabic

Contents

Articles

The magazine editorial staff welcome the contribution of experts to enrich the contents of the magazine.

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EDITORIAL SCHEDULE FOR 2023

ISSUE	THEMES	EVENTS
December 2023 (# 94)	- Coolers - Fans - Air cannons - Occupational health and safety - Comminution - Vertical roller mills - Roller presses - Increasing cement mill output - Crushing - Grinding & grinding aids - Waste heat recovery - Thermal imaging - Thermal recycling - Methods for treating and utilizing bypass dusts - Explosion protection in alternative fuel storage silos - Alternative fuels handling systems - Production and use of Solid Recovered -Fuels	AUCBM's 26th Arab International Cement Conference and Exhibition (AICCE26) Cairo, Egypt 15-17th January 2024

Deadline for receiving articles, press releases, or advert materials for December issue (bonus) is **5th December 2023**

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Iraq

Al-Diyar Company for Cement Industry and Industrial Investment to build 2.19Mt/yr cement plant in Samawa

China-based Sinoma International Engineering has won a contract to build a 2.19Mt/yr cement plant in Samawa, Muthanna, for Al-Diyar Company for Cement Industry and Industrial Investment. Sinoma International Engineering will carry out engineering, procurement and construction on the project. The value of the contract is US$220m.

Global Cement

Morocco

Moroccan cement industry delivers 6.98Mt of cement in first seven months of 2023

Members of the Professional Association of Cement Producers (APC) delivered a total of 6.98Mt of cement during the first seven months of 2023. This corresponds to a year-on-year rise of 2.1%, compared with seven-month 2022 levelsReady-mix concrete plants consumed 4.29Mt (61%), and precast concrete plants 1.37Mt (20%), of cement deliveries. Producers despatched 367,000t (5.3%) of cement to infrastructure construction sites, and 271,000t (3.9%) to other building sites.

Global Cement

Saudi Arabia

Hoffmann Green Cement Technologies to build four clinker-free cement plants in Saudi Arabia

Hoffmann Green Cement Technologies (HGCT) and property developer Shurfah Holding have signed a letter of intent to conclude a licensing agreement for use of HGCT's technology by the state-owned construction firm. HGCT plans to build four new units to produce its clinker-free alternative cement in Saudi Arabia. Construction will begin in 2024. Shurfah Holding said that the partnership signals progress towards the development of smart cities under the state's Vision 2030 economic plan.

Global Cement

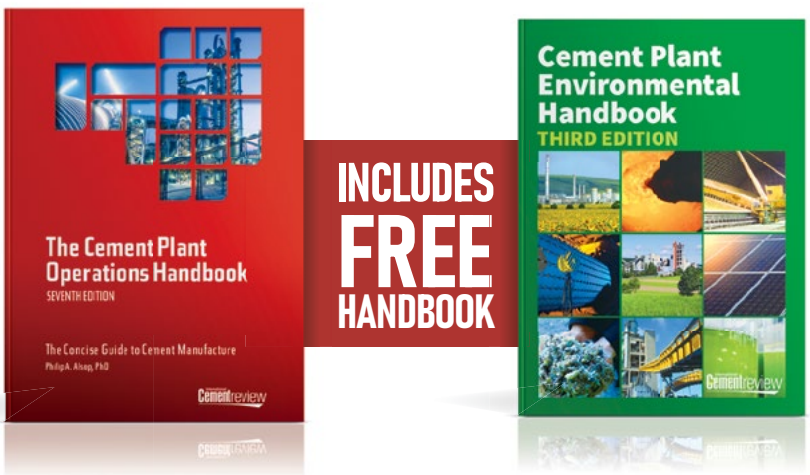
Southern Province Cement takes US$373m loan for Jizan cement plant project

Southern Province Cement has secured a loan worth US$373m from Saudi National Bank. The loan will cover its construction of a 5000t/day production line at its upcoming Jizan cement plant, as well as the construction of infrastructure for a second new line of the same capacity at the plant. The producer appointed China-based Sinoma International Engineering to build the plant in May 2023.

Global Cement

International Cement review

Delivering business insight, market knowledge and technical expertise to the global cement industry.



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UAE

Emirates Steel Arkan rolls out new operating model, to demerge steel and building material businesses

Emirates Steel Arkan announced the rolling out a new operating model that leverages the combined strengths of its steel and building materials businesses.

The new operating model creates two separate business units – Emirates Steel and Building Materials.

Emirates Steel and Building Materials will each have their dedicated leadership to focus on driving growth within their respective units. Saeed Al Ghafri will lead the Emirates Steel business as CEO, and Saeed Al Dhaheri will lead the Building Materials business as Acting CEO and Vice President Commercial.

The new business units will also be supported by centralized Finance, Human Capital, Technology, Strategy & Transformation, and a new Projects function.

Emirates Steel and Arkan Building Materials merged in 2021 to form Emirates Steel Arkan. Ever since, the combined entity embarked on a transformation journey to unify and streamline departments, continued to prioritize people's safety, identified efficiencies across its operations, strengthened its financial standing and developed a decarbonization roadmap to reach Net Zero emissions by 2050.

Global Cement

World

Global cement market forecast to grow by 5.3% annually up to 2030

Market Research Future has forecast a composite annual growth rate (CAGR) of 5.3% between 2022 and 2030. This would result in a market value of US$505bn in 2030, compared with US$335bn in 2022. The report added that the rate of new construction projects is increasing across all regions.

Global Cement


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FLSmidth to deliver key beneficiation equipment to a Saudi Arabian phosphate mine

Following a long-standing relationship with Ma'aden, FLSmidth has been chosen to supply the key technologies and services for Ma'aden's phosphate 3 phase 1 mine site in the Northern Province of Saudi Arabia.

The order is valued at approximately DKK 530 million and was booked in Q3 2023. The equipment is expected to be fully integrated during 2025.

FLSmidth has partnered with Ma'aden from the onset of the new phosphate mine operations starting with initial laboratory testing of samples retrieved from the ore body in 2019 through to the development of the flowsheet and pilot scale testing. The focus of the collaboration has all along been to ensure that the integrity of the flowsheet is maintained, while ensuring that the technology is well integrated into the overall plant design to deliver best possible performance from the process plant operations.

With this new order, FLSmidth will supply of all the key equipment associated with the phosphate beneficiation plant as well as technical support services through the design, construction, commissioning and ramp-up phases. The order includes both primary and secondary sizers, apron and HAB feeders, cone crushers, screens, cyclone clusters, Ball mills, paste and high-rate thickeners, horizontal belt filter, slurry pumps knife-gate valves and flotation columns.

"We are pleased to collaborate with Ma'aden on this expansion, as this order sets another strong standard for our MissionZero agenda. In particular the incorporation of our paste thickening and dewatering technology at this important mine site plays a key role in reducing emissions and water spend from the beneficiation process," comments Mikko Keto, CEO FLSmidth.

About FLSmidth

FLSmidth is a full flowsheet technology and service supplier to the global mining and cement industries. We enable our customers to improve performance, lower operating costs and reduce environmental impact. MissionZero is our sustainability ambition towards zero emissions in mining and cement by 2030. FLSmidth works within fully validated Science-Based Targets, our commitment to keep global warming below 1.5°C and to becoming carbon neutral in our own operations by 2030.

BEUMER Acquires The Hendrik Group Inc.

Environmentally Friendly Bulk Material Handling

With the acquisition of one of the leading companies for air supported belt conveyors, The Hendrik Group Inc., the BEUMER Group is expanding its portfolio in the field of bulk material transport. In particular, the handling of alternative fuels and raw materials (AFR) confirms BEUMER's commitment towards sustainability and is at the same time fully complementary to the current technologies offering ensuring an even broader customer benefit. The technology also generates additional potential in the field of bulk material handling of sensitive materials when it comes to preventing hazardous substances from being released into the environment.

The BEUMER Group, a leading international manufacturer of intralogistics systems in the fields of conveying and loading systems, palletizing and packaging technology as well as sorting and distribution systems, is committed to sustainable corporate development. An important component of the high ecological standards that the specialist based in Beckum,

With the air supported belt conveyors, the BEUMER Group is sustainably expanding its portfolio in the minerals, mining and cement industries.

Germany, has set for itself is its future-oriented conveying and system technologies for bulk materials. With the now completed acquisition of the Hendrik Group, a leading US manufacturer of air supported belt conveyors, BEUMER Group is expanding its portfolio and strengthening its market position in both the cement and the minerals and mining industry.

Markus Schmidt, CEO of BEUMER Corporation in Somerset, New Jersey, USA, is very pleased with the acquisition: “The Hendrik Group specializes in the efficient and environmentally friendly transport of bulk materials. This aligns very well with our goals of bringing sustainable products to the market and improving our customers’ carbon footprint.” The BEUMER Group has been established in the market for decades with innovative bulk material technologies and the air supported belt conveyors ideally complements the BEUMER portfolio. In the very core of the technology an air cushion is used to support the belt and the load. The result is a weatherproof and dustproof transport solution that is quiet, clean and efficient.

Founded in 1983 by Henk Hartsuiker and based in Woodbury, Connecticut, USA, the Hendrik Group has become one of the leading manufacturers in the bulk materials handling industry with customers all over the world.

About The BEUMER Group

The BEUMER Group is an international leader in the manufacture of intralogistics systems for conveying, loading, palletizing, packaging, sortation, and distribution. With 5,400 employees worldwide, the BEUMER Group has annual sales of about EUR 1 billion. The BEUMER Group and its group companies and sales agencies provide their customers with high-quality system solutions and an extensive customer support network around the globe and across a wide range of industries, including bulk materials and piece goods, food/non-food, construction, mail order, post, and airport baggage handling.

About The Hendrik Group

The Hendrik Group Inc. was founded in 1983 in New Jersey, USA. Operating primarily as an engineering firm with six employees, the company is a pioneer in the development of advanced air supported belt conveyors for bulk material handling and sets the standard for this conveyor technology worldwide. The Hendrik Group portfolio consists of two products: the HoverGlide and the HoverTube. Compared to conventional belt conveyors, air supported belt conveyors offer advantages: energy consumption and costs are lower, there is less friction, and maintenance is reduced because there are fewer rotating parts. Steeper conveying angles are possible as there are no vertical impacts to the conveyor belt (while passing an idler) which could trigger the material to roll downwards against the conveying direction.

FLSmidth sells its Advanced Filtration Technologies business to Micronics.

FLSmidth Cement sold its Advanced Filtration Technologies (AFT) filter media business to Micronics, a leading global provider of industrial filtration solutions. The sale is effective immediately and includes all related assets, including intellectual property, technology, employees and customer contracts.

The divestment of the AFT business is part of FLSmidth Cement's pure play strategy, which includes focusing the cement product portfolio on the core technologies required for the green transition in the cement industry.

"FLSmidth's AFT filter media business has grown to become one of the leading manufacturers of industrial filter bags, serving clients worldwide in among other the cement, lime, minerals, metals and power industries. FLSmidth appreciates the talent, dedication and commitment to quality of the AFT team, and we are pleased to see this successful business transition to Micronics," says Asger Lauritsen, President at FLSmidth Cement.

The acquisition will enable Micronics to expand its product portfolio and strengthen its offerings to existing customers. All employees currently working for the AFT business will join Micronics to ensure a smooth transition process for customers.

"I am excited to welcome AFT to the Micronics family of trusted industrial filtration brands. I look forward to working with our new colleagues in the USA, Europe and India as we bring together our combined talents, capabilities, technical expertise and process knowledge to better serve our valued global industrial filtration customers," says Chris Cummins, President and CEO of the Micronics Engineered Filtration Group.

Lindner & Erema: Together The New Benchmark in Plastics Recycling

One Vision – One Goal – One Company. The future is plastics recycling, the owners of Erema Group and Lindner Holding agree. The jointly founded holding company BLUEONE Solutions aims to leverage both companies' expertise and jointly execute research projects to create industry standards in plastics recycling.

From waste to recycled granulate, potential new raw materials pass through several different recycling processes. These range from sorting, shredding, washing, and drying to extrusion, including filtration, compounding, and odour optimisation. The challenge for the industry lies precisely in fine tuning these individual recycling steps – in particular when energy efficiency and high recyclate qualities are to be achieved. The founding of BLUEONE Solutions, a company which is owned 50:50 by the Erema Group and Lindner Holding and to which shares of Lindner Washtech were contributed, is that very starting point. The know-how and experience of Lindner Washtech will be combined with that of the extruder manufacturer Erema. They aim to significantly increase the added value and set industry standards by adjusting and optimising processes and conducting joint research projects. New paths on all too new familiar terrain since the experience of the two companies speaks for itself: the Erema Group has been active in plastics recycling for 40 years and is considered the extrusion market leader.

Lindner, a quality manufacturer of shredders and recycling facilities for the waste management industry for the past 75 years, has established a world-wide presence with the Lindner Washtech brand as a washing facilities specialist in the past 10 years. Joint research projects, such as the pilot facilities in the LIT Factory at the Johannes Kepler University (JKU) Linz, allowed the companies to enter into a close technical exchange years ago.

A common vision

For a long time now, the two companies have been united by their common vision of expertly driving forward plastics recycling. The ever-increasing challenges in the plastics recycling market ultimately led to the founding of BLUEONE Solutions: 'As the respective industry leaders, we recognised the need for process optimisation some time ago. Only when waste streams are optimally used, can the required quantities of regranulate be made available and only if the processes between the individual recycling steps are perfectly adjusted, can an increase in efficiency and quality optimisation be achieved. A functioning circular economy is only possible by merging waste management with recycling management,' Michael Lackner, Managing Director of Lindner, is convinced. 'Our common goal is clearly to set new industry standards,' adds Lackner.

Optimising recycling processes

Founding BLUEONE Solutions clearly puts the focus on the further development of plastics recycling. Lindner contributes its experience in processing waste streams and its expertise in washing, and Erema its know-how in extruding and filtering. In the future, the exchange of knowledge and new research projects will not only enable synergies to be exploited, but above all, it will optimise the overall cycle. 'A functioning recycling industry demands a focus on the entire process and value chain from waste collection and processing to recycling and the final plastic product. Thanks to this merger, Erema and Lindner will create a better overall understanding to jointly shape the necessary further development, especially in the polyolefins sector,' explains Manfred Hackl, CEO of the EREMA Group. In detail, the recycling extruder, the upstream washing system and material handling can be optimally coordinated so that quality standards can be ideally met and energy optimised – thanks to cross-process control & monitoring, supported by digital solutions. In the future, we will offer optimally coordinated all-in-one solutions that will enable our clients to buy a total package that is perfectly tailored to their needs.'

About Lindner, Spittal an der Drau/Austria
MAKE THE MOST OF WASTE

The Lindner family business has been offering innovative, tried-and-tested shredding solutions for 75 years. At its production facilities in Spittal/Drau and Feistritz/Drau in Austria, Lindner manufactures using state-of-the-art production machinery shredders, system components and spare parts that are exported to almost one hundred countries. In addition to stationary and mobile shredders for waste processing, the portfolio also includes complete systems for plastics recycling, SRF/RDF and waste wood processing. The shredders can be used among other things for municipal solid waste, commercial and industrial waste, waste wood, plastics, packaging material, paper and light scrap. Besides its headquarters in Spittal/Drau and a second production site in Feistritz/Drau, Lindner is also present in Germany, the USA and Asia with a total of four sales locations and service hubs.

About EREMA Group, Ansfelden/Austria
Another Life for Plastic. Because we care.

The EREMA Group, based in Ansfelden near Linz in Austria, is the world's leading manufacturer of plastics recycling solutions. Thanks to the companies EREMA, 3S, PURE LOOP, UMAC, PLASMAC, KEYCYCLE and PLASTICPRENEUR, it covers the entire spectrum of mechanical plastics recycling – from planning and engineering, the development and manufacture of recycling technologies, to the production of system components and trading in used equipment. These recycling solutions are currently in use in 108 countries worldwide and recycle around 21 million tonnes of plastic annually.

Solex Thermal Science, Expert in Thermal and Bulk Materials Engineering, acquires Econotherm

Solex Thermal Science Inc. ("Solex"), a Canadian-headquartered expert in thermal and bulk materials engineering, announced that it has acquired Econotherm Ltd. ("Econotherm"), a UK-based leader in waste heat recovery technology.

The acquisition further expands Solex's capacity to help its customers reduce the primary energy consumed to produce industrial goods. The company has deep expertise in solids, liquids and gas heat exchange, and Econotherm's solutions are welcome additions to the suite of products Solex offers.

For more than 30 years, Solex has established itself as a global leader in supporting its customers during their respective journeys to decarbonize operations while producing a better product at less expense to them and the environment.

"We at Solex are passionate about working with customers to understand their operational needs. Today's announcement broadens our overall business portfolio to provide our global client base with an even deeper suite of best-in-class, sustainable solutions that align with their respective environmental, social and governance strategies," says Lowy Gunnewiek, Chief Executive Officer for Solex.

Econotherm is a recognized leader in the design and manufacturing of heat pipes and exchangers for industrial waste heat recovery. The company focuses on difficult-to-recover heat that includes hot and/or dirty exhausts in industries such as automotive, metals, construction, food, mining, oil and gas, power generation and pharmaceutical. Installed solutions include many "firsts of its kind" which have achieved successful energy savings in applications otherwise considered unsuitable for conventional equipment.

The company is also at the forefront of heat pipe research and development, having been recognized with green technology awards from Shell Oil and LLGA City Smart for its leading-edge developments. Econotherm has participated in a number of international EU- and UK-funded research and development projects where its

deep expertise in heat pipes has contributed to new developments for industrial waste heat recovery solutions.

"Solex's commitment to making a sustainable impact within the industries it operates aligns with our company's trajectory of being a world-leader in today's circular economy. Having the support of Solex will allow us to expand the reach of our patented heat recovery solutions and create a positive impact in the world around us," says Mark Boocock, owner at Econotherm.

About Solex Thermal Science

Solex Thermal Science is the global market leader and developer of highefficiency, indirect heat exchange technology for the heating, cooling and drying of free-flowing granular materials such as solid granules, pellets, beans, seeds and particles.

Over the past 30 years, the company has installed more than 900 advanced heat exchangers in more than 50 countries worldwide with applications such as fertilizer, oilseeds and industrial materials such as minerals/sands, chemicals and polymers.

In recent years, the company has expanded into the energy-transition sector with key collaborations globally on decarbonization applications such as industrial waste heat recovery, concentrated solar power (CSP) and carbon capture.

About Econotherm

Econotherm is a leading UK-based manufacturer of heat pipe waste heat recuperators, economizers, pre-heaters, steam generators and steam condensers. The company's patented super conductor heat pipe technology is used in a wide range of applications across many diverse industrial sectors.

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CemWeek

Al-Anwar (Oman) selects 'Made in Italy' SACMI excellence

This latest order – a complete line with 2 presses, a dryer and a twin-channel kiln – takes the number of SACMI lines installed at the main Nizwa facility to 6. Close teamwork with the customer has resulted in a strengthening of their growth plans throughout the Arabian peninsula and beyond

Al-Anwar has again joined forces with SACMI to expand production capacity. A full 'Made in Italy' line is set to bolster prospects for Oman's leading ceramic producer by delivering 65,000 m^2 per day and ensuring strong positioning in the Gulf area.

The partnership

This latest order takes the number of SACMI lines operating at the Nizwa site to 5, with the customer reporting clear advantages in terms of efficiency, low consumption and outstanding finished product quality.

Based on teamwork and mutual trust, the partnership has seen Al-Anwar become a major player in the industry and achieve European-level production standards.

The project

To meet the goals of the customer's expansion plan, SACMI has supplied all the main machines for this latest line.

Two state-of-the-art SACMI PH 3590 presses for the most popular sizes on the market (60x60, 80x80 and 90x90 cm) have already undergone testing and start-up.

SACMI has also supplied a full drying and firing package: a 20-meter 5-level horizontal dryer and a new 160-meter FBN twin-channel kiln, both fully designed and built at SACMI's Italian factories.

The future

Steady investment in the best Italian technology and meticulous attention to quality have been the customer's hallmarks since their founding in 1998: "Every tile is crafted to perfection", states Al-Anwar which, under the brand name Al-Shams, already exports to 20 countries throughout the Middle East and Africa.

And the development plans don't end there: infrastructure investment has led to the construction of a factory building to house new production lines, while the last investment with SACMI has already been fully operational since last summer.

Bceram grows with SACMI and focuses on exports

An across-the-board order for BCERAM Wilaya of Sétif (Algeria). The goal is to produce large, high-end formats to strengthen its position on domestic and international markets. Mr. Bouhadra: "We're extremely satisfied with the results achieved with SACMI and with the project in progress"

SARL BCERAM
Notre Objectif C'est La Qualité
Fabrication de carreaux céramique

The technological partnership between SACMI and Algerian company Bceram goes from strength to strength with the signing of a new contract to expand their 'large format' line. This complete plant, equipped with latest-generation SACMI technology, is set to double the customer's high-end output capacity.

Following on from other successful projects in recent years, SACMI has supplied Bceram with all the key machines. These range from body preparation to the PH3800 press, the multi-level ECP dryer, the kiln and the glazing and sorting lines, with complete handling, packaging and palletizing solutions designed by SACMI.

"We're extremely satisfied with this project" stated Mr. Bouhadra, speaking on behalf of the company's owners; Bceram is one of the most dynamic players in Algeria, a market that's always been crucial for SACMI as projects there tends to be high-quality and high-quantity. This investment, continues Bouhadra, "will allow us to expand both volumes and the product portfolio in the strategic high-end, large-slab segment".

Already delivered, the plant has been started up and is now fully operational. Bceram aims to increase its export quotas, hence the decision to invest in the best technological-production standards on the market.

Matrix Effects in XRF Measurements

A.T.Kandil [1], N.A.Gabr [2], S.M.El-Aryan [3].

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[2] ASEC Central Lab Manager (formerly).

[3] ASEC Technical Center

Abstract

Matrix effect is the effect of other elements that exist in a sample to be measured by XRF on the analyte intensity(1); This research treats the matrix effect on XRF measurements by preparing only one fused general program using "trail Lachance" method to correct errors of matrix effect, this paper used lithium tetra borate and sodium tetra borate as a fluxing agent, and compares between accuracy before and after using "trail Lachance" for each of them, then compares the effect of using Lithium tetra borate or Sodium tetra borate as a fluxing agent in terms of accuracy and economic cost. The presented results here would be useful for choosing the suitable fluxing agent and correction method according to the application.

Keywords

XRF; Matrix effect; Cement

1. Introduction

This research treats the matrix effect on XRF measurements by preparing only one fused general program for all materials in cement factories that use ores of different compositions. The samples are collected from many factories and other samples are prepared by mixing samples and chemicals; it is worth mentioning that this program could be used for other industries such as ceramic, clay bricks, glass, gypsum, iron and steel, phosphate and refractories.

