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Contents

Articles

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

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AUCBM's ***Quarterly Cement and Building Materials Review (CBMR)***

EDITORIAL SCHEDULE

ISSUE	THEMES	
December 2024 (# 98)	- 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	

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FLSmidth has signed an agreement to acquire TIPCO Tudeshki Industrial Process Control GmbH (Tipco), a technology company based in Aachen, Germany

FLSmidth has signed an agreement to acquire TIPCO Tudeshki Industrial Process Control GmbH (Tipco), a technology company based in Aachen, Germany

Tipco is the developer of cutting-edge sensor technology that can measure the particle size distribution of different mass flows, which offers strong applications across FLSmidth's Mining portfolio.

The technology will initially be applied to FLSmidth's hydrocyclones portfolio. The combination of FLSmidth's KREBS hydrocyclones, offering high-efficiency and cost-effective classification solutions, with Tipco's sensor technology will further strengthen FLSmidth's pumps, cyclones and valves (PCV) solutions to mining customers. Over time, FLSmidth will seek to extend the use of the technology to other parts of the Mining portfolio, including additional potential applications within the grinding circuit.

"This acquisition marks an important addition to our PCV offerings and highlights our strategic focus on digital solutions across the Mining flowsheet. The optimisation of the grinding circuit plays a crucial part in maximising productivity and operational efficiency of the overall processing plant, and the addition of Tipco's ground-breaking sensor technology will further strengthen our offerings within this area", comments Pat Turner, PCV Business Line President at FLSmidth.

The terms of the transaction have not been disclosed. Furthermore, the transaction does not impact FLSmidth's financial guidance for 2024.

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. We work within fully validated Science-Based Targets, have a clear commitment to improving the sustainability performance of the global mining and cement industries and aim to become carbon neutral in our own operations by 2030.

Newly commissioned Siwertell ship unloader increases cement handling capacity for Kuwait operator

Bruks Siwertell has recently completed the commissioning of an ST 490-M Siwertell ship unloader for returning customer, Kuwait Portland Cement Co. It was installed on a jetty in Shuaiba Port, Kuwait City, Kuwait, next to the operator's existing rail-mounted ST 490-F Siwertell unit, which has been securing efficient, environment-friendly material handling for over two decades.

The ongoing performance of Kuwait Portland Cement Co's original Siwertell ship unloader was one of the main reasons why the operator opted for a second unit. The new rail-mounted ship unloader handles various cement types and delivers a continuous material handling capacity of 800t/h, discharging vessels up 80,000 dwt.

Both unloaders are designed to operate in Kuwait's extremely hot climate. To accommodate predicted temperature rises in the region, the latest unit can withstand ambient summertime temperatures of up to 55 degrees Celsius.

"Commissioning the new ship unloader in these very high temperatures was a challenge," notes Bengt Svensson, Senior Contract Manager, Bruks Siwertell. "However, we overcame it, and have now completed the installation and operator training. The new unloader has passed its performance tests, fulfilling the operator's expectations.

"Kuwait Portland Cement has benefited from over 20 years of experience using our Siwertell screw-type technology, and we hope that the new unit will bring many more," continues Svensson. "The operator also knows that it can rely on our ongoing service and support. In fact, with two similar models, it will benefit from shared spare parts and maintenance strategies."

Global installations of Siwertell ship unloaders demonstrate their ability to deliver reliable, efficient, and environment-friendly operations, eliminating spillage and minimizing dust emissions and noise in dry bulk handling operations.

The new unloader features a new side tilt motion, which offers an enhanced reach into the corners of the cargo hold as well as under the hatch coamings. This additional maneuverability means that even less material is left for the clean-up phase, which reduces vessel turnaround times, raising the utilization rate of the jetty and therefore profitability.

Furthermore, all Siwertell unloaders offer a layer-by-layer unloading process, which minimizes the chance of airborne emissions from avalanches in the cargo hold. The side tilt function adds to this capability.