2. Sample preparation

Forty-five samples were prepared; weighing was accomplished using analytical balances with precision equal to 0.0001g. The sample was mixed to a homogeneous state by rolling and/or tumbling the sample in a closed vessel. The samples have been prepared as finely ground homogenous material. They were crushed to a diameter less than 150 µm. The crushed samples were dried at 105 °C to constant weight.

XRF (ARL 9900) has been used to measure SiO_2, $Al2O_3$, Fe_2O_3, CaO, MgO, K_2O, Na_2O, TiO_2, MnO and P_2O_5. ARL 9900 is a wavelength dispersive X-Ray fluorescence instrument contains X-Ray tube with Rh as anode, 11 fixed channels with goniometer and generator 3.6 kV(2).

Leco CS 230 equipment has been used to measure SO_3 content. The CS-230 Sulfur Analyzer is designed to determine the sulfur content in a wide variety of organic materials and inorganic materials by combustion with non-dispersive infrared detection(3). Cl^- ion has been measured by 736 GP Titrino potentiometric titration system (Metrohm Ltd, Herisau, Switzerland)(4).

Range of oxides covered by ASEC-General program is shown in table (1)

Oxide	SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	K_2O	Na_2O	TiO_2	MnO	P_2O_5
Min	0.10	0.12	0.00	0.01	0.00	0.03	0.00	0.00	0.00	0.00
Max	98.28	94.81	94.50	95.27	90.52	14.79	24.34	8.91	6.25	39.96

Table (1): Range of concentration covered by ASEC-General Oxide

3. Experimental procedure

In this work, the raw material samples were fused in a lithium tetraborate matrix and XRF measurements were carried out before and after according to trail Lachance [5] method to correct errors of matrix effect. Then lithium tetraborate has been replaced by sodium tetraborate and the results are compared.

The mathematical model of Lachance and Trail[6] is

$$C_i = R_i\left(1 + \sum_j a_{ij} C_j\right)$$

C_i : concentration of analyte element i

C_j : concentration of matrix element j

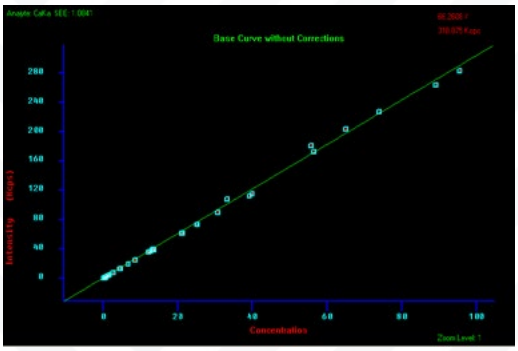
R_i : ratio of intensity to pure element intensity

a_{ij}: influence coefficient of element j on element i

4. Results and Discussion

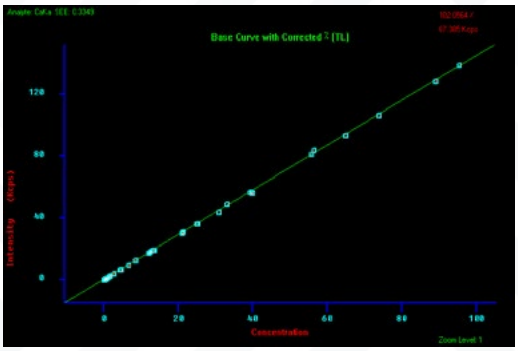
In this part of research paper, the results of calcium oxide will be presented as an example of a method for correction matrix effect by trail lachance method.

Fig. (1)



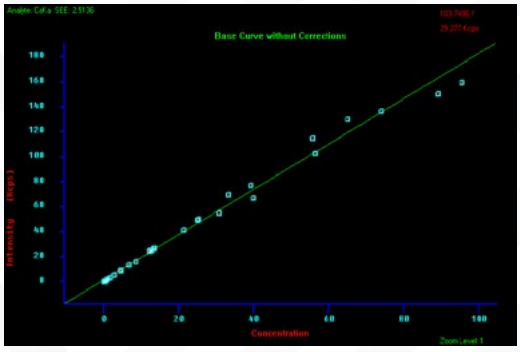
a. Calibration curve for CaO using $Li_2B_4O_7$ as fluxing agent as shown in Figure (1).

Fig. (2)



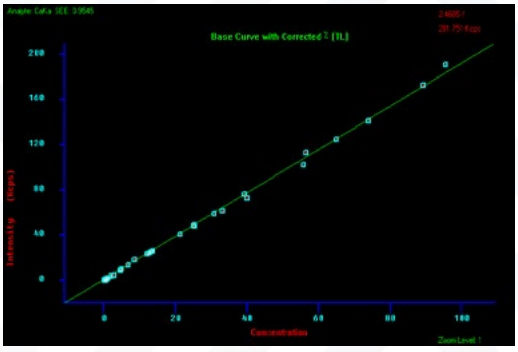
b. Using trail lachance method to correct errors of matrix effect in CaO calibration curve as shown in Figure (2).

Fig. (3)



c. Then developing calibration curve for CaO using $Na_2B_4O_7$ as fluxing agent at 1150 °C as shown in Figure (3).

Fig. (4)



d. Using trail lachance method to correct errors of matrix effect in CaO calibration curve as shown in Figure (4).

The calibration of wavelength-dispersive X-ray spectrometer is based on the following procedure:

a. In the first step, developing calibration curve for CaO (using $Li_2B_4O_7$ as fluxing agent) without correction; then with trail lachance correction and compare the results as shown in Table (2).

b. In the second step, developing calibration curve for CaO (using $Na_2B_4O_7$ as fluxing agent) without correction then with correction with trail lachance and compare the results as shown in Table (3).

c. In the third step, comparing between $Li_2B_4O_7$ and $Na_2B_4O_7$ as fluxing agents in terms of accuracy and economic cost as shown in Table (4).

	$Li_2B_4O_7$ as fluxing agent	
	without correction	with trail lachance correction
* SEE for CaO Curve	1.0841	0.3349

Table (2): CaO calibration using $Li_2B_4O_7$.

	$Na_2B_4O_7$ as fluxing agent	
	without correction	with trail Lachance correction
* SEE for CaO Curve	2.5136	0.9545

Table (3): CaO calibration using $Na_2B_4O_7$.

	$Li_2B_4O_7$	$Na_2B_4O_7$
* SEE for CaO Curve	0.3349	0.9545
cost for 1 sample** (L.E.)	4.62	1.52

Table (4): Comparison between $Li_2B_4O_7$ and $Na_2B_4O_7$ as fluxing agent

* Standard error of estimate (SEE) which expresses the quality of the correlation fit using the following formula

$$SEE = \sqrt{\frac{\Sigma\Delta^2}{n-2}}$$

Where Δ: difference between real value and calculated value.

** Cost for 1 Sample = $\frac{cost\ of\ 1Kg}{No.of\ sample\ (=151\ sample)}$

5. Conclusion

According to the results obtained, we note the following:

- Calibration curve with $Li_2B_4O_7$ is more accurate than the calibration curve with $Na_2B_4O_7$ because sodium exists in both of fluxing agent and sample, another reason sodium causes overlap with other elements during measurement.
- The calibration curve obtained allows for the measurement of cement samples from different factories, in addition to measuring all types of raw materials used in cement industry, because of the wide range of concentration of elements used in the calibration curve.
- From the economic point of view $Na_2B_4O_7$ is less expensive than $Li_2B_4O_7$ for this reason; we can use $Na_2B_4O_7$ in routine analysis, while $Li_2B_4O_7$ could be used in more precise analysis for quality control.

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The new class of silicone grinding enhancers

Wacker Chemicals Middle East, UAE

Abstract

The cement industry is constantly searching for an improvement, especially now, when the CO_2 emission target is in agenda of all cement makers. To meet such demands the most feasible way is to reduce clinker factor but keep the strength on the same level. The other option is to reduce wastes of production and extend any cement shelf-life. Although it is a big challenge, but there is a new class of silicone chemicals could help in solving this issue. The first one is very effective surfactant, which reduces surface tension. It helps to improve griding efficiency of existing grinding aids, even water with only 5% of this additive could compete with aminoalcohol-based grinding aids. The other is hydrophobic liquid or emulsion, that protects cement surface for undesirable moisture uptake and caking during storage and transportation. Article present results in more details.

Introduction

The cement industry is constantly evolving and becoming more innovative. It uses the most advanced technologies now. New automated technologies have been developed and introduced to the industry in recent decades. Among them are more effective Vertical Mills, pre-heating units, or pre-pressed stations, to name a few.

The other essential feature of the transformation to a highly effective production includes chemical additives. Several very well-known classes of chemicals help improve mill throughput and stabilize quality, especially for blended cement of CEM II, CEM IV, and CEM V types, or in some cases, increase the final strength of the cement.

There is another new additive class that attracts the attention of cement manufacturers. The ability of silane-siloxane-based chemicals to interact specifically with silicates and aluminosilicate minerals, combined with unique physical properties, is difficult to achieve with other traditional chemicals, extends even further the high potential of cement production.

Two primary polar directions could be achieved with the use of silicone chemicals for cement – highly surface tension reducers and hydrophobation additives. Surface tension reducers, or booster aids, improve the distribution of a small amount of chemicals during the grinding process in the mills. It helps to increase the efficiency of any supportive chemicals, resulting in a mill throughput increase. Improvement of the production rate by 10-20%, with a rise in the strength of more than 15%, could be achieved in blended cements Cem II A and B types without changing the mineral composition of cement or clinker. For this, the Booster aids fit the best. As a side effect, producers can get a better transportation capability for cement and reduce some other operational expenses.

Hydrophobization of the cement powder is quite an essential step for specialty cement, which needs to be stored for more than three months at high humidity before delivery to the end user, or application in-filed as oil-well or nano-cement. Hydrophobic additives were used for more than five years to increase shelf-life and avoid anti-caking of cement powders. In countries with high humidity and high temperatures, or vice versa in frigid climates, where concrete construction could be made only within 3-4 months a year, increased shelf life became one of the competitive advantages.

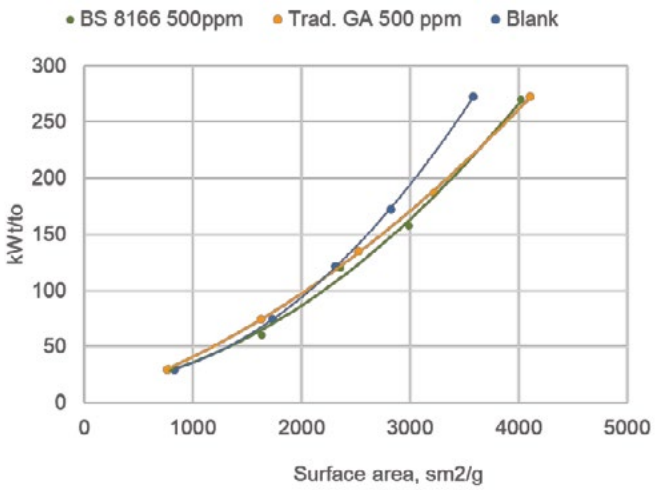


Figure 1. Comparison of grinding efficiency in laboratory ball mill for mineral mixture 5% of gypsum and 95 % clinker. The calculated electricity consumption versus Blaine surface: Blank–mineral mixture with no additive, Trad. GA 500 ppm – the traditional grinding aid based on the combination of triethanolamine and polyhydric alcohols were added in the amount of 500 g/to cement.

BS 8166 IN-D 500 ppm – 5% water solution of the new generation silicone additive was added in an amount of 500g/to of cement.

Description

New generation additives of sustainable chemical type have demonstrated a fascinating effect during cement grinding. It helps water itself to become a very effective grinding aid. Only the 5% active ingredient content water solution of Silres BS 8166 demonstrated the same efficiency for Cem I 42.5 N-type cement (EN 197-1) as traditional grinding aid (See fig. 1).

It works even better when it comes to Cem II/B-L types. For instance, using only 300 ppm of 5% water solution can increase the earlier strength + 21% after 3 and +15% after seven days. It worked for cement ground from 75% clinker, 20% limestone, and 5% gypsum. Similar numbers were observed for traditional grinding aid at the 350 ppm concentration. But if two additives were mixed, the composition demonstrated a synergetic effect. The strength gets higher at 50%, 35%, and 15.5% after 3, 7, and 28 days, respectively (fig. 2). It even helped to bring this cement to a 32.5 strength class without changing the mineral composition or any grinding settings.

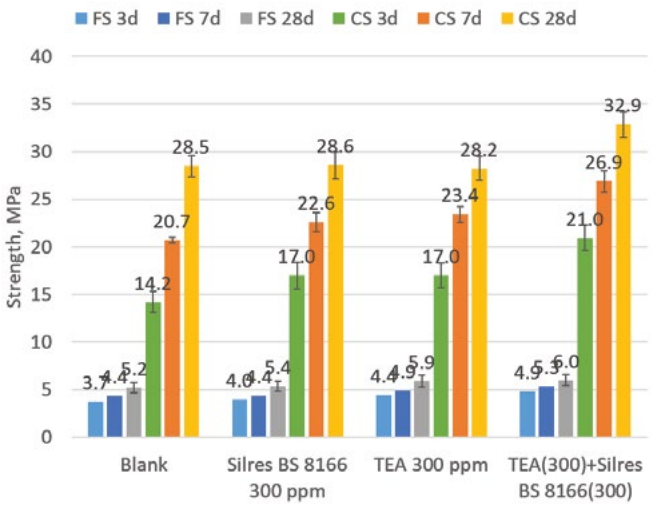


Figure 2. Strength of cements, obtained from mineral blend of 75% of clinker, 5% of gypsum and 20% of limestone, by grinding in ball mill with fixed time. FS – Flexural strength, CS Compressive strength.

How does Booster aid work?

The efficiency of using this additive is shown here by putting the water droplet onto the plastic cup surface. If one immerses the pin tip in the 5% water solution of Silres BS 8166 and then touches the droplet, it starts to spread immediately. The surface covers with water and can then be masked. It becomes evident that a disappearing small dosage of BS 8166 is enough to increase the spreading of the water droplet on the non-wetting surface approximately two times (fig. 3). The same way the product works in the ball mill on the production site. The spreading of the water or solution of the existing grinding aid is significantly improved and, as a result, boost the properties of both additives.

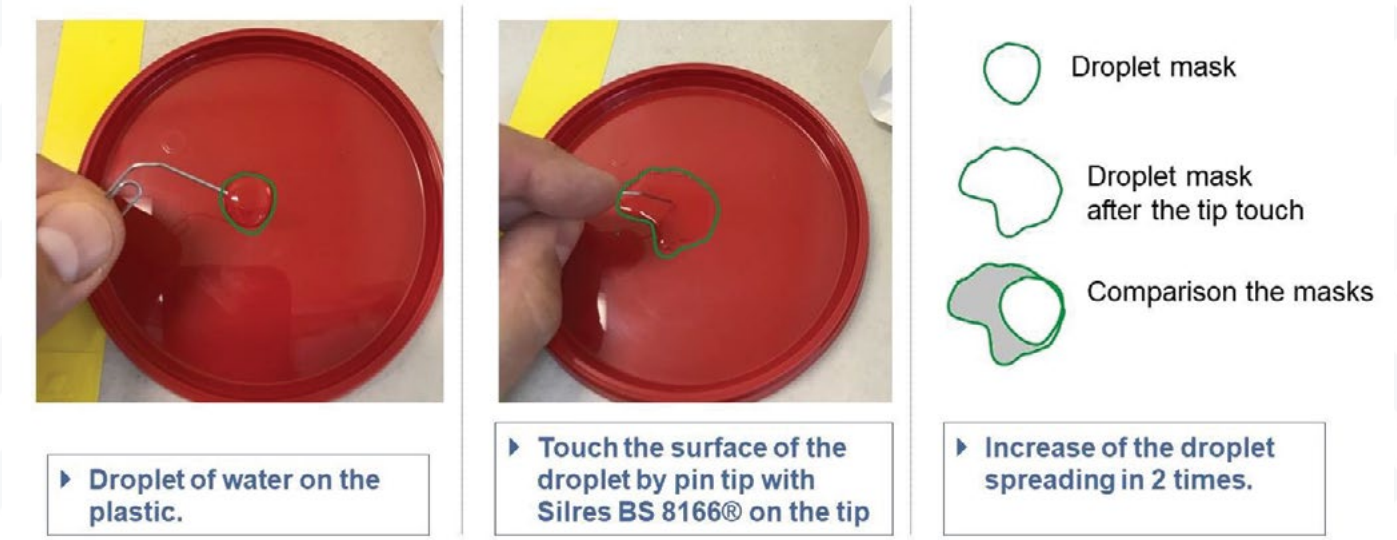


Figure 3. The water spreading effect of Silres BS 8166 on hydrophobic surface.

Cement stabilizer.

Depending on technical requirements, other chemicals are available as non-water-containing admixtures or water emulsions. Our test results have shown that using silane-siloxane liquids of unique chemical structures significantly improves its ability to maintain properties in extreme conditions. For the last several years, hydrophobization of the cement type Cem II A and B has started transforming the cement transportation. Even in hot and humid climates, the cement activity remains the same for nearly six months.

Adding the silane-siloxane liquid of Silres BS 8010 of 200-500 ppm to mineral compositions, with the following grinding, can give a very stable cement. Anyone could easily check it by putting cement into the open vessel or a tray. The cement layer thickness should be about 1-2 sm. Then keep the cement at 50-70% relative humidity for 1-6 months. We performed this test in our laboratory. We kept cement for 3 and 6 months at RH 50%. After that, cements were mixed with water and EN 196 sand, molded in standard prisms in accordance with EN 197. Comparative measurements made after 28 days showed significant strength loss between blank cement before and after exposure fig 4.a. While blank had lost 30% of its activity, the use of BS 8010 led to no strength loss for both 250ppm and 500ppm dosages tested.

Accelerated storage stability test was developed in our laboratory, as well. The results on the fig. 4b was performed for Cem I type, consisting of 95% clinker and 5% gypsum. Grinded with 250 ppm or 500 ppm of BS 8010, the cement was exposed to 100% relative humidity for 14 and 21 days. After that, cements were tested with EN 197, as described above. After 28 days of curing, the resulting compressive strength showed that the loss for Blank cement was around 50% from 48.8 MPa, down to 25.3 MPa after 21 days. In parallel, cement with 500ppm of Silres BS 8010 showed almost no strength loss Fig.4 b.

Finally, the essential feature of cement stabilyzer is that the use of Silres BS 8010 gives adequate protection against caking. Suppose cement after the grinding process is compacted under a pressure of 34 kN. It is a 2-time fold excess of the stress that bears the bottom cubic meter of cement in the silo of 80 meters height. This compacted cement is kept at 50ºC and RH 100% only for 24 hours. The resulting force that is required to break it – Lump Breaking Force (fig.5) will strongly depend on the chemical additives which will be used during the grinding process.

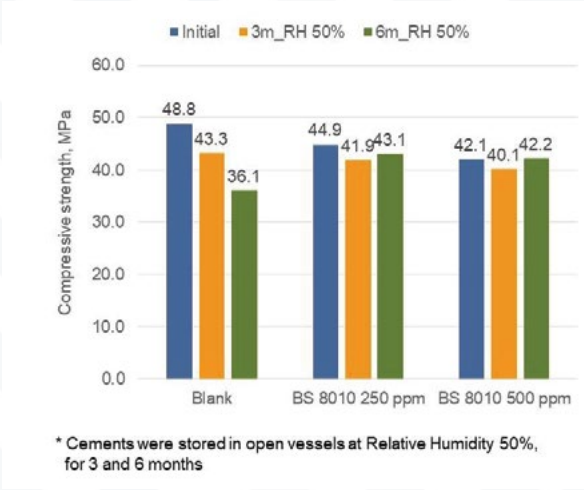


Fig. 4a. The strength decay after storage in RH 50% for 3 and 6 months

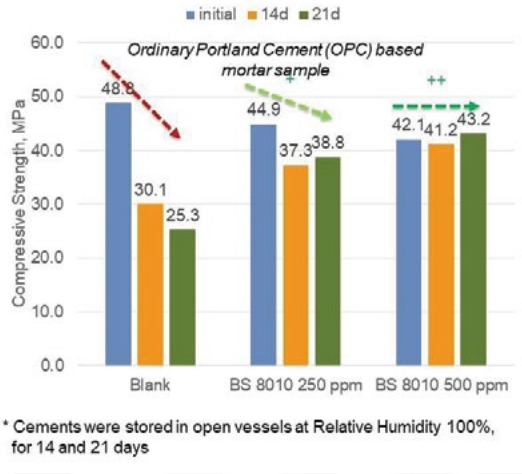


Fig. 4b. The strength decay after storage in RH 100% for 14 and 21 days

Using silane-siloxane liquid leads to a significant reduction of the force, required to break the lump. But the blank or even traditional grinding aid makes the strength of lumps 2-4 times higher. After recalculation the compressive strength of lumps in case of the conventional grinding aids use is the same as a floor screed. In silo cleaning procedures, such lumps are challenging to be extracted and be utilized. In the case of factories located on a coastal line, such cement modification could solve many headaches, and even use the lumps as a cement with lower class strength after the cleaning procedure. Such approach will help not only to reduce wastes, but also make production more sustainable.

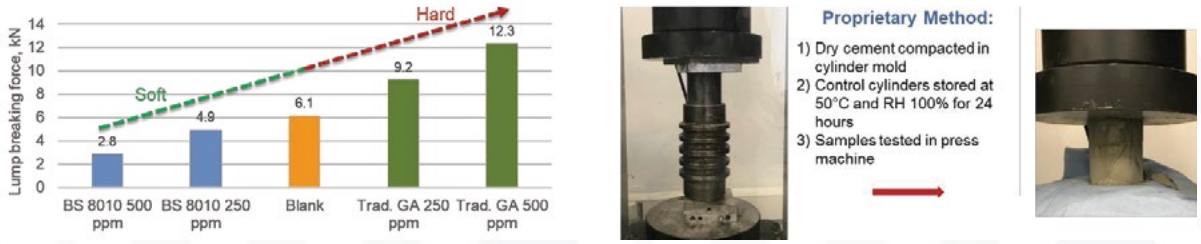


Figure 5. The Lump breaking force, that need to be applied to lumps after exposure at RH 100%, 50ºC, within 24 hours.

Conclusions:

Silicone or silane-siloxane -based chemistry is known for its unique properties, which could be very beneficial for innovating cement production. Unique properties such as extreme surface tension reduction or the complete opposite - extreme hydrophobization of the cement powder, could improve the properties of the cement obtained even further.

Combining booster aid with traditional grinding aids or water for cooling the clinker during the milling process could make cement stronger without changing mineral composition. Conversely, some silane-siloxanes could stabilize cement during storage or significantly reduce caking on the bottom of the silo or in bags.