Both the current and new unloader are also equipped with a total capacity regulating system, maximizing the use of each unit, and ensuring that they do not overfill the downstream conveying system. They can also directly discharge to bulk trucks via a truck loading arrangement underneath the ship unloader's gantry. This configuration increases the flexibility and efficiency of the operation.

For more information, please contact:

Bengt Svensson, Contract Manager

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Saint-Gobain Acquires Fosroc

Saint-Gobain's Building Materials Division of Courbevoie, France, announced that it has entered into a definitive agreement to acquire the global construction chemicals producer Fosroc (HQ in Dubai, UAE). Fosroc operates 20 manufacturing plants globally, employing around 3,000. The company is producing a wide range of concrete admixtures as well as technical solutions for the construction industry such as drymix mortars (CTA, specialty grouts, flooring compounds, concrete repair systems), sealants and waterproofing. According to Saint-Gobain, the company is aiming to strengthen its presence in high-growth emerging markets, notably in India and the Middle East with this acquisition. The transaction value was 960 mio Euro. Saint-Gobain Weber's worldwide presence in the construction industry will have combined sales of 6.200 mio Euro across 73 countries following the acquisition.

Kaleseramik begins production in Iraq

Production under the Kalebodur brand began on 19 May at the facility of the Iraqi subsidiary Al-Sadaf Porcelain.

Kaleseramik, Turkey's leading ceramic tile manufacturer, commenced production at Al-Sadaf Porcelain in Iraq on 19 May after acquiring a 49% stake in the company in December 2023.

The facility has an annual capacity of 2.5 million sqm and will initially produce eight porcelain tile collections in 60x120 cm and 60x60 cm sizes, which will be marketed in Iraq under the Kalebodur brand.

Kaleseramik already has an annual production capacity of 56 million sqm and expects the new facility in Iraq to generate annual net sales of US $14 million. It has a strong presence in the country through its sister company Kalekim, a market leader in the building chemicals sector.

Al-Sadaf Porcelain is one of the leading porcelain tile manufacturers in Iraq. Kaleseramik's future development plans include raising its production capacity to 7 million sqm/year and expanding its product range to meet market demand.

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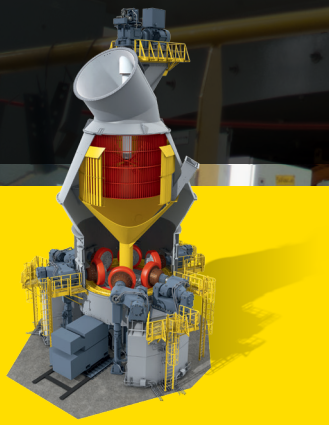

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FM joins Elesa Group

The acquisition brings together the two companies' know-how, aptitude for innovation and production capacity in the field of components for the mechanical and automation industries.

Elesa S.p.A., a leading player in the design and production of components for the mechanical and automation industries, has signed an agreement for the acquisition of 100% of the industrial assets of FM S.r.l. of Correggio (Reggio Emilia), a company specialising in the engineering and moulding of technical articles in thermoplastic materials for injection moulding, which will be renamed FM Partec® S.p.A.

The acquisition, finalised in October 2024, marks the culmination of more than 24 years of collaboration between the two companies and will further optimise synergies between their respective areas of expertise while increasing production capacity and strengthening their continuous focus on innovation.

FM's management and employees will continue to run FM Partec® in accordance with the Elesa Group's guidelines.

Elesa, founded in 1941 and headquartered in Monza with 14 foreign subsidiaries, exports more than 65,000 high-quality, high-performance items made from the most advanced technopolymers and metals to over 60 countries. Elesa's products stand out for their ergonomic and highly distinctive design and have won more than 56 industrial design awards. They are used in the most diverse fields of application in the mechanical engineering and industrial automation sectors.

FM, founded in 1974 in the heart of the Correggio plastics industry, is a leading manufacturer of components for machines used in the ceramics and industrial automation sectors. As a top technical and technological partner, it is able to assist customers in all areas relating to the production of moulds and articles in thermoplastic materials in all stages from design through to delivery of the finished product.

FM also manufactures innovative blowing and suction systems for drying, cooling, cleaning and product separation applications in various industries, from food and beverage to ceramics.

FM has an international sales network and exports its products to over 40 countries worldwide. Its research laboratory, FMLab, is recognised by the Italian Ministry of Education, University and Research (MIUR) and accredited by the Advanced Technology Network of the Emilia-Romagna Region.

Both companies collaborate with prestigious universities: Elesa with Milan Polytechnic, and FM with the University of Ferrara and the University of Modena and Reggio Emilia.

50 years of innovation in step with the times

Since 1974, FM has developed numerous products for the ceramic industry, each of which has been tailored to new customer requirements and market needs. These include the historic glazing disc packs that resolved various disc booth issues and the supports, pulleys and guards that have continued to evolve over the years in step with the evolution of the machines and their applications.

The company's latest product is the Aria GreenBlow® line, which is designed to reduce energy consumption by using low-impact, high-performance motors. Initially used for tile cooling prior to digital printing, the line has continued to evolve and has been equipped with all the accessories needed to create effective blowing, suction and filtering stations. Today, the Aria GreenBlow® line can be used not only for cooling but also for cleaning applications prior to kiln entry with the Pull'n'catch® system, as well as post-cut drying and many other applications where air blowing is required.

One of the key venues chosen by FM to celebrate the first 50 years of its success and lay the foundations for its future growth as FM Partec® together with the Elesa.

Slag Cement Production Process

Wen Peng & Liu Xu, Henan SRON Silo Engineering Co., Ltd., China

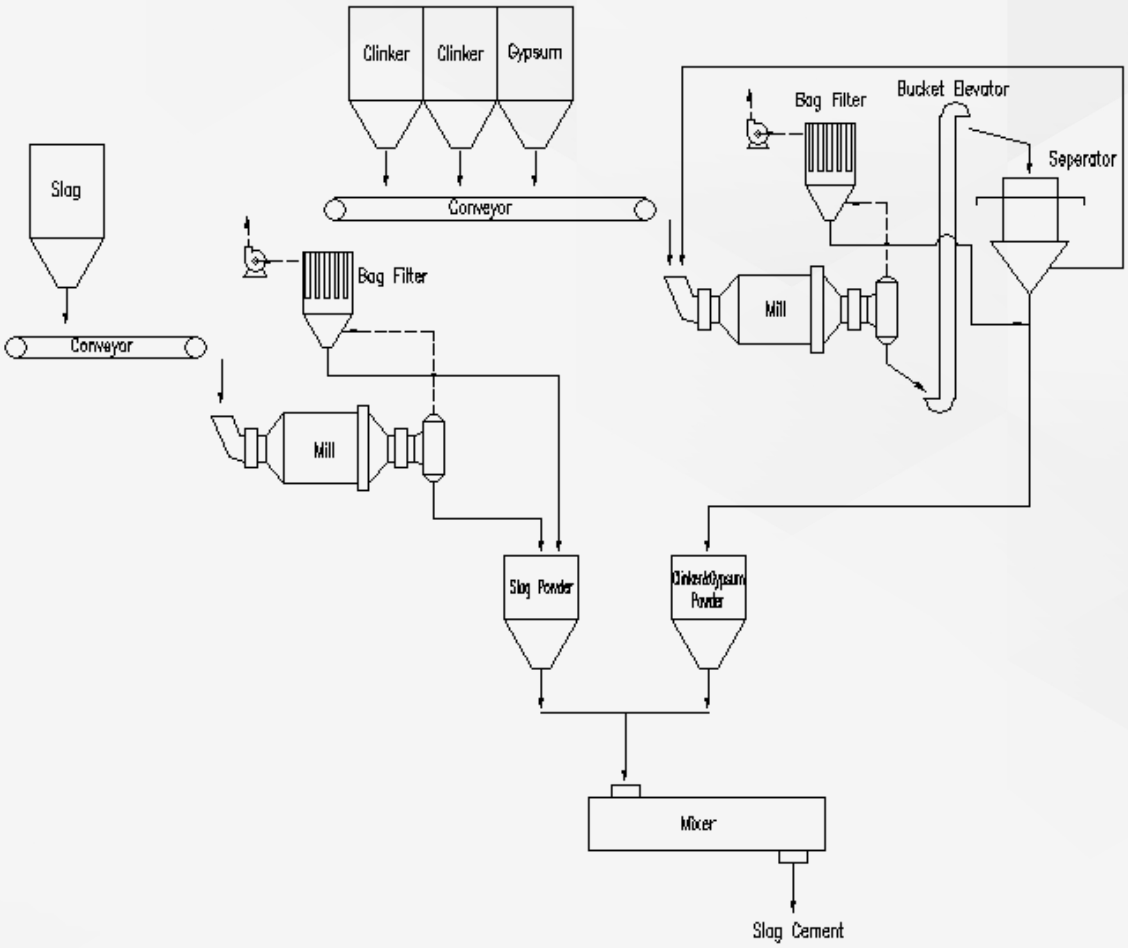
Slag cement, as an important material in the modern construction industry, the optimization and innovation of its production process has far-reaching significance for improving the quality of building materials, reducing production costs and protecting the environment. This article aims to deeply explore the production process of slag cement, analyze its key links, and provide suggestions on how to further improve the quality and production efficiency of slag cement through technological innovation.