Considered silicone-based chemicals are different in its nature and applications, but both are already available to solve some of the cement industry's headaches.

Test before you invest

Colour, quality, cost

Necim Ourabah, Calcined clay solutions – Sales Lead
Steven Miller, Global product manager - Preheater

Testing, testing – how material and pilot scale testing helps confirm clay suitability for eco cement

FLSmidth experts describe the material testing necessary to determine if a particular clay is suitable to process into eco-friendly cement.

Clay is a naturally occurring material found almost everywhere around the world. Already, current standards allow for 50-55% clinker substitution, reducing process emissions by more than 40% - a staggering achievement for an industry that is currently responsible for producing around 7% of global CO_2 emissions. Looking ahead, though, the potential is far greater. As practices evolve even further, performance-based approaches will likely gain wider acceptance such that 70% substitution can become more commonplace. This, paired with other CO_2 reduction methods, will put the cement industry within sight of its net zero goals.

No wonder, then, that cement producers are increasingly interested in this eco alternative. But how do you know if your clay is the 'right' clay for the job? What guarantees should you get before you proceed with an investment? We called on Mette Moesgaard, Lab Engineer, and Rasmus Franklin Momme, Global Chief Process Engineer, to tell us all about FLSmidth's clay testing laboratory and pilot plant, which is used by companies from around the world to determine the chances for a project's success, based on the materials available and their properties.

Why clay matters

Cement manufacture is an emissions-intensive process. We can replace fossil fuels, we can increase energy efficiency, we can optimise every part of the process, and we still won't get close to a zero-carbon process because of the embedded emissions that arise during the calcination of limestone. Carbon capture promises hope for the future, but that technology is not ready to take on this level of emissions just yet. Replacing clinker has therefore become key to the cement industry's net zero vision. The less clinker we make, the less carbon emissions are released. "Cement producers have long been replacing clinker in some quantities with things like limestone, fly ash and other pozzolans," explains Rasmus. "But clay offers a global opportunity for greater emissions reduction – first because it's so widely available, and second because of its pozzolanic properties after activation. However, not all clay is suitable to use as a clinker replacement. Which is where our laboratory and pilot plant come in."

Step one - Testing the raw clay

The first step is to evaluate if the clay raw material of interest (most often clays or shales) has the potential to be a suitable precursor for SCM production. In order to do this, the customer sends us a 15 kg sample of the material, which should be a representative sample from across the deposit. They typically send several different 15 kg samples, enabling us to determine which ones have the most potential.

We use XRF, XRD and thermal analysis to determine the chemical and mineralogical composition of the sample and ask:

- Does it contain the desired minerals and at sufficient quantities?
- Are there any red flags in terms of emissions?
- What about the physical properties of the clay?

The physical properties are important because they will have an influence on wear and handling.

When we run these tests, we're looking at it from the perspective of 'is this feasible?' as well as 'is this financially viable?' If the results were to show that emissions would be so high that the cost of air pollution control measures would outweigh the cost benefits of using calcined clay, for example, then we would make the customer aware of that so they could decide whether or not to proceed.

"At this point, we can rule out any materials where the content of reactive clay minerals is too low," says Mette. "When that's the case, there's no benefit in continuing with the testing, and we'd recommend the sender look for alternative sources."

The testing is not just a simple "pass" or "fail", but also provides insights to guide the project design. For example, information about the physical properties of the material feeds into project planning, so that equipment is designed to withstand highly abrasive or extremely sticky materials. Not only does this avoid costly pitfalls during commissioning, but it also makes the initial business case far more accurate.

What kind of analysis?

- **X-ray diffraction (XRD)** is an analytical technique used for phase identification and quantification of crystalline materials. Qualitative analysis of clay minerals is challenging due to the various chemical compositions, preferred orientation, structural disorder and great structural diversity of clay minerals. Thus, the XRD results are combined with other methods of analysis.
- Thermal analyses, including **thermogravimetric analysis and differential scanning** calorimetry, are used to study how the properties of the clay raw material change upon heating. The results are used in combination with the results of XRD.
- **X-ray fluorescence (XRF)** is a technique used to determine the oxide composition of the raw material without providing any information on the mineralogy.

Step two – SCM characterization

"Provided the results from step one indicate that the clay may be a good match, we move on to step two," says Mette. "At this stage, we calcine the clay in our laboratory (usually a sample size of about 2 kg of material) and then evaluate the results. The calcination temperature will depend partly on the results of step one, but we may undertake calcination at up to three different temperatures to analyse the results."

Step two also includes an emissions analysis, an initial assessment of grinding behaviour, a characterisation of the calcined material, and what the material looks like after calcination. In addition, it includes an assessment of the potential to control the colour of the calcined clay, rheology, and strength testing of a blended cement containing the calcined clay. In the case of rheology issues, we evaluate optimisation by usage of superplastizers.

"The majority of the clays we have looked at so far have moderate or high potential to be used as SCMs," says Mette. "In the few samples we've seen where we've suggested not to proceed, one of them contained excessive Pyrite, which would increase the sulphur emissions significantly, and necessitate a much higher capital investment. That's where the testing is so valuable. Pre-screening enables cement manufacturers to disqualify the worst materials – whether that's because the emissions are too high or the strength doesn't meet requirements."

Our emissions assessment package includes:

- Chloride (wet chemical method)
- Fluoride
- Sulfide
- TOC / Org. C
- Crystal water
- CO_2
- Offgas test
- Heavy metals screening, incl. Hg

The characterisation of the calcined material includes:

- Calcination degree based on thermal analyses.
- Distribution of minerals after calcination.
- Strength testing and calculation of strength activity index.
- Determination of water demand of blended cement mortar
- Assessment of the potential to control the colour of the calcined clay, including colour measurement of calcined clay with and without colour control

Colour control

"The characteristics of the clay affect the colour, which is why colour measurements are important during our tests," explains Rasmus. "End users typically prefer grey cement, but adding calcined clay usually means the cement turns a shade of red, pink or brown. We measure the colour at the second stage of our process and undertake a laboratory scale colour reduction to understand what is needed to achieve the typical cement grey colour that customers prefer. We then apply our patent-pending colour manipulation process, to determine the colour gradients achievable for the specific clay or cement mixtures applied to. This process will become even more important as cement manufacturers increase the quantity of calcined clay in the end product – the more clay in the mix, the more colour control is needed."

Step 3 – Pilot scale calcination and product evaluation

"We have a state-of-the-art pilot scale pyro processing facility at our R&D Centre in Dania, Denmark," says Mette. "If the material has successfully passed the first two steps of the process, we will undertake a pilot scale calcination."

The installation includes:

- Flash calciner string with temperature up to 1000°C and feed rate up to 100 kg/h
- Fluidised bed principle reduction vessel for colour control
- Flash cooler string where temperature profiles are controlled – to ensure colour is preserved and heat recuperation will be applied in industrial configuration.
- Measure the full portfolio of gaseous emissions

FOUR SAMPLES IN EACH IMAGE

Top: Cement
2: Calcined clay
3: Cement 70%, calcined clay 30%
Bottom: Cement 50%, calcined clay 50%

"In order to undertake the pilot calcination, we usually have the customer send us at least 3 tonnes of raw material," Mette explains. "We're aiming to produce as much of the finished product to send back to the customer as possible – usually at least a few hundred kilograms, sometimes more – so that they can perform their own large-scale tests on mortar and concrete mixes."

Having established the conditions for calcination in step two, in step three it is typically only necessary to produce the calcined material at one set of process conditions.

After dry crushing or grinding, the clay meal is calcined and then further tests are carried out to determine the degree of calcination, mineralogy after calcination, and the colour. It is then ground to a standard fineness and tested for performance in a blended cement mix.

The mortar test of the final product includes one standard degree of substitution and the following tests:

- Strength testing at 1, 2, 7 and 28 days according to EN norm, or 1, 3, 7 and 28 days according to ASTM norm
- Calculation of strength activity index
- Water requirement to reach normal consistency of fresh mortar

Gypsum is added to the blended cement to obtain an SO3 content that matches the SO3 content of the cement. During standard evaluation the lab uses a CEM I 52.5 cement as reference, but it's also possible to include other cements or a clinker as part of the test.

"Step 3 is the time to experiment with process design, to define the optimum parameters for calcination, colour control and emissions," says Rasmus. "This work is so important to ensure our customers get the most from their investment. We usually invite customers to come to the plant at this stage, so they can see the results for themselves. It's really rare for a clay to 'fail out' of the process at this point, but it can happen."

Step 4 – Extra testing

In step 3, we either use our own reference cement to mix up the blended cement for testing, or the customer can send us some of their cement products for us to test. This testing is usually to produce a binary (cement/calcined clay) cement, but sometimes customers also want to test other options, like a ternary cement comprising cement, calcined clay and limestone. We offer both, so this fourth step is really just to carry out any further experimentation the customer would like to try.

Whether or not cement manufacturers proceed with the extra tests, they will receive all the information needed to decide whether to proceed with the investment. First, they will receive a complete summary and analysis of all testing performed, even guidance on the process design that would optimize their future operations. In addition, they will receive finished product (material), which they can use to carry out any further tests on their own.

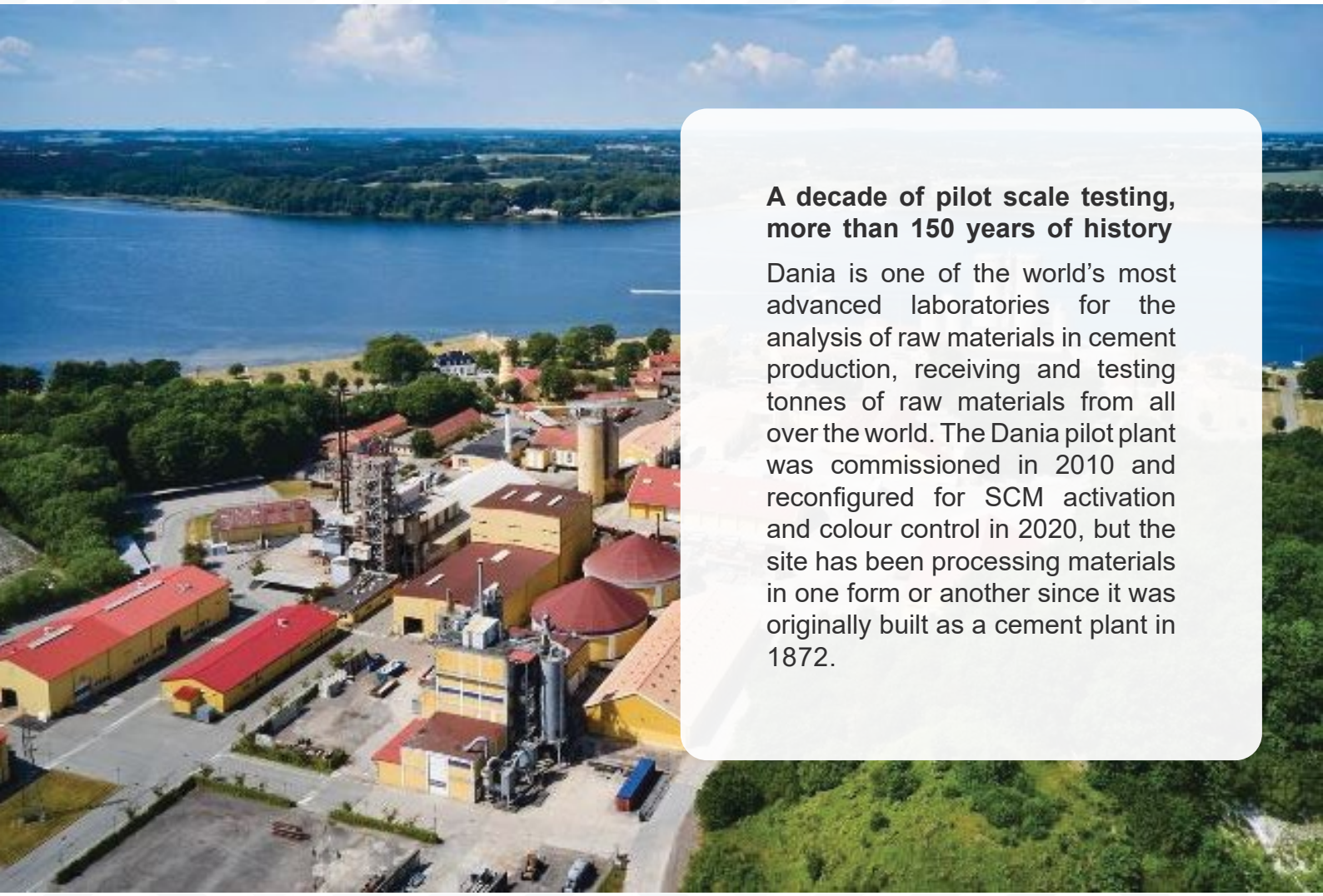
Conclusion

Calcined clay represents the best opportunity the cement industry has right now for large-scale emissions reduction, as well as reducing OPEX or even enabling a low-cost capacity increase. As standards evolve to enable greater use of SCMs, cement producers would be wise to seize that opportunity and position themselves for future changes to the cement mix. However, while the market continues to demand grey cement, cement manufacturers should also be aware that the more clay they add, the more colour control will be needed. In order to ensure the right quality and the correct colour, careful planning is required. Pilot scale testing enables cement producers to get the information they need to determine if their clay is suitable, and to design the process for the best results.

Reasons to use calcined clay to reduce your clinker factor

With LC3-50 (CEMII C/M) cement where the raw clay contained 15% moisture, 10% LOI (dihydroxylation), you can achieve:

- Up to 40% CO_2 emissions reduction per tonne of cement
- 30% reduction in power consumption per tonne of cement
- 40% reduction in fuel consumption per tonne of cement
- Increase productivity without increasing emissions
- Worldwide availability
- Maintain cement quality with much-reduced environmental impact
- Technology is proven and available now, with low ROI and low OPEX



A decade of pilot scale testing, more than 150 years of history

Dania is one of the world's most advanced laboratories for the analysis of raw materials in cement production, receiving and testing tonnes of raw materials from all over the world. The Dania pilot plant was commissioned in 2010 and reconfigured for SCM activation and colour control in 2020, but the site has been processing materials in one form or another since it was originally built as a cement plant in 1872.

BEUMER Group introduces a modular system for its palletizers

Rethinking the Machine

BEUMER Group, Germany

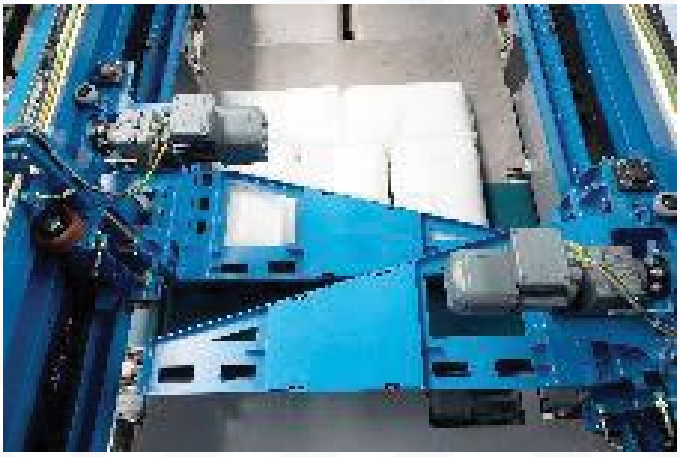
The BEUMER Group has completely redesigned and overhauled its paletpac range of robust palletizers. The modular machines now have identical or similar components and modules and – wherever possible – are based on the same design. The total number of components has been reduced and faster deliveries are possible. If replacement parts are later needed, this will also go faster. BEUMER configures the modules according to each customer's requirements, tests them in-house and installs them on the customer's premises, saving time and money.

The BEUMER Group, a full-service provider of palletizing and packaging lines, offers highly efficient palletizers that deliver many years of service even under tough conditions. "Our paletpac series is keyed to the characteristics of the packaged goods and complies with the customers' requirements for packing patterns and pallet dimensions," says Kay Wieczorek, Divisional Director of Product Business at BEUMER. The systems gently handle packaging units of all kinds.

"We've redesigned our BEUMER paletpac and given it a modular structure," says Wieczorek. "This has a number of big advantages for our customers." For example, the performance of the machines can be modified at a later time if necessary, and if there is ever a need for retrofitting or repairs, the new design saves a lot of time.

Simpler installation

The new model range not only makes configuration easier, it also simplifies installation. "Previously, it was necessary to use forklifts with a capacity of up to eight tons," says Wieczorek. "Now a capacity of five tons is sufficient." The modules are designed so that they can be picked up from two different sides. This simplifies assembly in confined spaces. Customers formerly received two large modules; now they get three that are more compact, which makes handling simpler. "We now only need standard shipping containers," says Wieczorek. In view of the container crisis caused by the pandemic, this is a real advantage.



The BEUMER paletpac series is keyed to the characteristics of the packaged goods and complies with the customers' requirements for packing patterns and pallet dimensions.

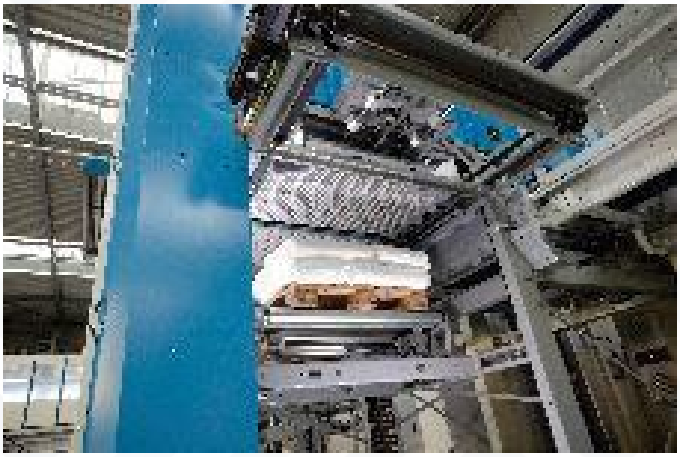
Optimized components

BEUMER has redesigned all the modules in its paletpac series in terms of function and utility. It has optimized the motors and drives in the belts and streamlined the design at transfer points, making transport processes much gentler. The size of the assemblies has also been modified for greater efficiency, boosting the performance of certain modules.

The new BEUMER paletpac has been equipped with a larger deposit table. With maximum layer dimensions of 1,500 x 1,300 millimeters, it can accept bags filled with bulk materials on euro pallets or pallets with other formats.

The developers have also redesigned the pusher, which is used in all BEUMER paletpac models. The undercarriage is the same for both single and double pushers, enabling users to increase the performance of the system at a later time without making big adjustments to the modules.

“Different packing patterns are also possible,” says Wieczorek. “This starts at the layer preparation level. The machine places the bags on the lifting gear in alternation. If the material in the goods is nevertheless unevenly distributed and cannot be equalized when the bags are fed, the BEUMER paletpac can be supplied with a turning device in the lifting gear. Rotation of the bags by 180° prevents uneven stacking.



The lifting gear of the BEUMER paletpac in action. With cement, for example, the machines can achieve a throughput of up to 6,000 bags per hour.

The new BEUMER paletpac with undercarriage for a single or double pusher. Layers with dimensions up to 1500 x 1300 millimeters can be prepared and pushed to the deposit table.

Control system adapted to the available space

When they modernized the paletpac, BEUMER’s developers also improved its footprint. The control cabinet bays have a standard configuration, but a space-saving offset arrangement is also possible if required by the customer. The enclosure for the lifting gear also saves space. “We gave this series a slim design,” explains Wieczorek. The Human Machine Interface (HMI) is located on the maintenance platform at the layer preparation level. If the operator needs to make adjustments, he or she can see the whole machine at once. Additional control units, for example in the area of the lifting gear, can optionally be installed for even greater convenience.

Focus on energy efficiency

For drive technology, the BEUMER paletpac relies on the MOVI-C modular automation system from SEW. This centralized approach requires less space in the control cabinet and reduces the number of components in the bay. Energy savings of 20 to 30 percent can be achieved by means of a common DC link in the frequency converters and optimized motion sequences. Energy storage units are another option: “These are an efficient means of eliminating peak loads. They also cut operating costs for users and reduce the carbon footprint,” says Wieczorek.

BEUMER has gone to great lengths to ensure reliable operation of the new paletpac generation. One such measure was to subject the palletizers to tough endurance tests. Service technicians now have it much easier if modules have to be serviced or components replaced. For example, belt changes take much less time thanks to better accessibility.

The BEUMER paletpac range continues to offer a wide range of models at different capacity levels. Machines in the low-throughput range stack up to 1,800 bags per hour. Those in the medium and high-throughput ranges stack up to 3,200 and 6,000 bags per hour respectively.

Kiln operator support
a practical example

Mark Mutter – Managing Director – JAMCEM Consulting

Introduction

Some time ago, we wrote an article in this publication relating to the benefits of providing support, mentoring and training to the kiln control room operators by using the services of the JAMCEM Kiln Master Burner (MB). Such assignments normally take place over an extended period – for example 6 to 8 weeks – to allow the MB time to familarise himself with the plant as well as the control room operators and then sufficient time to correct some of the plant operational issues and identify further areas for improvement on the plant. Having recently just completed one such assignment, we thought it worthwhile updating this previous article with some practical results from the assignment.

Plant Background

The plant itself was a separate line calciner system which was the result of an upgrade from an original preheater kiln system over 30 years ago. Therefore, there were issues that would be expected of a plant of this age such as inleaking air. In addition, the plant had also moved from conventional fuels to a high level of alternative fuels in the precalciner. Other issues include a small clinker cooler for the output of the plant and a partially blocked raw meal silo that both reduced the raw meal storage capacity as well as reducing the blending capacity of the silo.

During the initial assessment of the plant, it was clear that there were two main issues that were affecting the process stability that could be influenced in the short term – these being kiln feed chemistry and cooler control.

Kiln feed chemistry

Whilst the plant had a cross belt analyser on the feed system to the raw mills, the system was still operating with targets based on the Bogue formula as opposed to using the globally accepted ratio control of LSF, SR and AR. The Bogue formula only provides an indication of the potential clinker minerals that could be formed, whereas using the more conventional control ratios provides much more information relating to the conditions in the kiln and how the operators will need to adjust their operations to produce good quality clinker and to prevent the kiln from flushing. The cross-belt analyser control was therefore switched to conventional ratio control as were the results of the raw meal and kiln feed sampling.

In addition to changing the way in which the chemistry was reported, we also recommended a change in frequency of the measurement of the kiln feed chemistry from 4 hours to 2 hours. Knowledge of the kiln feed chemistry and how it may behave in the kiln is a critical piece of information and a frequency of 4 hours is too long between samples. In addition to changing the frequency of the sampling, we also stressed the importance of the sample being analysed quickly for the information to be of value to the operators.

Cooler control

With the clinker cooler being small for the throughout of the kiln due to space constraints when the kiln system was upgraded, it is critical to ensure that the airflows are correct to maximise the secondary and tertiary air temperatures as well as minimise the clinker exit temperature.

The initial observation on the clinker cooler was that several of the fans were stalling and not delivering sufficient airflow to the cooler. The fan speed was reduced on the stalling fans which resulted in an improvement in the cooler operation.

Subsequent to this was work on ensuring that the control room operators had a read-out of the actual airflow from the piezometer rings that were installed on each of the fans, as the control room readout was only indicated as a percentage. This work was completed with the plant process engineering team through calibrating the piezometer rings with actual airflows measured in the field. The MB also developed an airflow chart for the operators, so that they could subsequently set the fan to the correct flow for the tonnage that was being produced by the kiln.

The final action on the cooler was that of controlling the grate speed – and in particular the ratio control of the first and second grate. The existing automated control system used by the plant was extremely slow to react and control the grate speed, so a more conventional PID loop was installed to control the first grate speed and then ratio control was installed between the first and second grate speed.

All of the above actions resulted in a much more stable cooler with more consistent secondary and tertiary air temperatures and therefore improved kiln stability.

Preheater operation

Of the two strings of the separate line calciner system, it was clear that the preheater string was the area where most opportunity existed. While both strings appeared to be fan limited, the calciner string was being pushed hard with the alternative fuels and had acceptable levels of oxygen at both the calciner exit and preheater exit.

The preheater string was operating with two fundamental issues as follows:

- Lack of kiln back-end analyser. The result of this was that the operators were using either the stage 3 outlet or preheater outlet analyser for combustion control. This is inadequate and can result in under and over-burning the clinker and can lead to kiln flushes and over-burned clinker.
- Extremely high level of inleaking air between the kiln back end and the preheater exit. The result of this was that the available fan volume for clinker production was being taken by the inleaking air being drawn in through the tower.

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Whilst neither of these issues are rare in older cement plants, to optimise the kiln system and return to previous levels of output, JAMCEM recommended a focused maintenance programme for the reduction of inleaking air in the tower as well as recommendations for the installation of a new kiln back-end analyser. Both actions will not only allow output to be increased but will allow the operators to improve overall control and consistency of operation.

Free lime control

A further observation was the low target level for the free lime of the clinker, which was below 1. Due to the variability in the kiln feed, there were times that the free lime was extremely low for consistent periods – this hard burning results in:

- Higher fuel consumption
- Lower clinker quality
- Finer clinker, resulting in a dusty kiln and red rivers in the cooler
- Shorter burning zone refractory life
- Higher grindability of clinker

JAMCEM therefore recommended that once the blending silo is cleaned and the standard deviation of the kiln feed has been reduced, the free lime target is raised to a much more reasonable level to avoid the hard burning.

Other issues addressed

In addition to the key technical issues mentioned above, the MB offered coaching to the kiln operators as well as answered key technical questions as to why the pyro-processing system would behave in a certain manner. One key aspect was also gaining an understanding of the issues faced by the operators and feeding these back to the Management team so that improvements could be made in areas such as communication, involvement in new projects, training and procedures and control room operations. Many of these issues may not have been raised directly with the Plant Management team, but having an external resource to discuss them with and feed back proved extremely successful. Further guidance was also given in areas such as kiln start-up and shutdown as well as safe cleaning of cyclones.

Conclusion

The role of the kiln control room operator is one of the most important roles in terms of productivity and profitability, as the way in which the kiln is operated affects output, fuel consumption, clinker and cement quality and refractory life. However, the role is often not considered as such and therefore periodically providing support to this position is essential – as is the feedback to the Plant Management on the challenges faced by the kiln operators. The JAMCEM MB provides this support and having worked as a MB for over 20 years in the industry, has the credibility to undertake this role and very quickly gain the confidence in the operators at the plant, which may not be the case when personnel who have never operated a kiln try to advise those already in the role.

Refractory performance- Influence of different factors

P. Sengupta, Technical director, SKG Refractories Ltd. India

Introduction

Refractories, although a very small input in terms of money per ton of clinker produced, but its importance towards the productivity is very high. Very often the problems in Refractory lining compels the forced shutdown of the kiln or other units in the cement plant.

The most important factors responsible for the Refractory performance are shown in Fig-1

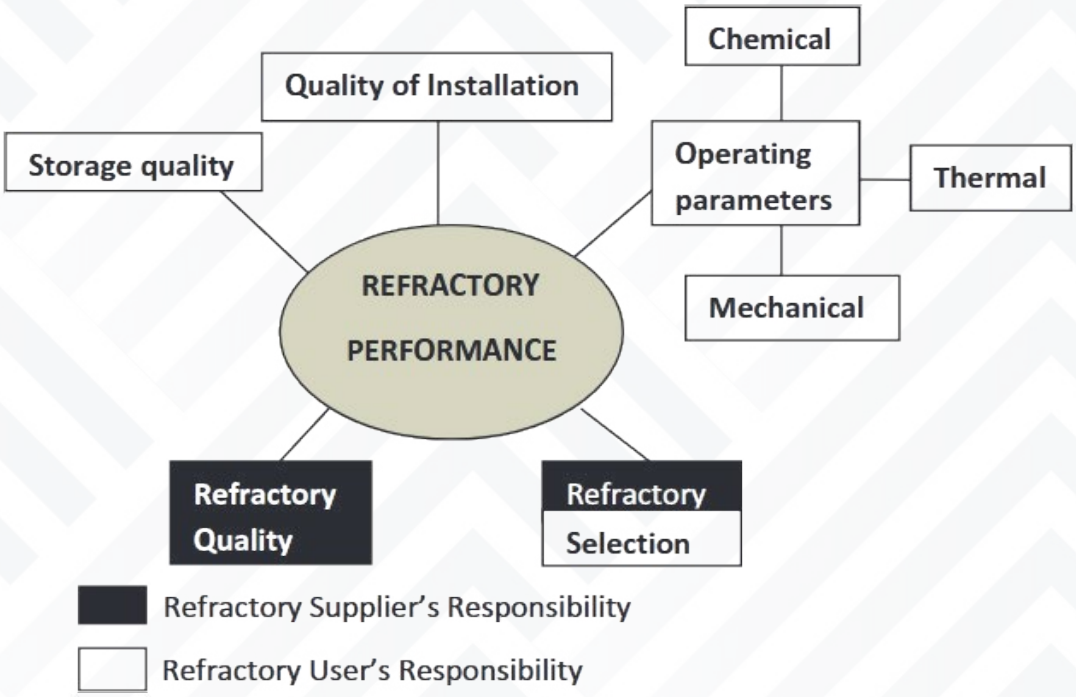

Fig-1, Factors that influences the Refractor performances

The contribution of different factors towards the performance is shown in Fig-2. It shows that in 17% cases the refractory failure is because of quality and in rest 83% of the cases the refractory failures are due to operational problems, bad quality of installation, improper selection of Refractory and poor storage condition. The operational problems alone contributes to failure of refractories in 63% of cases and operational problems may arise because of different reasons like raw meal compositional variation, variation in feed quantity and quality, compositional variation of fuel, disturbance in burner alignment, change in RPM, variation in feed rate, migration and creep in tires, Kiln alignment etc. The effect due to those variation can be categorized as chemical, thermo-chemical, thermal, mechanical, thermo-mechanical in nature.

The variations in the operational parameters deteriorates Refractory campaign life directly or indirectly. In some cases change in operational parameters directly enhances chemical attack and corrosion of refractories or enhances damage through thermal, mechanical, or thermo-mechanical causes. In other cases the change in operational parameters affects the refractory performance indirectly, for example by making the coating, over the bricks in burning zone unstable, which protects the refractory lining.

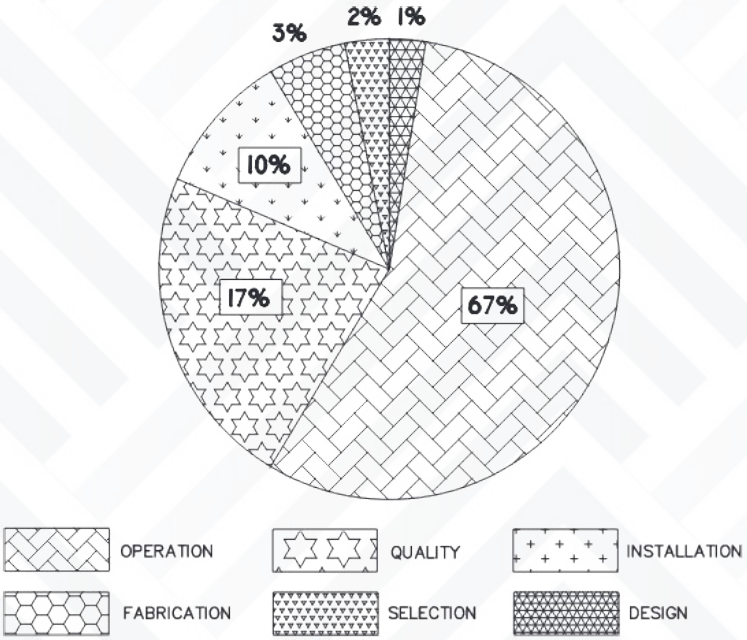

Fig-2, Contribution of different factors towards the failure of Refractory performances.

Raw meal compositional variation – In the burning zone the coating of the cement clinker over the brick layer protects the refractory lining both physically, from direct impact of the flame and mechanical impact of the clinkers and chemically, from the direct chemical corrosion of different ingredients and the clinker liquid phase.

Variation in raw meal composition may change the Alumina and Silica modulus and affects the coating stability in the burning zone as shown in Fig-3. The phenomenon of unstable coating formation can be known from the temperature scanner. The shell temperature fluctuations indicate the unstable coating formation. If the coating formation over the lining is not stable, the Refractory lining will be subjected to fluctuation of temperature very frequently which may cause thermal spalling.

Coating stability - The stability of coating depends upon many factors. It is found that the coating has best stability when the value of Silica modulus and Alumina modulus values are around 2.5 and 1.6 respectively as shown in Fig-3.

The viscosity and the surface tension of the liquid phase formed has got a high bearing on the stability of the coating and the stable coating is formed when those values are at an optimum range. It has been found that the Alkali sulfates, Fluorides and Chlorides in liquid phase reduces the viscosity drastically. Addition of 2% SO_3 in normal liquid phase in clinker brings down the viscosity from 0.16 N.s/m^2 to 0.05 N.s/m^2.

Effect of Alkali and Sulfur – The Cement kilns are used as incinerators now a days to burn all kind of wastes with high percentage of Alkali, Sulfur and Chloride compounds. The chlorides in the system, coming from the alternate fuels and feed material shall first forms the Alkali Chlorides and the rest of the Alkali oxides reacts with SO_3 to form Sulfates and rest of the SO_3 forms $CaSO_4$. These Alkali salts together form compounds like $Ca_5(SiO_4)_2SO_4$ (Spurrite), $K_2Ca_2(SO_4)$, Ca-Langbeinite to form build up in the kiln and can restricts the passage for flow of gases. In that case, the ID fan velocity may have to be increased, which aggravates the abrasion due to both increase in quantity and velocity of the dust laden air.

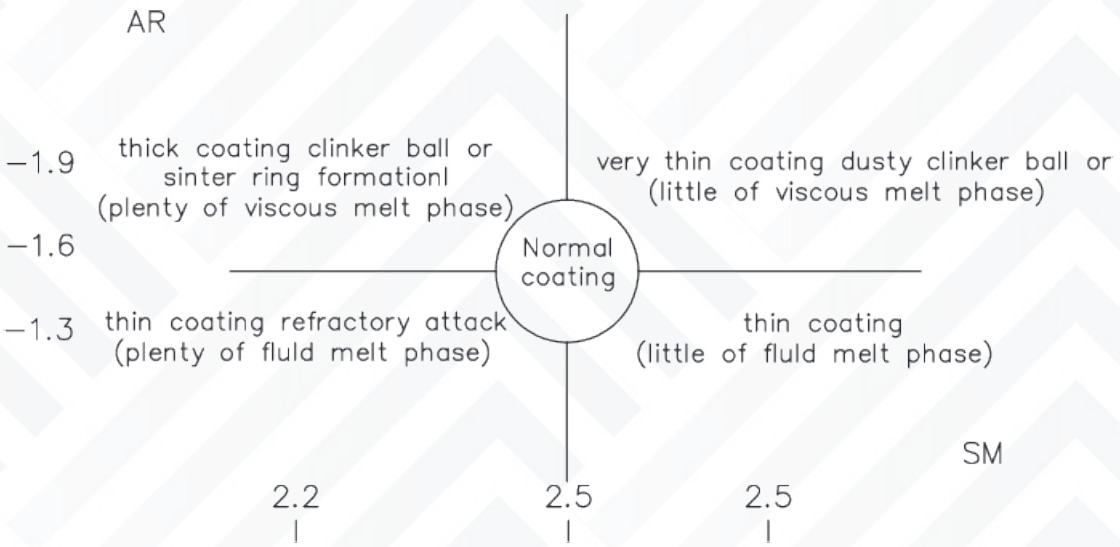

Fig-3, Relation between AM, SM and the coating behavior.

The favorable ASR (Alkali Silica ratio) of the kiln feed should be within 0.8-1.2. The lower figure indicates a higher percentage of Sulfur and there will be generation of extra amount of SO_3, which may attack the different mineral phases like C2S, CMS (Monticellite), C3MS2 (Merwinite) etc. in basic refractories causing deterioration of the basic brick lining. On the other hand, if the value is more there will be excess alkali in the kiln atmosphere which is very harmful for the Alumina refractories and may cause destruction of the brick by alkali bursting. High alumina refractories reacts with alkali vapors and salts to produce Feldspathic compounds like Leucite ($K_2O.\ Al_2O_3.\ 4SiO_2$), Kalsilite ($K_2O.\ Al_2O_3.\ 2SiO_2$) having larger volume than the reactant materials and cause crack formation and loss of strength in the refractory. It has been found that the expansions are more for Potassium compounds rather than Sodium compounds.

It has been found in actual practice that the life of same basic bricks lining has come down after use of high Sulfur (9-10%) Petcoke replacing coal, when the ASR comes down to 0.5 to 0.8 from earlier value of 0.8-1.2.

Investigation of refractory wear in cement plant, 60% wear are due to salt infiltration and associated issues (Fig-4). The rest are due to other reasons out of which overheating is most important.

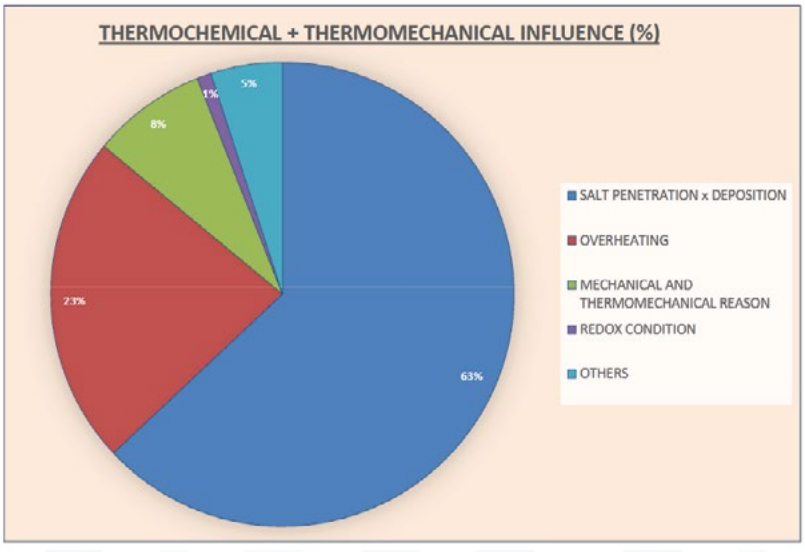

Fig-4, Contribution of different factors towards the failure of Refractories

Different alkali salts in vapour phase infiltrate and condensed inside the brick pores in the colder part of the refractories. These salts have higher thermal expansion than the Refractory and create stresses during heating. At higher temperature these salts melt and their volume in liquid state is more which creates stress upon refractory and develops crack.

The liquid formation in the clinker is a very important criteria, which depends upon the raw meal composition together with fuel ash composition. If the liquid formation is less, coating will not be formed properly which affects the refractory, on the other hand if the percentage of liquid formation is more than the optimum (23-29%), then also the coating formed is unstable. Moreover the infiltration of liquid inside the lining bricks will be more, which alters the matrix of the bricks and causes densification and structural spalling of the refractory leading to damage to the lining. Chemistry of the raw meal influences the viscosity of the liquid formed, e.g, the reduction in AM decreases the viscosity of the liquid formed enhancing the infiltration of the liquid in the brick.

The burnability of the raw mix is also a very important parameter depends upon the raw meal composition. it depends upon the chemistry, mineralogy and the particle size distribution of the kiln feed.

of the kiln feed. The free lime in the clinker is the measure of the burnability of a raw meal. Higher the percentage of free lime, more difficult is to burn that mix and it requires higher temperature. At higher temperature all the corrosive reaction on refractory gets enhanced which ultimately reduces refractory life.

The flow of the kiln feed has also a bearing upon the Refractory performance. Irregular flow of feed material creates temperature fluctuation inside the kiln and exposes the refractory lining to thermal shock.

Variation in feed rate – In a kiln the feed rate is decided by the targeted output, kiln diameter, filling volume etc. and accordingly the burner is set to burn certain fuel at a predetermined rate and the kiln runs smoothly maintaining an equilibrium. If there is a sudden change in the feed rate, the equilibrium condition inside the kiln is disturbed. If the fuel rate in the burner remains same, the temperature will suddenly shoot up in case the feed rate falls below the designed quantity and temperature falls down if the feed rate increases from the designed value. This temperature fluctuation has a very detrimental effect on the refractory lining.

From the above discussions it is evident that the improper control of feed material chemistry and its flow can expose the refractory lining to various types of chemical corrosion, infiltration of liquid phase, thermal shock and higher temperature, which all ultimately causes to the damage and destruction of refractories.

Fuel - Combustion of Fuel inside the kiln not only supplies the thermal energy necessary for clinker formation but also the ash and the combustion gases which takes active part in clinker formation and reaction with the refractory lining material. When coal is used as fuel, the raw meal is designed taking into account the quantity and the chemistry of the ash produced. If the fuel source is changed, the raw - meal chemistry gets disturbed, which ultimately affects the lining performance. The feed rate of the fuel also creates a temperature fluctuation inside the kiln which affects the lining performance. The percentage of ash in coal and its fusion point has got a strong bearing on coating and must be taken into consideration during raw meal design. Like the feed rate, the variation of fuel rate and change of fuel type also disturbs the equilibrium and causes temperature fluctuation inside the kiln which is not good or refractory.

Now a days the trend is to use more and more of alternative fuels like agricultural wastes, municipal wastes, plastics, tyres, etc. All these alternate fuel contributes alkali and chlorine to combustion gases. Alkali first reacts with the available chlorine and then with the SO_3 gases to form different chloride and sulfate salts. The cycle of vaporization of salts in burning zone and the condensation of the salt in the colder zone at the feed end of the kiln which again is carried to the burning zone with the feed material goes on continuously inside the kiln and the concentration of salts increases much more than what it is in raw material. The volatile constituents usually get enriched by following factors: R_2O: 5 times, SO_3^{-2}: 3 – 5 times, and Cl:

80 – 100 times. All these salts infiltrate into the bricks gets deposited in the colder face of the refractory. Thermal expansion of thee salts are much higher than the refractory body. During heating and cooling, this exerts tremendous mechanical stress on the refractory to develop crack. The infiltrated portion of the bricks has different thermal expansion coefficient and MOE due to which a large stress is developed during heating and cooling of Refractory lining.

Flame control – Flame length, shape and its character plays an important role towards clinker formation and it has a profound effect on refractory performance. The flame must be short and convergent to get the best coating in the burning zone. The flame shape and length depends upon so many factors e.g, velocity of primary and secondary air, temperature of secondary air, ID fan capacity, fineness and the volatile matter content of the solid fuel, percentage and type of AF used, burner type, swirl number, condition of burner tip etc. Flame direction is also a very important parameter, the flame should not hit directly on the coating or the lining which can damage the lining very fast. Fluctuation of specific thermal load in the burning zone is harmful for refractory lining.

Burner selection is very important. Momentum and swirl numbs are the parameters to be checked. The flame length can alter the length of burning and transition zone and may damage the refractory if the installation was based on a certain length of different zones which gets altered due to flame length. The solid fuel also must complete its combustion in flight and must not burn upon the refractory lining which may cause localized overheating of the lining and may create the reducing condition to damage the lining.

Redox condition - The kiln atmosphere is an important parameter that has got a severe impact on the refractory lining especially when the lining refractory contains higher percentage of Fe_2O_3. The change of oxidation state of iron oxide is related to volume change which may cause development of crack in Refractories. The use of AF can form local reducing atmosphere.

Mechanical factors – The mechanical aspects of the kiln have very strong influences on the performance of refractories.

Fig-5, Compressive and tensile stresses are shown by arrow-heads.

Ovality – The kiln shell on the tyre area gets oval due to the gravitational pull of the shell at 12 O clock position because of the weight of the shell refractory and the crust over the brick lining. This causes continuous passage of the refractory lining through the alternate cycle of compression and tension. The lining gets compressed at 10 O clock and 2 O clock position and experiences tension at 12 O clock, 5 O clock and 7 O clock position (Fig-5). If the ovality goes out of the norm, it creates a tremendous thermo-mechanical stress on the refractory lining. The ovality problem gets enhanced with higher temperature and reduced shell thickness. The norm for ovality is 10% of the kin diameter. For a 5 meter diameter kiln the ovality should not exceed 0.5% i.e. 25mm.

Migration – of tyer if goes out of the norm (2D to 4D), it affects the refractory lining very badly. Tier throw above the norm, creates gap between tier ring and the guide block. Shimming of the chair pads

must be done very carefully. Before calculating the shim thickness the data of the temperature of the tier and the shell and the migration value must be collected over a long period. The norm of migration value is 2D to 4D in mm (Diameter is in meter).

Kiln alignment – If the axis of the kiln is not in straight line it indicates the distortion or deformation in the shell. The shell distortion or deformation again inflicts lot of mechanical stress on the refractory lining unless proper care is taken during installation. During cooling, the kiln must be kept in constant rotation to avoid distortion. Sometimes the rain on the kiln shell may cause major problem.

Frequent Kiln Stoppage - also is an important factor that causes deterioration of refractories due to thermal shock. Moreover, when the kiln is allowed to cool down, the steel shell gets colder faster than the brick lining and wants to contract. But the refractory lining does not cool so fast and tries to retain its expanded dimension and therefore a tremendous tensile stress develops which may damage the refractory lining.