1. Overview of the Slag Cement Production Process

The production of slag cement mainly goes through three major links: raw material preparation, clinker preparation, and cement grinding. In the raw material preparation stage, raw materials such as limestone, clay, and slag need to be strictly screened and proportioned to ensure that the chemical composition of the raw materials meets production standards. Finally, the clinker is ground into fine powder, and an appropriate amount of auxiliary materials such as gypsum are added as needed to adjust the properties of the cement.

2. Key Links in Slag Cement Production

1. Raw Material Selection and Proportioning: The quality of raw materials directly affects the performance of the final product. Therefore, the impurity content must be strictly controlled in raw material selection and the proportion of each component must be reasonably proportioned. Scientific raw material ratio can not only improve the quality of clinker, but also help save energy, reduce emissions, and reduce production costs.
2. Clinker Firing Process: The firing of clinker is the most critical step in the production of slag cement. Factors such as firing temperature, time and cooling rate will have a significant impact on the mineral composition of clinker and later cement properties. The use of advanced pre-decomposition technology and rotary kiln firing system can effectively improve clinker quality and production efficiency.
3. Cement Grinding and Performance Adjustment: The fineness of cement grinding is directly related to the hydration activity and working performance of the cement. By improving the structure of the mill and the material of the grinding body, the grinding efficiency can be improved and energy consumption reduced. At the same time, reasonable addition of gypsum and use of auxiliary materials can adjust the performance of cement according to different project needs.



slag cement production process

3. Direction of Technological Innovation

1. Environmental Protection and Energy-saving Technologies: Facing increasingly severe environmental protection requirements, the slag cement industry should increase investment in environmental protection and energy-saving technologies, such as using waste heat from waste gas to dry raw materials and using new high-efficiency dust removal equipment to reduce dust emissions.
2. Automation and Informatization: Improving the automation level of the production line and realizing real-time monitoring and intelligent control of the production process can not only improve production efficiency, but also ensure the stability of product quality.
3. Waste Resource Utilization: Explore the application of industrial waste in slag cement production, such as fly ash, waste residue, etc., which can not only reduce production costs, but also achieve resource recycling, which is in line with the concept of green and sustainable development.

To sum up, the production of slag cement is a complex process involving multiple disciplines and multiple processes. Only by continuously optimizing production processes and strengthening technological innovation can we achieve dual improvements in economic and environmental benefits while ensuring product quality. In the future, with the application of new materials and new technologies, the production of slag cement will be more efficient, environmentally friendly, and better serve the sustainable development of human society.

Optimisation of limestone in cements

Mark Mutter, Lawrie Evans and Arthur Harrisson – JAMCEM Consulting Limited

Introduction

The use of limestone as a component of finished cement is not a new concept, having been used on a commercial basis for over 40 years. However, the amount of limestone that has been and is currently used varies significantly from country to country for a number of different reasons such as:

- The cement standards within the country and the quantity of limestone that is allowed for different cement types produced.
- The perception that a limestone cement – with a lighter colour – is an inferior cement.
- The availability of limestone within a country and whether it would be better used to produce clinker rather than used as a cement additive.
- The availability and price of other cementitious additives.

Within this paper, we have reviewed the history and purpose of limestone additions to cement, the effect that limestone addition has on cement and concrete properties, the efficiency of grinding when using limestone and the current developments in trying to maximise the benefits of clinker and limestone when producing cement.

History of limestone use

Although minor quantities of limestone had been added previously in some cements, the introduction of closed-circuit milling systems in Europe was one of the main driving forces behind the expanding use of limestone as an additive in cement. With open circuit milling, the cement produced has a wide particle size distribution. However, with closed circuit, the particle size distribution became a lot narrower, with a more uniform particle size. This results in more voids being present in the concrete that is produced which leads to a higher water demand due to less blocking of capillary pores and therefore bleeding of water, and a resultant decrease in workability and durability in concrete.

In order to counteract the effect mentioned above, standards were initially introduced to allow the use of up to 5% Minor Addition Constituents in CEM I in European countries, with the MAC being limestone in most cases. With a MAC – and in particular a MAC that is softer than clinker – preferential grinding occurs in the milling process. Preferential grinding is the effect when materials are being inter-ground in the mill and there is a different in the grindability of the materials – so in the case in question, clinker being a harder material than limestone. The softer material will tend to be overground and the harder material being underground. This then results in a return to the wider PSD found in open circuit milling, with the overground limestone fines filling in the voids in concrete and reducing water demand and therefore increasing strength in concrete.

This effect of voids filling with limestone addition when the limestone is inter-ground with clinker is effective at addition rates up to around 5% addition of limestone, after which the limestone addition will have limited additional strength benefit and will act as a diluent on the potential cement strength from the clinker.

Following on from the introduction of the allowance of 5% MAC in cement, standards were then developed to allow much higher levels of limestone addition and were to a large degree driven by the European Standard for cement EN-197, which was first introduced as a harmonised regulation across all EU countries in 2000. The standard replaced individual standards in member countries which covered different cement types (slag, fly ash, limestone, pozzolan etc.) to ensure consistency and clarity in the cement types produced across all member states. For example, the previous standard for limestone cements in the United Kingdom was BS 7583, which was introduced in 1992. Shown below is the EN197 classification of cements based on composition for limestone (note that limestone can also be added in composite cements under EN-197).

Quite rapidly, the use of limestone as an additive to bag cement increased, with cement producers realising that the cement didn't have to be of the highest quality and therefore the limestone in the cement could be used as a "filler" to reduce the cost of production whilst remaining in the specific strength class – generally 32.5 cement for bag at the time – and meeting the requirements of bag cement customers.

However, over time, higher grade limestone cements have come to prominence - mainly across Europe - as a way of reducing costs and increasing cement volumes. More recently limestone cements have also become claimed as a method to produce environmentally friendly cements with a lower clinker content (even though many of the cement producers had already been producing such cements for a number of years).