Installation – Quality of installation has got a great bearing on the refractory performance. It is more important in case of Monolithic refractories for the obvious reason that it is a semi-finished refractory which is partly finished at the premises of manufacture and the consolidation, drying and preheating part is finished at the work site. The lining in the kiln must be made tight, especially for dry lining without the use of mortar. Improper tightness may make the lining unstable, especially for the large diameter kiln and the bricks may fall down during running of the kiln (ref).

Brick lining – The soundness of installation of the shaped refractories largely controls the quality of the lining. Following points must be strictly maintained during the lining.

1. The lining must be made tight.
2. The brick joints with mortar must not be more than 1 mm.
3. Proper expansion gap is to be maintained in case of lining without mortar.
4. In case of rotary kiln lining, the bricks must be parallel to kiln axis and the ring must be perpendicular to kiln axis.
5. During the pre-heating the temperature rise and the kiln rotation must be maintained strictly as per the prescribed norms. When the lining is preheated the expansion joints burn out faster than the brick expands to fill up the joint gap. Therefore, turning of the kiln is to be made very carefully. Both slow and fast cooling are bad for the refractory performance.

Generally, the failure of lining due to defective installation is revealed much early.

Monolithic lining – The following are to be observed strictly during the lining. It is to be remembered that a lining will last for a long time and a shortcut method of saving time ultimately leads to an early shutdown and outweigh the benefit of the time saving in shortcut process

1. The use of correct equipment, like Mixer, vibrating equipment, Gunning / Shotcreting machine etc.
2. Use of anchors of prescribed design and quality of steel
3. Use of water (drinking quality) of prescribed quantity.
4. To follow the prescribed method of curing, drying and preheating.
5. Castable refractory after casting must not be left without drying for long time. If the cast body, without drying, is exposed to atmosphere for long time, due to carbonation of Calcium aluminate cement by atmospheric CO_2, $CaCO_3$ is formed as white powder on the surface of Cast body (fig-6). The phenomenon is aggravated by high humidity and high ambient temperature and impairs the strength of the cast body.

Fig-6, Carbonation of undried cast body.

Design and selection – Refractory life depends upon the proper selection of Refractories. The operating condition in different plants are different and the selection of Refractory for a certain application must be made based on the operational parameters prevails upon there. A refractory which is already performing well in an application area in certain plant may not perform equally in another plant, if the operating conditions are different. For example, the Refractory selection for a Bullnose application must be made based on the velocity of gas that passes over it, the loading of dust particles and their sizes. Therefore, same refractory will perform differently in different plants if operational parameters vary.

The selection of refractory also depends upon the geometry of the equipment and its access for installation purpose. For example, Gunning method should not be chosen to line a wall with Castable which is not accessible perpendicular to gunning nozzle, because sticking will not be proper and lot of rebound loss will be there.

Conclusion – To get the desired performance out of a Refractory lining, both the Refractory material quality, its proper installation and to maintain the process parameters with in the norm are absolutely essential. It is not possible to predict exactly the performance of the refractory lining because of various factors involved, vary at different levels. But best campaign life of refractory is expected when all the factors remain within the stipulated norms.

Mixing sustainability and convenience: Mondi and Baumit launch water-soluble bag for dry mix mortar

- Mondi launches SolmixBag, a paper packaging solution that dissolves in water, eliminating waste.
- SolmixBag is made from one-ply Mondi kraft paper, using renewable resources, and offering high strength and excellent product protection.
- Launched with building materials supplier Baumit, the solution helps to reduce waste for the global construction industry.

Mondi, a global leader in sustainable packaging and paper, is introducing SolmixBag, a water-soluble bag for the construction industry.

SolmixBag is a one-ply paper bag created to store and transport dry construction materials such as cement and dry mix mortar products. It's designed to dissolve when getting in contact with water during the mixing process - the fibre of the packaging simply integrates with the product as it is mixed. This eliminates waste, reduces paper waste management costs and minimises dust on the construction site, as the bag is simply placed into the mixer without the necessity to open it up front.

The bag is produced in-house thanks to the company's uniquely integrated value chain: SolmixBag is created from Mondi's water-soluble sack kraft paper and uses 20% less paper than the industry standard 2-ply paper bags. The solution is able to run on existing filling machines, and it is available in standard sizes, offering customers a smooth transition from their existing solutions. SolmixBag provides the same strength and shelf-life as its predecessors, with good printing results for a quality, stand-out appearance on shelf.

Mondi has worked with its long-standing customer Baumit to bring SolmixBag to market for dry mix concrete. The two organisations collaborated closely throughout the product development and are committed to supporting the whole construction industry as it endeavours to reduce waste.

About Mondi

Mondi is a global leader in packaging and paper, contributing to a better world by making innovative solutions that are sustainable by design. Our business is integrated across the value chain – from managing forests and producing pulp, paper and films, to developing and manufacturing sustainable consumer and industrial packaging solutions using paper where possible, plastic when useful. Sustainability is at the centre of our strategy, with our ambitious commitments to 2030 focused on circular driven solutions, created by empowered people, taking action on climate.

In 2022, Mondi had revenues of €8.9 billion and underlying EBITDA of €1.8 billion from continuing operations, and employed 22,000 people worldwide. Mondi has a premium listing on the London Stock Exchange (MNDI), where the Group is a FTSE100 constituent, and also has a secondary listing on the JSE Limited (MNP).

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Mill motor with brush lifting

Menzel Elektromotoren has custom-built a mill motor with a short-circuiting and brush-lifting device. The motor with 710 mm shaft height and 2000 kW rated power operating at 4200 V will replace an older machine of different make for a ball mill in a cement plant. At the customer's request, Menzel replicated the features of the original machine, including a brush-lifting device, for which Menzel implemented a modern, reliable design. Few motor manufacturers have brush lifting in their portfolios currently. However, the family-run German company Menzel offers a full service for motors with brush lifting, from consultation to motor design and production, testing and commissioning, everything from a single source. The brush-lifting device reduces wear and tear on the motor brushes and is economically viable in applications with very long run times and very infrequent starts. After motor ramp-up, the rotor windings are short-circuited and the carbon brushes lifted. This eliminates the cost and effort required for regular brush replacement. In addition, since brush abrasion is reduced and significantly less carbon dust is released, the slip ring compartment, slip rings and filters can be cleaned much less frequently. The cement plant operator required a speedy and smooth changeover. The MEBSSL-type three-phase slip ring motor is configured to replace the existing motor one-to-one. It features protection class IP 55, insulation class H and cooling type IC 611 (air-to-air heat exchanger). Designing the machine and selecting the most suitable carbon brushes, Menzel also took into account the installation height at 2600 m AMSL.

Menzel Elektromotoren has configured a slip ring motor with a short-circuiting and brush-lifting device for a cement mill

Click here for more mill motor references.

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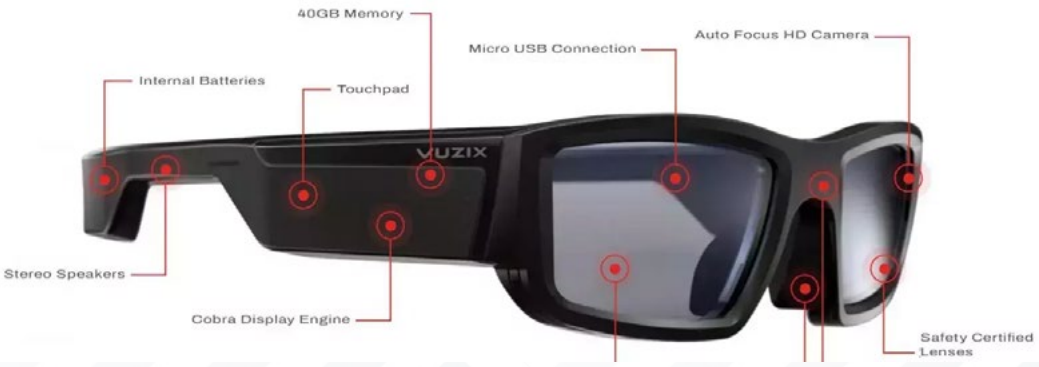
About Menzel Elektromotoren

Based in Berlin, Menzel Elektromotoren GmbH has been manufacturing and distributing electric motors since 1927. The medium-sized company specializes in the delivery of large electric motors, including special models, within the shortest possible time. The product range comprises high and low voltage motors, DC motors, transformers, and frequency inverters. Services include motor production and short-term adaptation of stocked motors to application-specific requirements. In order to ensure fast deliveries to the customer at all times, the company maintains a very extensive inventory including more than 20,000 motors with a maximum performance of up to 15,000 kW. Qualified engineering, experienced staff, and state-of-the-art production and testing facilities help Menzel provide excellent reliability. Menzel operates subsidiaries in the UK, France, Italy, Spain, and Sweden, and cooperates with numerous partners worldwide.

Menzel is currently building a new motor plant in Hennigsdorf, near Berlin. The future headquarters will go into operation in early 2024.

Bruks Siwertell adopts Augmented Reality in advanced service provision



Bruks Siwertell has introduced the use of augmented reality (AR) into its planned service agreements for Siwertell road-mobile ship unloaders. The AR glasses allow operators to remotely connect with expert service support, enabling surveyors to have a direct visual link to equipment. This ensures that technical issues can be addressed even more quickly, along with streamlining communications.

“This latest advance is part of Bruks Siwertell’s ongoing commitment to improving customer service, and minimizing environmental impact through the use of digital technology,” says Jörgen Ojeda, Sales Director Mobile Unloaders, Bruks Siwertell.

“Planned service is always better than reactive,” continues Ojeda. “Siwertell Care agreements (STC) offer significant customer benefits, including maintaining peak operational performance, substantial cost savings and budgeting advantages. The addition of AR only adds to these advantages.

“If both parties can see exactly the same in real-time, issues can be resolved much faster and equipment downtime minimized. The number and cost of engineer call-outs can also be reduced,” adds Ojeda. “This delivers an additional environmental benefit from minimizing travel and ensures that parts are not replaced unnecessarily.”

Specialist service agreements provide regular mechanical, hydraulic and electrical inspections; ongoing operator and maintenance training, based on in-house, expert knowledge; fixed-cost agreement for the required number of planned visits; and a spare parts discount.

In addition to these benefits, when customers opt for an STC-AR agreement, AR glasses can be used to remotely supervise any work being carried out, which can speed up tasks and ensure that they are correctly performed. The use of AR glasses can also mean that more complex maintenance tasks can be undertaken in-house and the operational performance of equipment can be evaluated and discussed in real-time.

STC-AR agreements are currently available for Siwertell road-mobile ship unloaders.

For more information, please contact us

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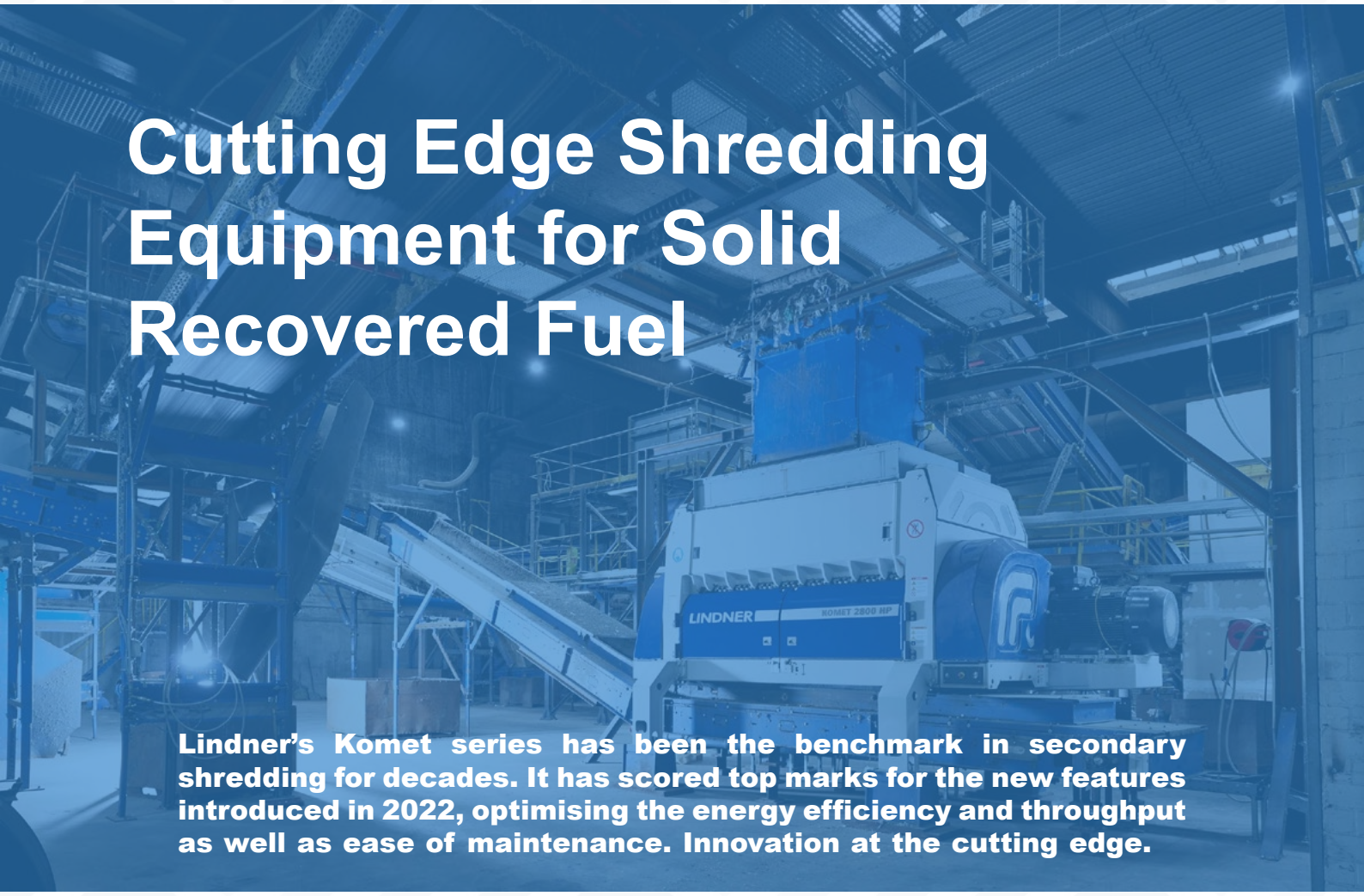
Cutting Edge Shredding Equipment for Solid Recovered Fuel



Lindner's Komet series has been the benchmark in secondary shredding for decades. It has scored top marks for the new features introduced in 2022, optimising the energy efficiency and throughput as well as ease of maintenance. Innovation at the cutting edge.

The Climate crisis, political upheavals and high energy costs, combined with a general increase in energy demand and greater environmental awareness with a clear focus on a functioning circular economy, CO_2 reductions and an expansion of renewable energy - these are the challenging times in which the waste and recycling industries and the different waste streams play key roles. The aims are to extract as many secondary raw materials as possible from the different material flows and to recycle them, in line with the circular economy.

At the same time, efforts are being made to turn non-recyclable materials into high-quality, high-calorific solid recovered fuels as efficiently and while saving as much energy as possible. That is how to substitute primary raw materials such as natural gas, crude oil and coal and make a valuable contribution to improving the carbon footprint of operations.

The increased importance of and demand for high-calorific substitute fuels (SRF) does, however, have a slightly bitter aftertaste for the manufacturers themselves.

While the demand for premium SRF is steadily increasing, so too are the challenges within the industry. After all, the waste and recycling industry is also affected by high energy costs. What's more, there is still a shortage of skilled workers who are needed to maintain and service the processing and recycling facilities. The goal – increased production and throughput at reduced operating costs – initially seems contradictory.

Yet it is possible, if one takes into account essential parameters, such as perfectly coordinated machines used in a recycling plant or optimising the integrated shredding solutions. For example, if shredders are consistently run at the optimal operating point, resistant to non-shreddables, and are easy to maintain or low maintenance, it is possible to significantly increase both productivity and energy efficiency.

Setting new Standards in Productivity and ease of Maintenance

Lindner's Komet Series shredders have been on the market for over twenty years and are still considered to be the benchmark in secondary shredding and granulation. This is based on a number of Komet-specific product characteristics, such as its robust construction, precision, cost-effectiveness, high throughput rates and fast and safe access to the rotor. Lindner specifically addresses industry needs with the Series 3, launched in 2022.

"Because we are so close to our clients, we realised early on that there is a shortage of skilled workers and a demand for greater productivity and energy savings," explains Stefan Scheiflinger-Ehrenwerth, Head of Product Management at Lindner. "The Komet Series 3 models are therefore equipped with product features that allow the shredders to be practically maintenance-free and also make optimal use of energy," he adds.

An automatic belt tensioning system, or ATB for short, is at the core of the new products, which also feature a dust-proof drive unit and new software. While the new software features are designed to increase user-friendliness and machine controllability, the ATB ensures the belt tension is continuously monitored. If the tensioning force deviates from defined parameters, the belt is automatically retightened. The consistent belt tension achieved by the ATB ensures that the shredder always runs at the optimum operating point, ideally utilising power transmission and energy.

"This also means that it's no longer necessary to re-tension belts by hand and it's easier to plan belt replacements," adds Scheiflinger-Ehrenwerth. "Low maintenance also inevitably leads to minimal downtimes and high uptimes, which is another factor that significantly increases productivity. The ATB can also be retrofitted without any problems." This makes it possible to reduce maintenance work to a minimum as well as make it as efficient and predictable as possible.

Pader Entsorgung selects another Lindner Komet 2800 HP

The company Pader Entsorgung GmbH & Co. KG (PEG), a subsidiary of the Lobbe Iserlohn and PreZero (Porta Westfalica) groups, has been operating a highperformance mechanical recovery facility in Paderborn-Elsen, Germany, since 2005. It processes municipal solid waste, commercial waste and mixed construction waste – 24 hours a day, five days a week. Around the clock, valuable materials are returned to the material cycle as secondary raw materials in complex processes, and non-recyclable materials are turned into high-calorific solid recovered fuels. This energy-rich SRF is supplied to the cement and power generation industries in particular.

Daniel Vermeulen, Technical Operations Manager, in front of the Komet Series 3 belt drive incl. safety clutch and automatic belt tensioning system (ATB).

Lindner's Komet 2800 secondary shredder has been part of the team since 2013. "We opted for a Lindner Komet in 2013, because, at the time, it was certainly the most powerful and highest-throughput machine on the market thanks to its seven-row rotor and well-dimensioned drive. This is still the case today," affirms Daniel Vermeulen, Technical Operations Manager at Pader Entsorgung. While initial production was around 25,000 metric tons of high-calorific SRF annually, the current production target is > 60,000 metric tons per year.

"Since the energy crisis, the market has changed. Companies, including cement plants, are increasingly substituting coal, natural gas and oil with high-calorific SRF. The high demand has made it necessary to expand the facility and shredding equipment. Our machines run continuously for 5 days. This demands good quality and minimal downtimes, which can be achieved mainly with low maintenance. In terms of energy costs, we also have to save. That's why we chose another Komet from Lindner," Vermeulen explains.

The material stream processed at Pader Entsorgung is primarily obtained from municipal solid and household waste. The material is often tough, the composition changes constantly and the residual moisture is also usually very high. "The shredder has by far the most difficult task in the recovery process. The Komet 2800 HP is extremely powerful and has a high output – usually around 20 t/h. Handling is excellent, maintenance is well thought-out with easy access to the maintenance door and therefore to the rotor. Non-shreddables can be removed easily and with little loss of material. This means complex and time-consuming welding work is a thing of the past and the machine is fully operational again in no time at all."

For solid recovered fuel to be a genuine alternative to primary fuels such as oil, coal and gas and to be used in the main burner, it must meet high quality standards and possess a range of material properties. In addition to a homogeneous particle size of ≤30 mm, the water, ash and chlorine contents in particular, are a decisive influence on the calorific value. The output material is therefore continuously tested in-line with near-infrared sensors (NIR technology) installed immediately after the Komet.

For quality assurance purposes, automated material samples are also taken for laboratory analysis. If the NIR sensors detect too much chlorine, material containing too much chlorine is diverted to a separate bunker and processed differently. "Producing high-calorific solid recovered fuels from such diverse fractions is a science in itself. We are known for our high-quality solid recovered fuels and the enormous growth in recent years is proof. That's a result we are also proud of," confirms Andreas Malinowski, Managing Director at Pader Entsorgung.

SRF quality control

Optimise your SCADA and plc systems with Opdpro.Care

If you still have an old database or recipe management or your raw material balancing is outdated, you don't have to replace the entire system right away.

Today, we at Opdenhoff would like to introduce you to our latest solution: OPDPRO.CARE.

How does it work?

It's simple: our scale control can be seamlessly integrated into your existing system and ensures precise and reliable raw material balancing. By integrating with OPDPRO.CARE, you can optimise your production processes while using your existing SCADA and PLC system.

This means for you:

No expensive system conversion, no complicated integration processes and no delays in production. With OPDPRO.CARE, you can quickly and easily switch to modern technology and benefit from the advantages.

Further advantages of OPDPRO.CARE:

- A user-friendly and intuitive interface for easy operation.
- Full transparency about the raw materials used in your production process.
- Complete traceability for higher quality assurance.
- An optimised production that leads to cost savings.
- A more environmentally friendly production through precise dosing and less waste.

With OPDPRO.CARE you can keep your control with SCADA and PLC and still benefit from modern technology.

bulksolids-portal

More innovative rotary valve engineering

For many years Gericke RotaVal has continuously improved its range of rotary valves. Designed and manufactured in the UK, fast clean modular range valves have been delivered to a worldwide customer base in various industries. These rotary valves offer clever and innovative solutions that protect the production process and reduce operating costs.

Rotary valves are often seen as a commodity. But they play an essential role in many bulk handling processes, often even as a safety device. Therefore, it is important that the owner or manager of a plant is also considering the operational and design aspects of such a valve.

Reduced Life Cycle Costs Thanks to Tapered Bore

Extractable versions of rotary valves facilitate the cleaning and inspection process. But with the very small gap between the rotor and the housing, the opening and closing of a valve always involves the risk of the rotor touching the housing. The tapered bore design used by Gericke RotaVal eliminates this potential damage to housing and rotor during the rotor removal and re-insertion process.

For the Plant Safety

All rotary valves certified as fully autonomous and explosion proof must pass a hydrostatic test. This test is carried out up to 20 bar and certified up to 10 bar. This gives the operator the guarantee that each of the airlocks installed fulfils the expectations placed on it.

Cleanliness

Full and easy access are key when it comes to cleaning and inspection of process equipment. With an option for both end covers of the valve to open, the ability to clean the valve is greatly enhanced. This is particularly useful in dairy environments and proven over many years of service.

The weight of all components is supported by the rails on the extractable versions. This simplifies the disassembling process and increases the safety of the valve handling.

If the plant environment requires washdown cleaning, the rotary valves are also available in in-situ cleanable versions. These executions withstand high pressure cleaning of the exterior surfaces.

bulksolids-portal

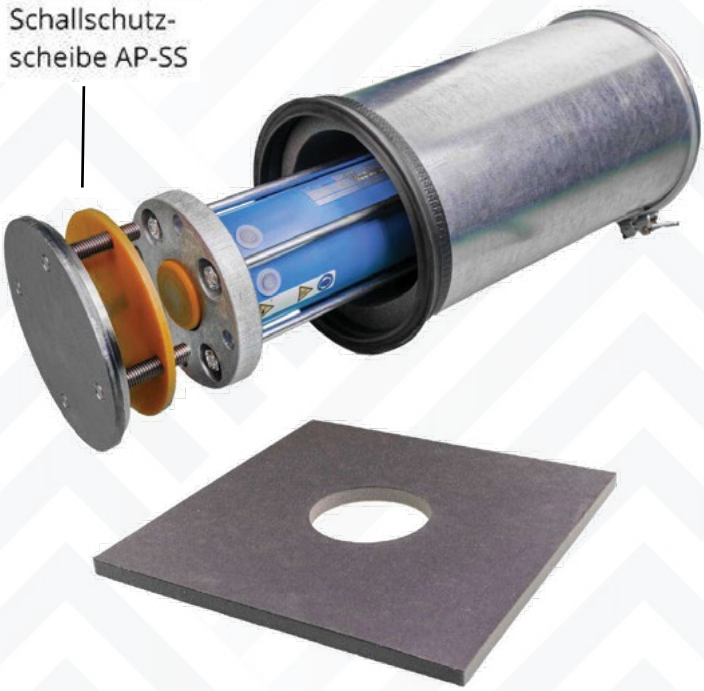
Noise protection for pneumatic knockers

An important contribution to the health of employees

bulksolids-portal

Noise in the workplace not only has serious health consequences, such as damage to the inner ear, headaches, dizziness and even concentration and sleep disorders, but it also affects productivity. In order to keep operational noise levels as low as possible, singold gerätetechnik offers a range of solutions, all of which have been carefully thought out down to the last detail.

The pneumatic knocker from singold only knocks when required – this in itself is a contribution to noise protection. But by adding specialised accessories and using a special construction of the pneumatic knocker, sound emissions can be reduced even further.



Sound insulation hood

The sound insulation hood is put over the pneumatic knocker and, if present, the solenoid control valve, and screwed to the knocker. It is equipped with a rubber bushing for the compressed air hose and a silencer for the rinsing air. Towards the silo wall, a rubber edge protector reduces the sound. It adapts to the contours of the silo.

The hood has another positive effect: it protects the knocker from corrosion in harsh conditions such as when aggressive vapours and dust are present. The knocker remains easily accessible for maintenance even under the hood: only one screw has to be loosened to remove the hood.

Sound insulation plate

If the full impact force of the pneumatic knocker is required, a sound insulation plate can be used. It has no damping effect on the vibrations generated by the knocker but dampens the sound radiation from the container close to the knocker. The sound insulation plates are available in different sizes and are self-adhesively attached directly to the silo wall.

The singold sound insulation plates KSP are cut out so that they fit over the sound insulation hood. In this way, a sound insulation plate can be used both as a stand-alone measure and in combination with the sound insulation hood.

Sound damping through rubber-elastic materials

If the impact is dampened by rubber-elastic materials, the noise generated can be reduced. However, this also reduces the impact of the knocker. The pneumatic knocker from singold has a very high impact force. The full impact force is not always required to achieve the desired effect. In this case, a V1 variant of the pneumatic knocker can also be used. In these models, the striker is made of Vulkollan (PU). In combination with a Vulkollan sound insulation disc, which is clamped between the welding plate and the knocker, the noise development can be significantly reduced.

RFID led label for easy picking

Track assets and manage inventory more efficiently. Brady RFID tags show a green LED light when triggered, helping you select the right item.

Track assets and manage inventories more efficiently in complex industrial environments with (fully customisable) RFID labels that can fit any surface. Scan and identify, or locate multiple items at once from a distance, or 1 by 1 in close proximity.

Brady's UHF RFID LED Label for general application is designed with the intention to locate a tagged item or a group of items from the field by means of LED light. The label is suitable for use outdoor and indoor, good read ranges, and UV exposed environment.

The label contains a small green LED-light that illuminates when triggered by the radio waves of the Brady handheld & fixed RFID readers (within 3.5 m), when the label is selected on-screen. This speeds up picking & locating items in warehouses, data centers and in distribution. Especially in contexts where many items are stored very close to each other, the UHF RFID LED label helps picking the right item, server, or package much faster.

Using an RFID reader, metadata & information can easily be added to the label, which is equipped with 1312 bits of memory, sufficient to store up to 164 characters. The label is designed for applications on non-metal surfaces.

- UHF RFID LED Label for general applications such as retail, industry, supply chain and others. The antenna is designed for application on non-metal surfaces.
- Polyester tag face material, with chip bonded to aluminium antenna using anisotropic conductive film adhesive, suitable for thermal transfer printing, including RFID encoding.
- Labels are outside wound and 100% inspected, 500 good RFID labels per roll with bad tags marked.
- Led Colour Green

bulksolids-portal

Stricter regulations for waste incineration

Operators of waste incineration plants must implement the requirements from the WI BREF by December 2023. For mercury emissions, this will mean lower emission limit values and higher technology requirements.

Although mercury is a naturally occurring substance, it is still toxic to humans and animals. It accumulates in the body and can cause damage to health. The problem is well known, which is why the limits for mercury emissions in general are already very strict.

At the end of 2023, they will be tightened once again for the operators of waste incineration plants as part of the BREF on waste incineration. Then even lower emission limit values will have to be complied within these plants than before. In addition, the analyzers used for monitoring must guarantee a high degree of accuracy and reliability and have the appropriate certification (QAL1). The technology used must correspond to the current state of the art.

With the SM-5 from ENVEA, operators of waste incineration plants are well positioned for the future. The modern analyzer is QAL1 certified with its lowest measuring range of 0-5 µg/m³, which is the world's lowest certified measuring range of mercury emissions. This means that the total mercury analyzer sets a technical standard. Users of this system are investing in the future with foresight since the system can be used even in the event of further tightening of emission limits.

The SM-5 is certified for operation without calibration, is low maintenance due to its robust design and has very low air consumption. In addition, the analyzer requires no carrier gas, dilution or air conditioning (up to +40 °C). All these features result in very low operating costs.

For operators of waste incineration plants, the SM-5 is thus the ideal solution for future-oriented mercury emission monitoring.

bulksolids-portal

Sample preparation made easy

Sample preparation is very important to obtain accurate data from analytical testing. To obtain this representative data, the entire sample must be properly comminuted. The Knife Mill PULVERISETTE 11 is perfectly suited for this task.

Consistent, Representative, Accurate

Consistent and viable representation of sample preparation leads to more accurate and repeatable results for analysis. Obstacles in handling or reducing materials with varied sample size, moisture levels, physical attributes, and material sensitivity create additional challenges in critical analysis.

Obtaining a representative sample from an entire batch can be variable, complex, and time consuming. This is more complex when faced with a diverse sample load. While difficult, sample preparation is one of the most important steps in obtaining accurate data from analytical testing.

In regards to comminution there are often limiting factors, like the rheological properties of a material, the ingredients, or the volatile components. In this case, consumer products such as blenders and coffee grinders are chosen for laboratory use. Industry quality knife mills offer specific utilization capabilities beyond consumer appliances. FRITSCH offers a professional,

laboratory Knife Mill: The PULVERISETTE 11.

Transition from Complex to Consistent

One method to achieve a representative sample is to homogenize the whole sample. This is especially useful when the sample is complex.

Take an apple for example. What is the best way to prepare this sample for testing? Peeling the skin off, then cutting the apple into smaller bits or maybe cutting the apple in to small pieces with the skin on. The problem is that aliquots of the sample prepared in either of these ways may have different proportions of skin to apple. This would not produce repeatable results in multiple sample aliquots. If one part of a sample contains more of an analyte, that is to be tested for, the results can be inconsistent. Homogenizing the sample aids in mitigating these inconsistencies.

Often the analytical testing utilized requires weighted samples of only a few milligrams, in which a realistic random distribution of characteristic features of the sampling seem difficult. A homogeneous sample allows for even the smallest aliquot to be more fully representative, even when needing to overcome the complications of wet, oily, fibrous, low-density, or temperature sensitive materials.

A complete sample from < 40 ml-1500 ml can be processed at once, with the Knife Mill PULVERISETTE 11, turning a heterogenous sample into a homogenous mixture. This removes the factor of uncertainty that comes with trying to prepare samples with complex matrices and ensures that any sample aliquot used for analysis will represent the sample as the whole.

Repeatability Across Users and Sites

Enabling each operator to create the same representable sample without user or appliances variance are also important factors. The Knife Mill PULVERISETTE 11 allows for SOP´s to be created for specific samples and validated in the laboratory. This increases the consistency of the how the sample is prepared and can reduce error in preparation.

Each user can easily select the programmed sample method, then the mill will do the rest of the work for them. This ensures that the sample is prepared the exact same way across different users, labs, and locations.

Cross (out) Contamination

Even the most well-planned sample preparation method falls short if there is contamination between samples. It is integral to have a cleaning step that reliably removes previous sample from the mill. The Knife Mill PULVERISETTE 11 provides an easy way to ensure there is no cross contamination between samples.

The knife, which is securely mounted by a bayonet lock, can be removed for cleaning with a simple motion. The standard 1.4 L grinding vessels are available in polymer, glass, or stainless steel. For high-throughput processing, 40 ml and 100 ml, single-use grinding vessels are available in both sterile and non-sterile configurations.

All parts in contact with sample material are either dishwasher safe or autoclavable for sterile comminution and ready to be incorporated into your cleaning validation protocols.

The PULVERISETTE 11 Knife Mill handles a wide range of sample properties. All materials are unique. If this is not ideal for your application the application consultants at Fritsch will assist in reviewing your laboratory needs. We would be more than happy in helping you to select the right mill and configuration for your specific application, whether wet, dry, or cyrogenic.

The right mill for every material.

bulksolids-portal

INPROTEC AG: Specialist for drying, shaping, coating

Using spray drying and fluidised bed technology we find the right solution for your drying needs. We also use our expertise to find solutions before market launch of your products.

Contract drying and contract manufacturing

inprotec AG relies on two different technologies to fulfil all our customers' requirements as a contract dryer and contract manufacturer: spray drying and fluid bed technology.

- **Spray drying technology**

In classic spray drying, solutions, suspensions or emulsions are processed into fine-grained, free-flowing powders. The respective product is first finely atomised at the top of the spray tower. The resulting spray mist is dried by the hot air stream within seconds during free fall (convection).

- **Fluidised bed technology**

When fluidised bed technology is used, a gas medium flows through the feedstock and raw materials. This flow puts the particles into a fluidised state - they mix with the medium. The result is a flowable, loosened mass of fine-grained particles, a so-called fluidised bed. In the fluidised bed process, the raw materials are also rapidly dried or refined when processes such as spray granulation, coating or spray agglomeration are used.

In the fluid bed systems of inprotec AG, different process steps can be combined. Our customers can choose between continuous and discontinuous operation, also known as batch operation. In this way, the physical properties of the materials to be processed can be specifically influenced. The result: particle systems of precisely defined size and shape, homogeneous and dust-free. We are happy to fulfil special requests, whether it is taste masking, the controlled delayed release of ingredients or particularly demanding protective coatings.

Our partner concept

And if there is no suitable process yet? Then we develop it together with our customers, whether with spray drying or fluidised bed technology. We have developed our partner concept for this purpose. Its goal: to keep the time span from the idea to the market launch of the product as short as possible through close exchange. Our partners make the decisions together with us and benefit from our many years of in-house expertise.

bulksolids-portal

Accurate grading and classification at high speed

PENKO's grading machine is specially designed for the accurate grading and classification of raw materials by product weight at high speed.

With the latest technology and software, our grading machine brings reliability and consistency to machine operation. The fast operation saves both time and costs for your business. PENKO's grading machine is specially designed for the accurate grading and classification of raw materials by product weight at high speed.

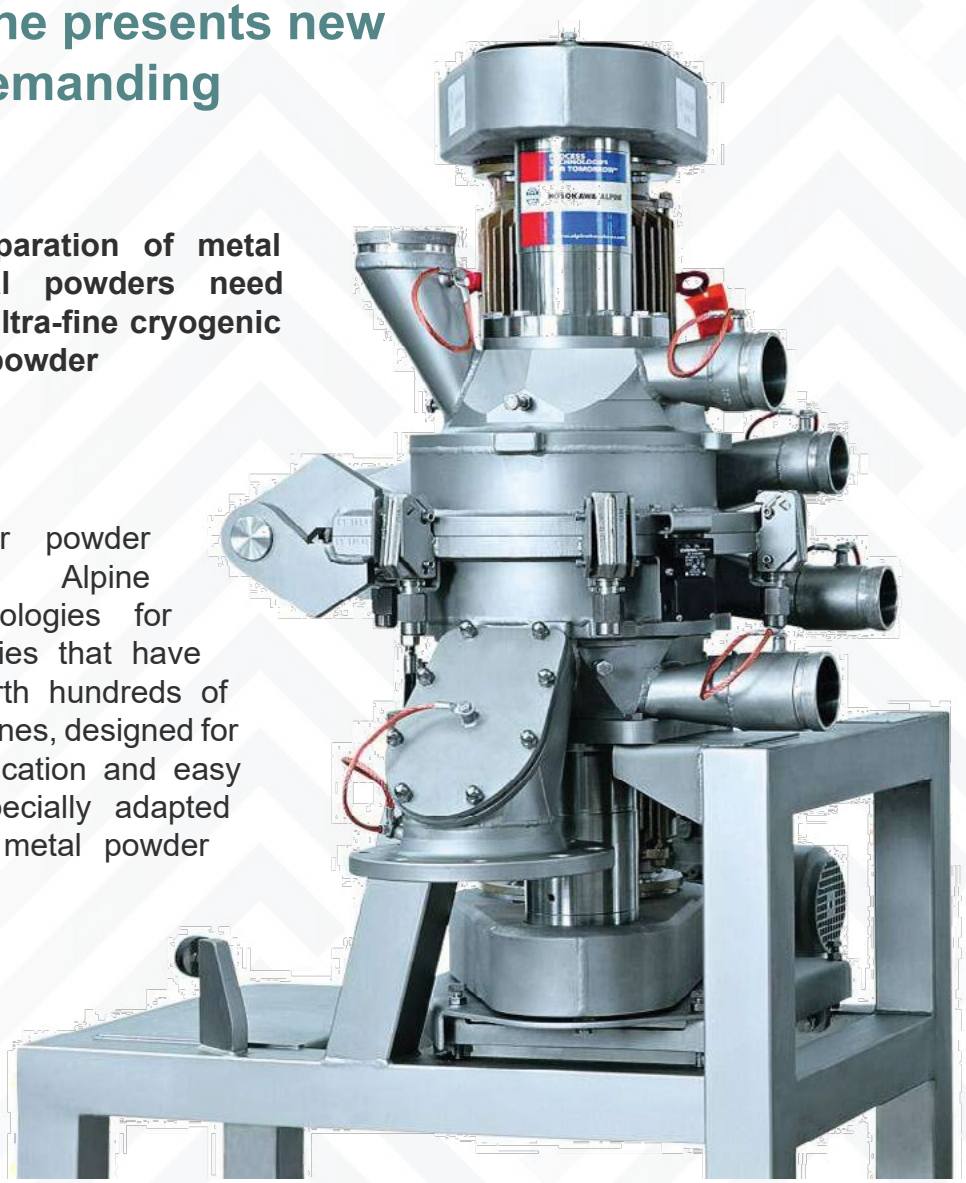
Machine reliability and safety are two of the most common areas for improvement within manufacturing organisations. At PENKO, we ensure this with regular testing, maintenance, research and upgrades of our equipment, including our sorting machines.

Our electrical control systems have been redesigned with the latest technology and software to ensure reliable and consistent operation of the grading machine. For more information on how to upgrade to the best quality and safety standards, contact PENKO and we will be happy to help.

bulksolids-portal

Hosokawa Alpine presents new solutions for demanding 3D printing

Fine and uniform preparation of metal powder. Perfect metal powders need optimal classification. Ultra-fine cryogenic grinding of polymer powder



With its classifiers for powder production, Hosokawa Alpine develops unique technologies for a wide range of industries that have already proven their worth hundreds of times over. Now the machines, designed for extremely precise classification and easy cleaning, have been specially adapted to the requirements of metal powder production.

Perfect metal powders need optimal classification

”Conventional sieving machines remove the coarse particles that accumulate during atomisation of the metal powder in a pre-classification step. This technology, however, soon encounters its limits when flexible separation cuts, inert gas operation or more frequent product changes are required,” explains Alexander Krauser, Operations Director Chemical Division at Hosokawa Alpine. An optimum solution is now available: air classifiers from Hosokawa Alpine. The different types of air classifiers always work in a manner precisely tailored to the task at hand: The tried-and-trusted Hosokawa Alpine Turboplex ATP or TSP ultrafine air classifiers provide flexible separation cuts for pre-classifying or limiting the top-size and for dedusting. With the Hosokawa Alpine TTSP, customers achieve an optimally steep particle size distribution via two-stage classification in just one single machine.

Ultra-fine cryogenic grinding of polymer powder

Ultra-fine grinding with exact upper particle size limitation as well as dedusting are the essential requirements for 3D printing with polymer powders. The Contraplex wide chamber mill has proven itself in practice for many years and has been adapted for the requirements of 3D printing. ”The CW II is distinguished by optimised grinding tools and temperature control, which reduce liquid nitrogen and energy consumption,” says Alexander Krauser. Tumbler screening machines or air classifiers are used to achieve the required particle size distribution.

The latter ensure, for example, dedusting of particles smaller than 10 - 20 µm as well as a upper particle size limitation of 70 - 100 µm.

bulksolids-portal

Sustainable, automatic. SACMI-Riedhammer firing systems confirmed at RAK

A new HWS shuttle kiln firing a wide mix of pieces has recently been installed at the Sanitaryware production plant in the UAE. The high-efficiency solution is equipped with all the latest automatic systems to eliminate manual kiln loading/unloading operations.

One of the top international manufacturers in terms of production capacity, RAK Ceramics has for many years now concentrated on technological innovation to reduce the environmental footprint of its sanitaryware production process. Central to this philosophy is the firing process and this has been the focus of the recent investments at the production site at Ras Al-Khaimah, in the United Arab Emirates, where the new SACMI-Riedhammer HWS 9/420/120-G shuttle kiln, equipped with Pulse Firing burners has recently been started up.

Dedicated to the first-firing of sanitaryware and especially the large one-piece WCs particularly popular on this market, the kiln is served by 12 kiln cars (6 of which are provided with double loading deck) and is equipped with an automatic transport system up to the vertical door and related lift platform. This eliminates the need for manual handling of the cars, a sign of the company's commitment to investing in automated solutions to avoid the most heavy-duty repetitive tasks for the operators.

The useful height of 1.20 m, with loading end width of 4.20 m, allows a good level of flexibility during firing and is designed mainly for large-sized pieces loaded in a single layer, but also for medium-small pieces with the help of the double loading deck. With the assistance of Pulse Firing technology – 39 burners in total, 25 of which are installed in the kiln roof – and thanks to the optimization of all the parameters, this kiln guarantees the best energy performance levels in its category.

Suitable for firing glazed pieces both in Vitreous China and Fine Fire Clay, the kiln has been designed for the first firing of pieces finished either with matt or gloss glaze, allowing for further diversification of the product portfolio. This investment at the Ras Al-Khaimah site is part of a wider plan for production expansion and revamping which RAK is carrying out together with its partner SACMI and involves, in particular, the "Sanitaryware I" plant.

Duravit Egypt installs its fifth SACMI-Riedhammer tunnel kiln

The total number of SACMI kilns (tunnel and shuttle) installed at this key plant for export to European markets reaches 12. Thanks to excellent cooperation between the technical teams to adapt the factory layout, assembly and start-up are completed in record time!

Duravit Egypt, which is growing in importance as an export centre for the Duravit Group, has recently purchased a new SACMI Riedhammer tunnel kiln. With this new machine, the number of tunnel kilns installed at the Cairo plant rises to 5 which, when added to the 7 shuttle kilns, makes a total of 12 Sacmi sanitaryware kilns in operation at the factory.

With this investment the customer has reached another milestone in its ambitious plan for technological modernization and production capacity expansion at its Egyptian base. The new machine – a TWS model with length 72m, height 1.7m and working height 0.75m – has been positioned within the existing layout next to two other identical kilns already in operation.

The hard work of the SACMI technical team and its close collaboration with the customer's teams made it possible to assemble the kiln in record time and to adapt the space available and existing automation (conveyor belts etc.), thus limiting production stoppage to a minimum.

The new machine is equipped with EMS (Energy Management System) - for recovery of the 200 °C fumes - as well as latest generation burners to optimize energy consumption. At the same time, SACMI has supplied a new 18 metre drier to serve the three tunnel kilns (the new one and the two already operating) thus optimizing the workload.

From this point of view, in addition to a further production increase – already more than 2.5 million pieces per year overall – the customer can count on a system fully capable of handling production flows efficiently and flexibly.

Thanks to the numerous investments made over recent years with SACMI, Duravit Egypt is gaining importance within the Duravit Group. This recent purchase was the latest in a series of projects completed with SACMI in all the main production plants around the world belonging to this top multi-national manufacturer of quality design sanitaryware.

SMART Offline NG: user-friendly, multi-platform, cross-application

The software can be incorporated on all SACMI-Gaiotto sanitaryware line automation solutions yet can also be used to program other commercially available robots. The result: a drastic reduction in line stops and, thanks to the single platform, faster worker training

SACMI Smart Offline NG is an exclusive solution, fully designed by SACMI-Gaiotto, for the offline programming of robotic solutions on ceramic sanitaryware production lines.