The challenge of preferential grinding

As previously described, preferential grinding at low levels of limestone addition is beneficial in concrete and in fact was the reason why the 5% MAC addition was allowed as previously described. However, as the proportion of limestone addition becomes higher, the effect of the preferential grinding becomes much more pronounced, resulting in a much higher degree of fine limestone and a greater degree of coarse clinker and the product. In addition it has become evident that even 3rd generation separators lose the capability to produce an overall narrow particle size distribution when high limestone cements are produced. It is for this reason that cement manufacturers now increasingly use 45 or 32 micron residue as an indicator of the grinding efficiency as opposed to surface area, because the average of the fine limestone and the coarse clinker would appear to give an acceptable result according to the surface area, but this masks the fact that the coarser part of the product is mainly clinker. Following the residue allows the producer to identify whether the cement particles – in particular clinker – have been sufficiently well ground.

		Clinker	Blastfurnace slag	Silica fume	Pozzolana		Fly ash		Burnt shale	Limestone*		Minor additional constituents
					natural	calcined	siliceous	calcareous				
		K	S	D[2)]	P	Q	V	W	T	L	LL	
Portland-limestone cement	CEM II/A-L	80-94	-	-	-	-	-	-	-	6-20	-	0-5
	CEM II/B-L	65-79	-	-	-	-	-	-	-	21-35	-	0-5
	CEM II/A-LL	80-94	-	-	-	-	-	-	-	-	6-20	0-5
	CEM II/B-LL	65-79	-	-	-	-	-	-	-	-	21-35	0-5

Table 1: Limestone standards under EN-197

The importance of 45 micron residue in cement

Through various studies and analysis, it has been shown that a clinker particle in cement will on average hydrate to a depth of approximately 5 microns – so a particle of up to 10 microns can be expected to fully hydrate. Particles above this size will only partially hydrate i.e. the surface of the particle will hydrate to a depth of 5 micron, with the remainder of the clinker at the centre of the particle remaining unreacted. Considering some larger particles as spheres, calculating their volume and then applying the 5 micron hydration rule, we find that:

- A 32-micron clinker particle will be 32.5% unreacted
- A 45-micron clinker particle will be 47.1% unreacted

If we then consider a limestone cement that has a 10% 45 micron residue (which will most likely be clinker due to the effect of preferential grinding) and that roughly 50% of the of a 45 micron particle is unreacted, then in a best case we can consider that 5% of the potential strength is lost (in reality it will be more as the 45 micron residue will have particles larger than 45 microns). The effect of preferential grinding can to some degree be counteracted by the use of high efficiency separators to ensure that a larger proportion of the coarse materials are returned to the mill for further grinding. This has obviously been improved by the progress from open circuit milling to closed circuit with 3rd generation separators, but this has still not yielded fully satisfactory results.