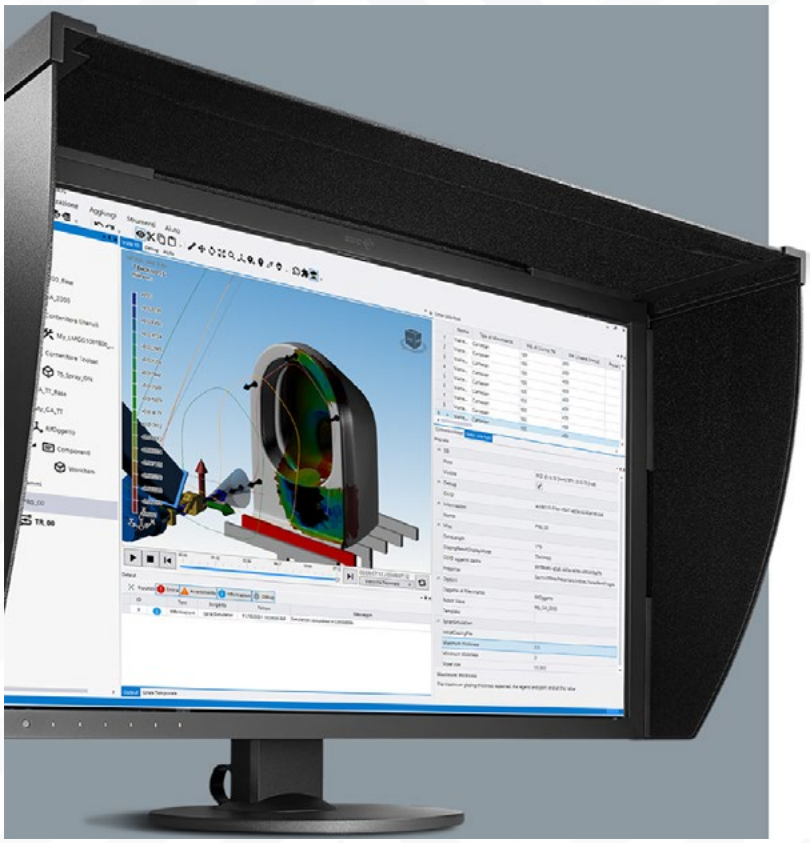
Extremely user-friendly, Smart Offline lets manufacturers create a 'digital twin' of the robotic module (robot, turntable, spray gun, scanner, finishing tool, etc.) and consequently define a program to execute a specific task on the actual object.

So what are the advantages? First of all, it drastically reduces downtimes, as robot programming does not interfere with routine production. Secondly, it speeds up training and optimizes the resources used in the process (human-machine, raw materials). Thirdly, this software saves lots of time when creating new programs and robot missions.

SMART Offline NG is a multi-platform, cross-application software. The software can be employed on the entire SACMI RobotGlaze, RobotClean, RobotLoad and Qualitrack automation range and used to program Gaiotto or other commercially available robots (Kuka, Fanuc, etc.).

In addition to defining the virtual model and the programs, the platform also lets you estimate their effects on the actual object. The result: greater task accuracy, which translates into optimization of production factors, especially the raw materials used in the process.

For example, in glazing alone, Smart Offline reduces - compared to traditional self-learning programming - overspray by up to 20% and average spraying times by up to 10%, depending on the models and applications.



SACMI starts up new water ultrafiltration and recovery system at Ceramica Flaminia

FLAMINIA.

First industrial installation for SACMI's revolutionary technology introduced to the market last September. At Ceramica Flaminia the new technology will treat 5000 cubic metres of water per year for recycling of both the water and the recovered raw materials for a sustainable production process.

The aim of SACMI's new technology for the recovery and treatment of wastewater is to drastically reduce water consumption and, at the same time, entirely recycle it, together with the solid precipitate found in it, to be fed back into the production process. The innovative system was launched on the market a few months ago and the first plant has now been successfully installed and started up at Ceramica Flaminia at its headquarters in Civita Castellana.

How does it work? It is a two-stage process. First the wastewater is pre-treated to obtain a primary sedimentation. Next, a membrane ultrafiltration system comes into operation using crossflow filtration which, thanks to the specially designed filtering membranes, does not require the chemical additives normally used in solid-liquid separation and decanting processes.

The result is that the recovered water – in the case of Flaminia more than 90% in volume of the 5000 cubic metres treated – can be reused for a variety of purposes in the sanitaryware production process (such as, for example, mould washing during the high pressure casting process or in the glazing lines). In the same way, the recovered solid precipitate – in the past considered waste to be disposed of – can also be directly reused in the ceramic body and thus completely recycled.

The solution is SACMI patented – due to the crossflow ultrafiltration process being specifically applied to ceramic waste recycling – and is characterized by its modular set-up. In fact, after an initial running-in period for the new plant, Ceramica Flaminia plans to expand its capacity to meet the entire factory requirements through wastewater recovery and treatment.

From SACMI's point of view, the solution is a breakthrough heralding a new approach to industrial water consumption. In fact, the new system can lead to an estimated saving in the consumption of freshwater of more than 70%. Furthermore, the possibility to fully recycle the solid precipitate, transforming it from waste product to resource for reuse in the production process, is a valuable opportunity for achievement of a circular economy.

Smaltochimica presents Smaltoclean

This line of products for the treatment of lapped and polished surfaces is capable of restoring stain resistance performance and reducing the sensitivity to chemicals.

In recent years, ceramic tiles have evolved from the status of a commodity to a material that combines powerful aesthetic impact with the highest levels of technical performance. This change is attributable both to digital decoration and to the advent of large sizes and surface finishing treatments such as lapping and polishing.

Porcelain tiles stand out for their exceptional technical performance such as mechanical strength, chemical resistance, durability and stain resistance.

However, the polishing process often leads to a significant deterioration in terms of cleanability. Polishing, and to a lesser extent lapping, removes a few microns from the surface layer, opening up the micro-porosity typical of both glazed and unglazed porcelain. If they are not adequately protected, these open pores are easily attacked by dirt and chemical and physical agents, compromising the integrity of the product.

With this in mind, Smaltochimica has developed Smaltoclean, a complete line of products for the treatment of lapped and polished surfaces capable of restoring stain resistance performance and reducing the sensitivity to chemicals typical of porcelain tiles. Smaltoclean products significantly improve the treated surface's resistance to coloured, acid and alkaline staining without leaving rings or altering the gloss level or sheen.

The range consists of:

- an acid pickling agent that prepares the surfaces by removing residues left from the polishing process and creating micro-roughness that ensures excellent adhesion of subsequent treatments;
- specific colloidal-based treatments which fill and seal open porosities;
- a series of dyes that can be added to protective treatments to enhance the finishing of dark coloured products;
- innovative formulations capable of producing an in-situ post-vitrification process in a small thickness which restores the integrity of the surface compromised by polishing treatments.

Diaber enhances glass recycling process with Finex separator

The Russell Finex separator proves efficient and cost-effective for industrial tools and minerals company

Diaber, a Belgian company specializing in industrial tools and minerals, has optimized its glass recycling process with the help of the Russell Finex Separator. Diaber uses Reglass Glasgrit, a product made from recycled materials, as a media in its sandblasting machines. To ensure optimal performance, the glass grit must have a defined particle size range without oversized or undersized grains.

Previously, Diaber relied on sieves and separators to remove unwanted particle sizes. However, when setting up a new production facility, they turned to Russell Finex for an efficient and cost-effective solution. The Finex Separator proved to be the ideal machine for Diaber, enabling them to sieve recycled glass at a high capacity before cleaning, grinding, and packaging. This upgrade improved productivity and cost-effectiveness compared to outsourcing the glass sieving process.

With the Finex Separator, processing 2-3 tonnes of glass per hour, outperforms traditional separators by reducing sieving time and effectively removing contamination. Moreover, the need for off-site transportation of glass for processing was eliminated, minimizing production downtime.

The Finex Separator is available in various sizes to accommodate different production requirements and can grade both wet and dry materials. It is designed to enhance product quality and improve production rates, streamlining the overall process

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Cement

16th Global CemFuels Conference, Exhibition & Awards
Alternative fuels for cement and lime

Istanbul, Türkiye

For more information, please contact:
Dr. Robert McCaffrey
Tel.: +44 1372 743837
Fax: +44 1372 743838

20-21 September 2023

Website | Email

Cemtech Europe 2023: Decarbonising the cement industry
Manufacturing excellence and the circular economy

Conrad Hotel, Istanbul, Türkiye

8-11 October 2023

Email | Website

1st Global ConChems Conference & Exhibition
Global construction chemicals

Brussels, Belgium

For more information, please contact:
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Tel.: +44 1372 743837
Fax: +44 1372 743838

11-12 October 2023

Email | Website

The 16th annual Drymix (MEDMA) Conference
Drymix Mortar in the Middle East Conference

Sharjah, UAE

11 October 2023

Email | Website

Argus Coal Forum

Radisson Blu Hotel, Sandton, Johannesburg, South Africa

for more information, please contact:
Ms. Minhal Abdul Latheef
Regional Marketing Manager, MEA
Tel: +971 50 2760498

12 October 2023

Email | Website

The 7th India Drymix Mortar Conference and Industry Showcase

Mumbai, India

17 October 2023

Email | Website

XXV International Construction Forum | Cement Concrete - Dry Mixtures

Expocentre, Moscow, Russia

For more information, please contact:
Tel.: +7 812 3350992

18-20 October 2023

Email | Website

25 ANNIVERSARY

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Antonio Clausi
Global Director of the Competence Center Cement
Heidelberg Materials

Dr. Edelio Bermejo
Global Head of R&D, Innovation and IP
HOLCIM

Philippe Bourdiol
Division Manager
firefly

Petra Muehlen
CEO
SPECTRAFLOW ANALYTICS SWITZERLAND

David Carlin
Head of Climate Risk & TCFD and Founder Cambium Global Solutions
UNEP FINANCE INITIATIVE

Dexter Galvin
CCO
CDP

Andrei Covatariu
Energy Policy Expert / Co-founder of ECERA
ECERA

Dr. Oliver Sartor
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Lars Jennissen
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Samira Boussetta
Independent Consultant

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Nicolas Meyre
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Denis Louisnard
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L.Miguel Echeverri
Carbon Neutrality Strategy Manager
ARGOS

J.Yves Bonnaire
Managing Director
Carib Sand & Stone ltd.

Dr. Dhiraj Rama
Industry Development Executive
CEMENT & CONCRETE SA

Joel Maia
CEO of FCT's European Headquarters
FCT COMBUSTION
Delivering Performance

Details and registration: contact@industrylink.eu

Diary dates

World Cement Association Annual Conference 2023

Jumeirah Emirates Towers, Dubai, United Arab Emirates

24-25 October 2023

Website

21st Global Gypsum Conference, Exhibition & Awards
Global gypsum trends and technology

Chicago, USA

For more information, please contact:

Dr. Robert McCaffrey

Tel.: +44 1372 743837

Fax: +44 1372 743838

9-10 November 2023

Email Website

CarbonZero Global Conference and Exhibition 2023

Lyon, France

For more information, please contact:

Industry Link

Tel.: +40726 497 448

26-27 October 2023

Email

Email

Website

International Cement Seminar & Exhibition 2023

Cobb Galleria in Atlanta, USA

14-15 November 2023

Website

16th Global Insulation Conference & Exhibition
Insulation trends and technology

Chicago, USA

For more information, please contact:

Dr. Robert McCaffrey

Tel.: +44 1372 743837

Fax: +44 1372 743838

9-10 November 2023

Email Website

7th Virtual Global CemProducer Seminar - Cement plant maintenance & optimisation

Your device

For more information, please contact:

Dr. Robert McCaffrey

Tel.: +44 1372 743837

Fax: +44 1372 743838

8:00 AM - 2:30 PM GMT

21 November 2023

Email Free Registration

Diary dates

12th Africa CemenTrade Summit

Abidjan, Cote D'Ivoire

21-22 November 2023

Email

CemenTürk International Sustainable Cement & Clinker Production Technologies Seminar CUSCIT

Belek, Antalya, Turkiye

For more information, please contact:

Ms. Nurhan Gürel

Founder of Cementürk & CUSCIT

22-25 November 2023

Email Website

The 16th Annual SEADMA Conference and Industry Showcase

Bogor, West Java, Indonesia

23 November 2023

Email Website

3rd Virtual Global CemPower Seminar - Electrical generation and efficiency

Your device

For more information, please contact:

Dr. Robert McCaffrey

Tel.: +44 1372 743837

Fax: +44 1372 743838

10:00 → 17:00 CET

Central European Time

Berlin, Paris, Rome

28 November 2023

Email Website Free Registration

5th Conference and 1st Exhibition of Cement Industry and Technology 2023

Damascus Fairground, Damascus, Syria

30 November → 02 December 2023

For more information, please contact:

Mobile/WhatsApp: +963969019984

Email Website

Pathway to COP28 UAE

Expo City Dubai, UAE

30 November → 12 December 2023

Website

INTERCEM Americas 2023

Beverly Hilton on Wilshire Boulevard, Los Angeles, California, USA

3-5 December 2023

Website

3rd Virtual European Cement Conference - Market trends and technology in Europe

Your device

For more information, please contact:

Dr. Robert McCaffrey

Tel.: +44 1372 743837

Fax: +44 1372 743838

10:00 → 17:00 CET

Central European Time

Berlin, Paris, Rome

5 December 2023

Email Website

Diary dates

4th Global FutureCem Conference & Exhibition
CO_2 reduction from cement and concrete

Brussels, Belgium

For more information, please contact:
Dr. Robert McCaffrey
Global FutureCem Conference
Tel.: +44 1372 743837
Fax: +44 1372 743838

6-7 December 2023

Email Website

2nd CemProducer Conference & Exhibition
Future-proof process optimisation

Limassol, Cyprus

For more information, please contact:
Dr. Robert McCaffrey
Global CemProducer Conference convenor
Tel.: +44 1372 743837
Fax: +44 1372 743838

6-7 March 2024

Email Website

4th Virtual Global Ash - Ash for cement and concrete

Your device

For more information, please contact:
Dr. Robert McCaffrey
Tel.: +44 1372 743837
Fax: +44 1372 743838

10:00 → 17:00 CET
Central European Time
Berlin, Paris, Rome

12 December 2023

Email Website

66th IEEE-IAS/PCA Cement Industry Technical Conference

Gaylord Rockies, Denver, USA

5-9 May 2024

Website

9th International VDZ Congress

Düsseldorf, Germany

For more information, please contact:
Ms. Sybille Matthäi
Tel. + 49 211 45 78-342

6-8 November 2024

Website

Email

INTERCEM Dubai 2024

Dubai, UAE

27-29 February 2024

Website

6-7 MARCH 2024 LIMASSOL, CYPRUS

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paul.brown@propubs.com

Programme and speakers:
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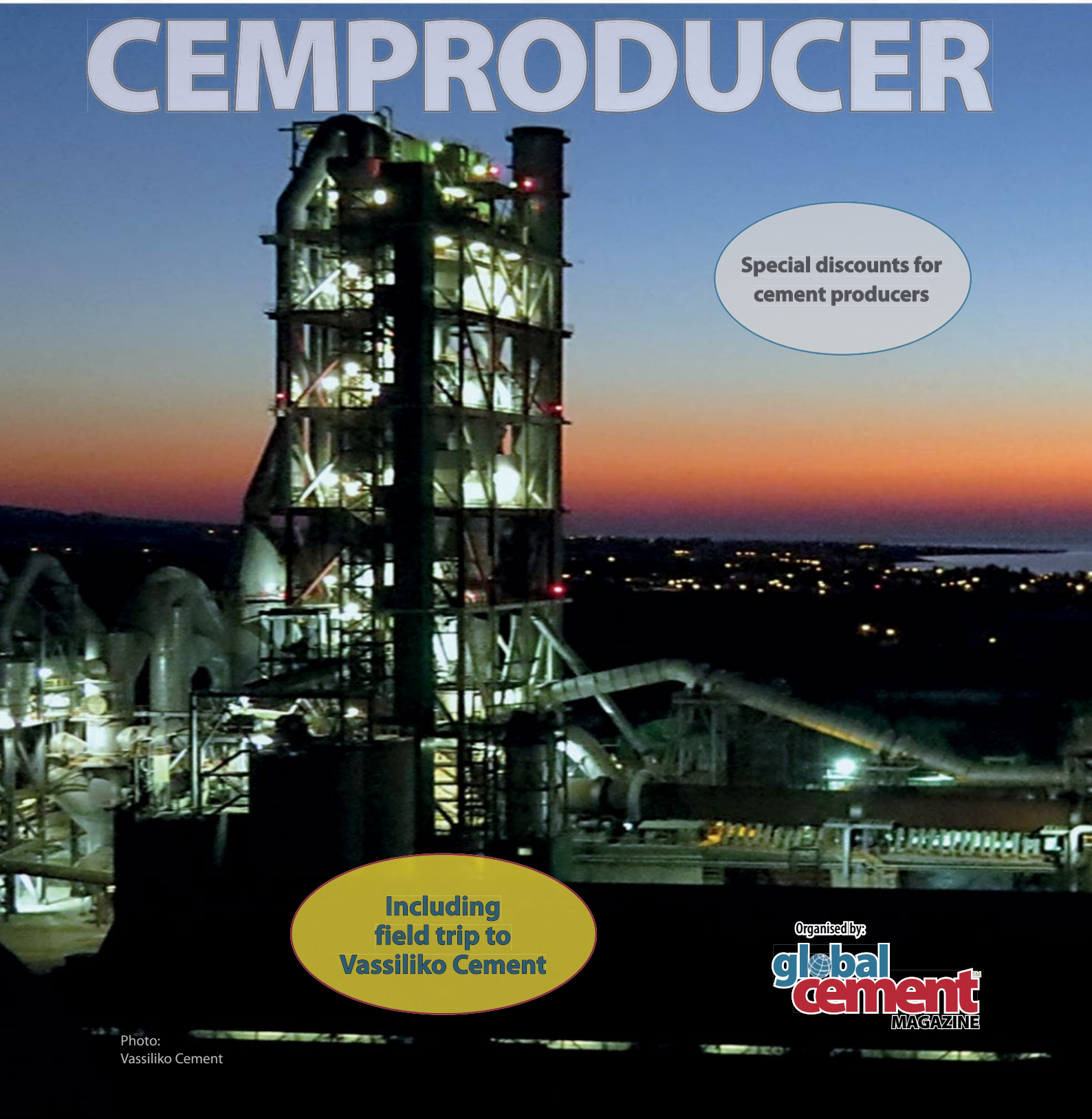

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Ceramic

DEBURRINGEXPO 2023
Messe Karlsruhe, Germany

10-12 October 2023

Website

2024 Uniceramics Expo
Foshan, China

Tel: +86 18566021320

18-22 April 2024

Email

Website

ACHEMA 2024
Frankfurt, Germany

10-24 June 2024

Website

TECNA 2024
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Rimini Expo Centre, Italy

24-27 September 2024

Website

General

Powtech 2023
Nürnberg, Germany

26-28 September 2023

Website

SOLIDS Rotterdam
Rotterdam, the Netherlands

4-5 October 2023

Website

Our Factory Expo
Int'l Fair Ground , Nasr City - Cairo, Egypt

For more information, please contact:
Sama Marketing Business SMB Co.
Tel.: +202 33539456 / +20111 6475842
Mobile: +2011 50540883 / +20122 7564203 / +20100 7274969

14-16 October 2023

Email

info@smbegypt.com

Email

ourfactoryexpo@gmail.com

Diary dates

SYMAS® and MAINTENANCE Trade Fair 2023

14th International Trade Fair for Powder & Bulk Solids Technologies SYMAS®

14th international trade fair for suppliers of maintenance products and services maintenance

Expo Kraków, Poland

For more information, please contact
Barbara Płuciennik
Project Manager / Team Leader
Tel.: +48 12 651 90 38 Fax: +48 506 038 382

18-19 October 2023

Email Website

The Big 5 Construct Qatar

Doha Exhibition & Convention Center (DECC), Qatar

23-25 October 2023

Website

BUILD EXPO Egypt
4th Cairo International Building, Construction, Energy, Electricity Municipal Equipment Exhibition

Cairo International Conference Center, CICC, Egypt

For more information, please contact:

International Sales & Marketing, tel.: +90 216 575 2828

26-28 October 2023

Email info@pyramidsfair.com
Email filiz.karakul@pyramidsfair.com

Website

2nd Slope Engineering Summit
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Kuala Lumpur, Malaysia

8-9 November 2023

Email

The 28th International Mining Congress and Exhibition of Türkiye (IMCET 2023)

Antalya, Türkiye

Tel.: (+90 546) 4251072 Fax: (+90 312) 4175290

28 November ↓ 1 December 2023

Email imcet@maden.org.tr
Email madenmuhodasi@maden.org.tr

Website

MARINTEC China

Shanghai New International Expo Centre, Shanghai, China

5-8 December 2023

Website

19th Edition SteelFab 2024 Machinery, Technology, Equipment

Sharjah, UAE

8-11 January 2024

Email
Alroy
alroy@expo-centre.ae
Tel.: +971 50 3506541

Email
Adib
adib@expo-centre.ae
Tel.: +971 55 5337314

Website

14th ERBIL BUILD EXPO 14th Erbil International Building & Construction & Machinery Exhibition

Erbil International Fairground, Iraq

For more information, please contact:
International Sales & Marketing
tel.: +90 506 1269692

21-24 May 2024

Email

Website

International Conference for Dispersion Analysis & Materials Testing 2024

Berlin, Germany

10-11 June 2024

Email

Website

Exposolidos, Polusolidos And Expofluidos 2024

6-8 February 2024

La Farga de L'Hospitalet, Barcelona, Spain

Website

Big 5 Construct Egypt

25-27 June 2024

Egypt international exhibition center (EIEC), Cairo

Website

مجلة عالم الإسمنت ومواد البناء

العدد 93 سبتمبر/ أيلول 2023

English

المحتويات

أخبار عربية

نشاطات عربية

الموضوعات

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جدول موضوعات المجلة لعام 2023

العدد	الموضوعات	المناسبات
ديسمبر/كانون أول 2023 (العدد رقم 94)	* المبردات * المراوح * مدافع الهواء * الصحة والسلامة المهنية * تكنولوجيا الطحن * الطواحين العمودية * المكابس الأسطوانية * زيادة إنتاج مطحنة الإسمنت * التكسير * مساعدات الطحن والطحن * استعادة الحرارة المفقودة * التصوير الحراري * إعادة التدوير الحراري * طرق معالجة واستخدام غبار الممر الجانبي * الحماية من الانفجار في صوامع تخزين الوقود البديل * أنظمة مناولة الوقود البديل * إنتاج واستخدام الوقود الصلب المستعاد	المؤتمر والمعرض العربي الدولي السادس والعشرون لصناعة الإسمنت: القاهرة / جمهورية مصر العربية 17-15 يناير / كانون الثاني 2024

آخر موعد لاستلام المقالات أو النصوص الصحفية أو الإعلانات لعدد ديسمبر / كانون أول (**عدد خاص**): **5 ديسمبر / كانون الأول** 2023

الإعلانات

(بالدولار الأمريكي)

	الإعلان في عدد واحد	الإعلان في عددين	الإعلان في ثلاثة أعداد	الإعلان في أربعة أعداد
غلاف خارجي (يمين أو يسار) A4	1,250	*	*	*
غلاف داخلي (يمين أو يسار) A4	950	*	*	*
صفحة داخلية A4	750	950	1,250	1,350
نصف صفحة داخلية	450	550	650	750
ربع صفحة داخلية	300	350	400	450

أبعاد الإعلان : A4
أبعاد الإعلان على الغلاف الخارجي : ارتفاع 20 سم وعرض 14سم
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"حديد الإمارات أركان" تعتمد نموذجاً تشغيلياً جديداً

اعتمدت مجموعة حديد الإمارات أركان نموذجاً تشغيلياً جديداً، يقوم على إنشاء وحدتين منفصلتين لإدارة الأعمال، وهما وحدة حديد الإمارات، ووحدة مواد البناء، بهدف الاستفادة من نقاط القوة المشتركة لأعمال الصلب ومواد البناء.

وسيكون لكل وحدة أعمال رئيس تنفيذي يركز على دفع النمو والتطور، ويتبع مباشرة للمهندس سعيد غمران الرميثي، الرئيس التنفيذي للمجموعة، وسيتولى سعيد الغافري مسؤولية وحدة أعمال حديد الإمارات بصفته رئيساً تنفيذياً، في حين يتولى سعيد الظاهري وحدة أعمال مواد البناء بصفته رئيساً تنفيذياً بالإنابة ونائباً لرئيس الشؤون التجارية.

وستحظى وحدتا الأعمال الجديدتان بدعم من الأقسام المساندة المركزية، بما في ذلك المالية، ورأس المال البشري، والتكنولوجيا، والاستراتيجية والتحول، إضافة إلى قسم جديد للمشاريع.

وخلال عام 2021 أنجزت صفقة اندماج حديد الإمارات وأركان لمواد البناء لتشكيل حديد الإمارات أركان، ومنذ ذلك الحين انطلقت الشركة الجديدة في رحلة تحول لتوحيد الأقسام المختلفة، وضمان انسيابية أعمالها، مع إبقاء الأولوية لسلامة موظفيها، وتحقيق كفاءة العمليات وتعزيز موقفها المالي وتطوير خريطة طريق لإزالة الكربون لتحقيق صافي صفر انبعاثات والوصول إلى الحياد المناخي بحلول 2050.

Albayan.ae

المملكة العربية السعودية

إسمنت الجنوبية توقع اتفاقية تمويل بـ 1.4 مليار ريال مع الأهلي السعودي وتُعيد جدولة قرض سابق

أعلنت شركة إسمنت المنطقة الجنوبية توقيع اتفاقية تمويل بنكي طويل الأجل مع البنك الأهلي السعودي بقيمة 1.4 مليار ريال. وقالت الشركة في بيان لها إن الهدف من التمويل هو تمويل مشروع إنشاء خط إنتاج بطاقة 5.000 طن / يوم مع البنية التحتية لخط آخر بنفس الطاقة بمصنع إسمنت جازان.

Argaam

توقيع Hoffmann Green أول اتفاقية ترخيص في العربية السعودية مع Shurfah Group

أعلنت Hoffmann Green Cement Technologies، الشركة الصناعية الرائدة الهادفة إلى إزالة الكربون من قطاع البناء، والتي تصمم وتسوّق الإسمنت المبتكر الخالي من الكلنكر، عن توقيعها اتفاقية ترخيص حصرية مع Shurfah Group لمدة 22 عاماً، وذلك من أجل بناء العديد من وحدات Hoffmann Green في المملكة العربية السعودية بهدف إزالة الكربون من قطاع البناء في هذه المنطقة.

وقعت Shurfah Group اتفاقية ترخيص مدتها 22 عاماً تقضي بتمويل وبناء وتشغيل وحدات Hoffmann Green الإنتاجية، إلى جانب تسويق إسمنت Hoffmann Green الخالي من الكربون حصرياً في كل أنحاء المملكة. هذا، وسيتم بناء أول مصنع إسمنت خالٍ من الكلنكر في عام 2024 في المملكة وسيكون نسخة طبق الأصل من H2.

ستُجري عملية الهندسة والإنتاج IBAU Hamburg، شركة المقاولات الألمانية العامة التي وقعت معها Hoffmann Green اتفاقية شراكة حصرية في يونيو / حزيران 2022 لدعم بناء وحدات Hoffmann في كل أنحاء العالم. وسيُبنى هذا المصنع وكل الوحدات العمودية اللاحقة بالكامل باستخدام إسمنت Hoffmann Green.

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جمهورية العراق

اتفاق عراقي صيني لإنشاء مصنع إسمنت في المثنى: 2 مليون طن سنوياً

كشف المدير المفوض لشركة سما سماوة للصناعات الإنشائية عن اتفاق مع شركة سينوما الصينية لإنشاء مصنع للإسمنت في محافظة المثنى، جنوب العراق، بطاقة إنتاجية تصل إلى 7 آلاف طن سنوياً، كما أكدت الشركة الصينية أن المصنع سيكون جاهزاً ويدخل خط العمل في عام 2025.

وسيكون المشروع لإنتاج الإسمنت بأنواع عدة، وكميات الإنتاج ستصل في اليوم إلى 7 آلاف طن ويصل سنوياً الى مليوني طن. وتصل قيمة العقد لإنشاء هذا المصنع في محافظة المثنى إلى 200 مليون دولار بمدة عمل تكون بين 18-20 شهراً.

Shafaq

معمل سمنت القائم يحصل على شهادة مطابقة المواصفة القياسية

أعلنت الشركة العامة للسمنت العراقية عن حصول معمل سمنت القائم أحد معامل الشركة في محافظة الأنبار على شهادة مطابقة متطلبات المواصفات القياسية العراقية رقم 5 لسنة 2019 الممنوحة من قبل الجهاز المركزي للتقييس والسيطرة النوعية.

وقال مدير عام الشركة المهندس حسين محسن عبيد إن مطابقة منتج السمنت في معمل سمنت القائم للمواصفة العراقية جاء بعد إجراء الفحوصات اللازمة للنماذج في مختبرات المعمل إضافة إلى فحصها في المختبر المركزي لمقر الشركة لأغراض التوكيد النوعي للتأكد من نوعية المنتج ومطابقته في قسم النوعية بمختبراتها الكيميائية الفيزيائية، ويتم تحديد مواصفات السمنت بناءً على الخصائص الفيزيائية والكيميائية للسمنت، مثل قوة الانضغاط وصولاً الى عمر 28 يوماً والوقت اللازم لتصلب السمنت، وصولاً الى مختبرات الفحص في الجهاز المركزي التي أثبتت مطابقة المنتج المقاوم للأملاح الكبريتية للمنتج والتي بلغت 51 نت/ملم^2 محققاً معدل قوة أكثر من المواصفة القياسية العراقية.

مؤكداً أن التجربة الاستثمارية لمعمل سمنت القائم والمتمثلة بشركة الميسرة تؤشر نجاحها من خلال إكمال أعمال التأهيل والصيانة للمعمل وفق السقوف الزمنية المحددة في البنود العقدية والتصاعد الملحوظ بكميات الإنتاج وجودته ونوعيته وصولاً إلى إستحصال شهادة المطابقة للمنتج.

وأشار أن الطاقة التصميمية للمعمل تبلغ مليون طن سنوياً. وقد استطاعت الشركة المستثمرة بالتعاون مع كوادر السمنت العراقية من تحقيق انتاج بلغ 244,400 طن بعد افتتاحه واستئنافه الإنتاج منتصف شهر مارس / آذار للعام الحالي ولغاية شهر يوليو / تموز لهذه السنة منذ افتتاحه.

إعلام السمنت العراقية

معمل بابل يحصل على شهادة المواصفة العالمية للإنتاج غير النمطي الخاص بآبار النفط

أعلنت الشركة العامة للسمنت العراقية عن منح معمل سمنت بابل أحد معاملها التابع للمعاونية الجنوبية شهادة المواصفة العالمية من معهد البترول الأمريكي API الخاصة لإنتاج السمنت غير النمطي بصنفيه (B) و(G).

حيث تمكن معمل سمنت بابل من الحصول على شهادة معهد البترول الأمريكي API، وبترخيصٍ رسمي منه، وبموجب المواصفة الممنوحة API Spec Q1 بإصدارها التاسع بعد إنجاز التدقيق النهائي الذي ثبت فيه بأن نظم الإنتاج والمختبرات والسيطرة النوعية والجودة مطابقة لشروط منحها، بالإضافة إلى المواصفة API 10A التي في ضوئها منحت المعمل الترخيص لإنتاج السمنت غير النمطي بصنفيه (B) و(G) بعد التقييم النهائي للمعهد المذكور.

وكانت الشركة أعدت فيما سبق خطة مرسومة لتطوير وتأهيل المعمل وتحديث وتطوير مختبراته، وأدخلت كوادر المعمل بدورات تدريبية متخصصة لتطبيق فحص متطلبات معهد البترول الأمريكي.

كما جهزت إدارة المعمل الشركات المحلية بالكميات المطلوبة من سمنت آبار النفط، والتي أثبتت نجاحها عملياً في تسميت بطانة الآبار، لذلك فإن حصول المعمل على شهادة API سيعزز فرص المنافسة مع السمنت غير النمطي المستورد من قبل الشركات النفطية العاملة ضمن جولة التراخيص في العراق، وسيفضي إلى تحقيق إيرادات ووفرة مالية للمعمل، إضافة إلى خفض التكاليف المالية المنفقة لصالح الشركات النفطية المستوردة لهذا النوع من السمنت.

إعلام السمنت العراقية

المملكة المغربية

مبيعات الإسمنت في المغرب تفوق 6,2 مليون طن برسم الفصل الأول من سنة 2023

أفادت وزارة إعداد التراب الوطني والتعمير والإسكان وسياسة المدينة أن مبيعات الإسمنت لأعضاء الجمعية المهنية لشركات الإسمنت ("إسمنت تمارة"، "إسمنت الأطلس"، "إسمنت المغرب" و"لافارج هولسيم المغرب") فاقت 6,2 مليون طن برسم الفصل الأول من سنة 2023، بتراجع نسبته 4,61 في المائة مقارنة بالفترة ذاتها من سنة 2022.

وأوضحت الوزارة في وثيقتها الشهرية حول تطور مبيعات الإسمنت أن هذه المبيعات تهم توزيعاً لما يعادل 3,76 مليون طن؛ 1,27 مليون طن (من الخرسانة الجاهزة للاستخدام)، و 600,656 طن (للخرسانة المعدة مسبقاً)، والبناء (247,662 طن)، والبنية التحتية (317,539 طن).

وخلال شهر يونيو 2023، قام أعضاء الجمعية المهنية لشركات الإسمنت بتسليم ما يعادل 1,052,975 طن من الإسمنت، مقابل 1,229,937 طن خلال الفترة ذاتها من سنة 2022، بتراجع نسبته 14,39 في المائة.

Assahifa

العالم

توقعات نمو سوق الإسمنت العالمي بنسبة 5.3 % سنوياً حتى عام 2030

توقعت Market Research Future معدل نمو سنوي مركب (CAGR) بنسبة 5.3% بين عامي 2022 و2030. وسيؤدي ذلك إلى قيمة سوقية تبلغ 505 مليار دولار أمريكي في عام 2030، مقارنة بـ 335 مليار دولار أمريكي في عام 2022. وأضاف التقرير أن معدل مشاريع البناء الجديدة يتزايد في جميع المناطق.

Global Cement

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للاستفسارات: المنظمة العربية للتنمية الصناعية والتقييس والتعدين – المكتب الإقليمي بالقاهرة

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1-3 أكتوبر/ تشرين الأول 2023

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مدينة المعارض - دمشق ، الجمهورية العربية السورية

الجهة المنظمة: مجموعة "سيم تك"

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هاتف: +963114476769

30 نوفمبر /تشرين الثاني 2023 ← 02 ديسمبر / كانون الأول 2023

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دورات تدريبية عربية

سبتمبر/ أيلول 2023				
	17-21	17-21	17-21	17-21 18-22
	إدارة الأنظمة البيئية القاهرة، جمهورية مصر العربية المؤسسة العامة للتدريب المهني +2023582298 +20100757004	الاستراتيجيات الحديثة للتطوير الإداري والمؤسسي تركيا المؤسسة العامة للتدريب المهني +2023582298 +20100757004	الإدارة الاستراتيجية ونظم تخطيط الموارد البشرية القاهرة، جمهورية مصر العربية معهد التنمية الإدارية هاتف +20235822874 فاكس +20235822984 جوال +201002958200	التفكير التصميمي الميزة التنافسية القادمة القاهرة، جمهورية مصر العربية مركز الرواد للتدريب +971543023229
	17-28	18-22	18-22	18-22
	الإدارة الاستراتيجية القاهرة، جمهورية مصر العربية الدار العربية للتنمية الإدارية +201062992510 +201096841626	مهارات الإبداع في بيئة الأعمال دبي، الإمارات العربية المتحدة مركز نيوفيجن للتدريب +971505976739	المعدات الكهربائية ونظم التحكم دبي، الإمارات العربية المتحدة مركز نيوفيجن للتدريب +971505976739	إدارة المشاريع الفنية دبي، الإمارات العربية المتحدة مركز نيوفيجن للتدريب +971505976739

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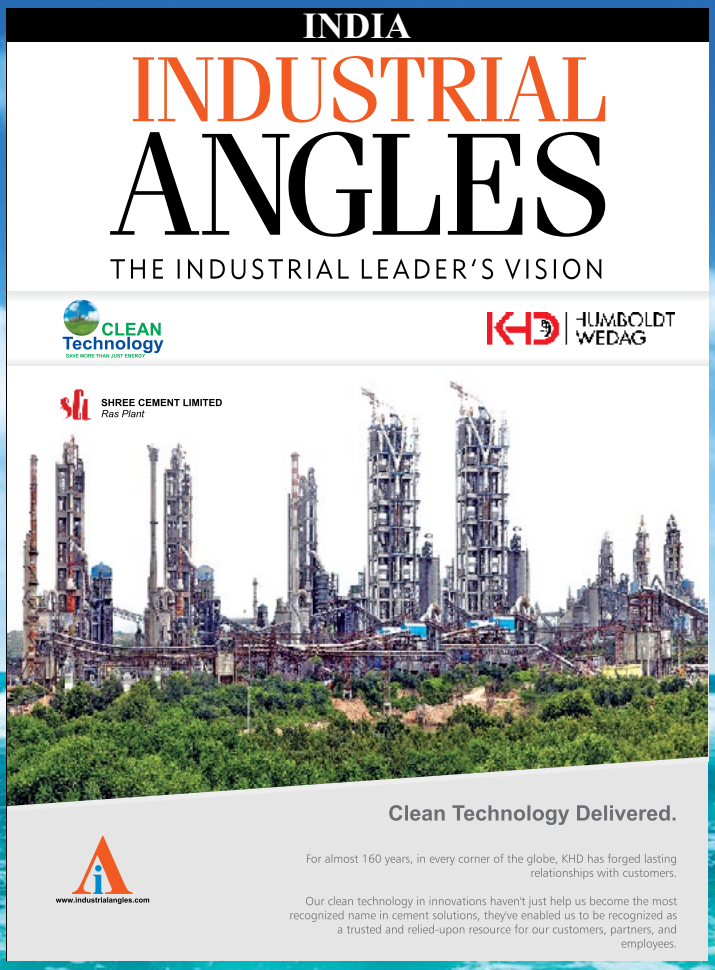

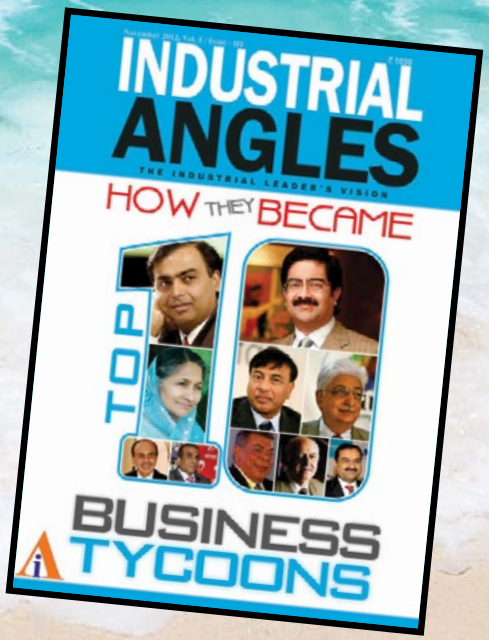

سبتمبر/ أيلول 2023

24 → 03 أكتوبر / تشرين الأول

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24-28 25-29

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24-28

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المهارات المتقدمة في التأثير القيادي وتطوير المؤسسات
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أكتوبر / تشرين الأول 2023

02-06

إدارة المعرفة ودورها في التنمية المستدامة
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02-06

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02-06

أجهزة إمدادات الطاقة غير المنقطعة وشواحن البطاريات
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01-05 02-06

التقنيات الفعالة في إعداد التقارير وتحليل بيانات الأعمال
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مركز الرواد للتدريب
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09-13

قيادة الفرق عالية الأداء
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09-13

مهارات التفاوض الفعال مع الإستشاريين والمقاولين
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09-13

برنامج القائد الفعال
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09-13

التركيبات والصيانة الكهربائية
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أكتوبر / تشرين الأول 2023

16-20	16-20	16-19	09-13
معيار الإدارة البيئية آيزو 14001 دبي، الإمارات العربية المتحدة مركز نيوفيجن للتدريب +971505976739	أساسيات إدارة الأصول دبي، الإمارات العربية المتحدة مركز نيوفيجن للتدريب +971505976739	الإدارة الاستراتيجية للعلامة التجارية والحملات الدعائية القاهرة ، جمهورية مصر العربية المنظمة العربية للتنمية الإدارية أ. دعاء العنود الطرمان، سكرتير تنفيذي مجموعة التواصل المؤسسي والعلاقات العامة والإعلام والتسويق +201111999998	الاتجاهات الحديثة في الشحن والتأمين وإدارة المطالبات دبي، الإمارات العربية المتحدة مركز نيوفيجن للتدريب +971505976739
29 → 02 نوفمبر/ تشرين الثاني 30 → 03 نوفمبر/ تشرين الثاني القائد الإستراتيجي دبي، الإمارات العربية المتحدة مركز الرواد للتدريب +971543023229	23-27 أساسيات إدارة المشاريع والإشراف على الإستشاريين والمقاولين أونلاين مركز نيوفيجن للتدريب +971505976739	23-27 تشغيل وصيانة معدات التوزيع الكهربائية دبي، الإمارات العربية المتحدة مركز نيوفيجن للتدريب +971505976739	22-26 23-27 العقليات الرابحة للقادة الإستراتيجيين الرياض، المملكة العربية السعودية مركز الرواد للتدريب +971543023229
	30 → 03 نوفمبر/ تشرين الثاني برنامج التسويق الشامل دبي، الإمارات العربية المتحدة مركز نيوفيجن للتدريب +971505976739	30 → 03 نوفمبر/ تشرين الثاني برنامج مسؤول الالتزام المعتمد Compliance Specialist أونلاين مركز نيوفيجن للتدريب +971505976739	30 → 01 نوفمبر/ تشرين الثاني تحليلات الموارد البشرية أونلاين مركز نيوفيجن للتدريب +971505976739

نوفمبر / تشرين الثاني 2023

12-16 13-17	06-10	06-10	06-10
المحلل الناجح دبي، الإمارات العربية المتحدة مركز الرواد للتدريب +971543023229	إدارة تأهيل الموردين ومتابعة أدائهم وكيفية الامتثال للعقود أونلاين مركز نيوفيجن للتدريب +971505976739	الإدارة والتحفيز من أجل تحقيق التميّز أونلاين مركز نيوفيجن للتدريب +971505976739	التدقيق على إجراءات السلامة وتفتيش الموقع أونلاين مركز نيوفيجن للتدريب +971505976739
13-17 الأخصائي المعتمد في تحليل الأعمال أونلاين مركز نيوفيجن للتدريب +971505976739	13-17 الأساليب الحديثة في التوازن البيني والاستدامة دبي، الإمارات العربية المتحدة مركز نيوفيجن للتدريب +971505976739	13-17 محترف الأعمال المعتمد في البيع دبي، الإمارات العربية المتحدة مركز نيوفيجن للتدريب +971505976739	13-16 تخطيط وإدارة حملات العلاقات العامة شرم الشيخ ، جمهورية مصر العربية المنظمة العربية للتنمية الإدارية أ. دعاء العنود الطرمان، سكرتير تنفيذي مجموعة التواصل المؤسسي والعلاقات العامة والإعلام والتسويق +201111999998

نوفمبر / تشرين الثاني 2023

26-30 27 ← 01 ديسمبر / كانون الأول

برنامج في إدارة الأعمال وفق أحدث المستجدات العالمية

القاهرة، جمهورية مصر العربية

مركز الرواد للتدريب

+971543023229

20-24

صيانة المعدات الكهربائية واكتشاف الأعطال وإصلاحها

أونلاين

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20-22

إدارة وقيادة فرق العمل عن بعد في عالم ما بعد «كوفيد-19»

أونلاين

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19-23 20-24

برنامج في إدارة الأزمات والكوارث والطوارئ

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مركز الرواد للتدريب

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27 ← 01 ديسمبر / كانون الأول

إدارة وتخطيط الصيانة

دبي، الإمارات العربية المتحدة

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27 ← 01 ديسمبر / كانون الأول

إدارة استمرارية الأعمال

أونلاين

مركز نيوفيجن للتدريب

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ديسمبر / كانون الأول 2023

04-08

إدارة المخازن والمستودعات

أونلاين

مركز نيوفيجن للتدريب

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04-06

الإدارة المالية لغير الماليين

أونلاين

مركز نيوفيجن للتدريب

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04-05

إدارة حسابات العملاء وتحقيق رضا العملاء

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مركز نيوفيجن للتدريب

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بطاقة الأداء المتوازن تحقيق التميز في الأداء

القاهرة، جمهورية مصر العربية

مركز الرواد للتدريب

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18-22

الصيانة الوقائية والصيانة التنبؤية

دبي، الإمارات العربية المتحدة

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17-21 18-22

تخطيط الصيانة والجدولة والتحكم

الرياض، المملكة العربية السعودية

مركز الرواد للتدريب

+971543023229

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إستراتيجيات إدارة العملاء والحفاظ على ولائهم

دبي، الإمارات العربية المتحدة

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04-08

القائد المؤثر وبناء العلاقات وقيادة المؤسسات

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25-29

إدارة الأنظمة البيئية

دبي، الإمارات العربية المتحدة

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+971505976739

25-29

مبادئ تشغيل واختيار المحولات الكهربائية

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مركز نيوفيجن للتدريب

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25-29

برنامج متخصص في عقود التشييد والبناء وإعداد المستندات

أونلاين

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