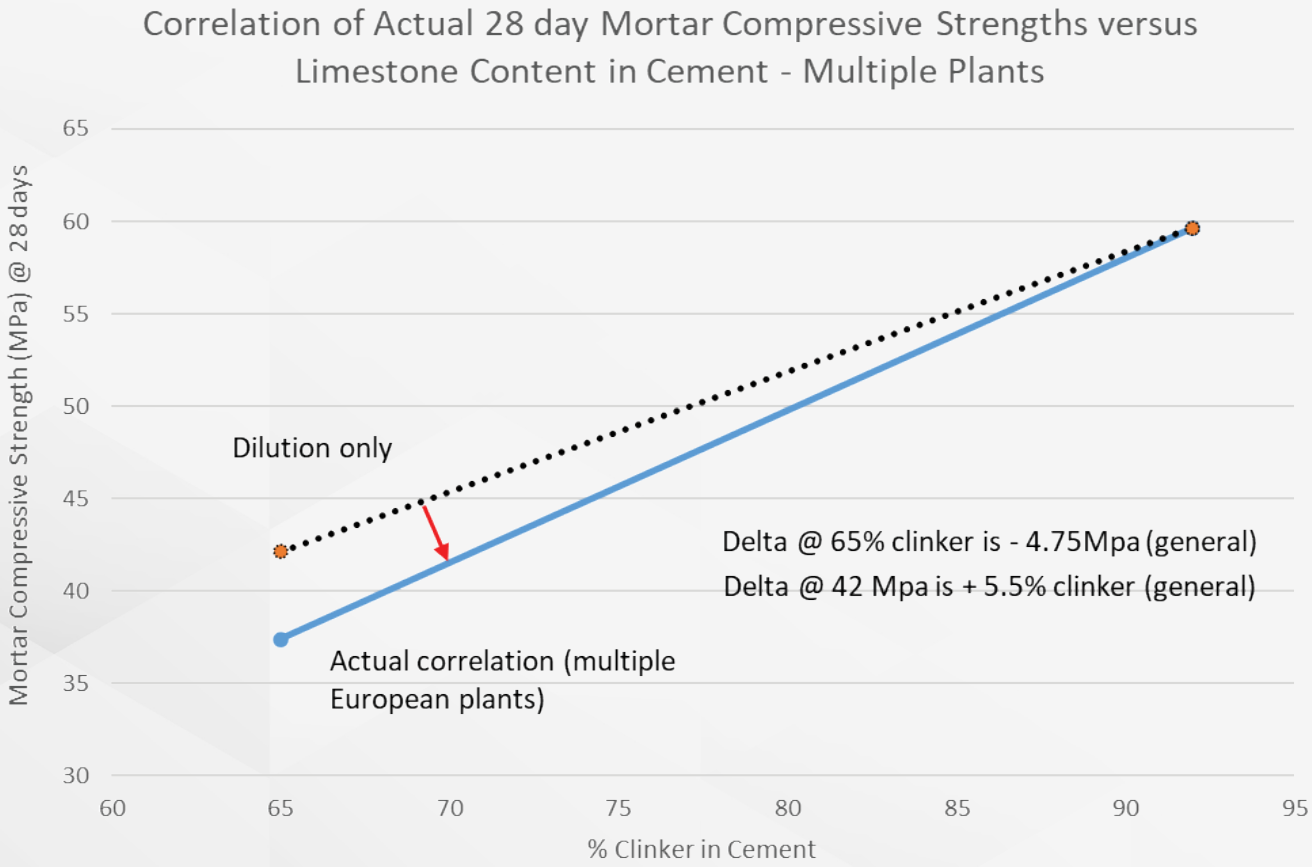


Figure 1: Representation of expected dilution from limestone and actual results

Preferential grinding – the real world effect

Working from the basis that the positive effect of limestone addition on concrete strength is only at lower levels of addition, then we would expect that the effect of higher levels of limestone addition would simply be an effect of dilution of the strength of cement. However, in examining the actual results of a number of limestone cements from different (mainly European) plants and the mortar 28 day strength, we have noted that the actual effect is worse than dilution. This is presented in the graph above (Figure 1), which shows the theoretical dilution line and the actual results from various limestone cements.

The graph shows that the difference between the theoretical effect of dilution by limestone and the actual effect of preferential grinding is a difference of just under 5Mpa on a cement with 65% clinker, or inversely an additional 5.5% clinker is required to bridge the gap between dilution and preferential grinding on a 42.5 strength cement.

Addition of fine limestone to cement

In an effort to try and extract more strength from clinker in cement, JAMCEM has recently been involved with laboratory trials in which various different fine ground limestones have been added to a CEM I (with 5% limestone MAC) produced at a specific plant. The aim is to study the effect of adding limestones of various fineness's, including ones finer than that which would be found in the cement by inter-grinding only. The various different size fractions of commercially available ground limestone products which were used in the trials have been presented below on the graph below which also shows the typical range of raw meal residues.

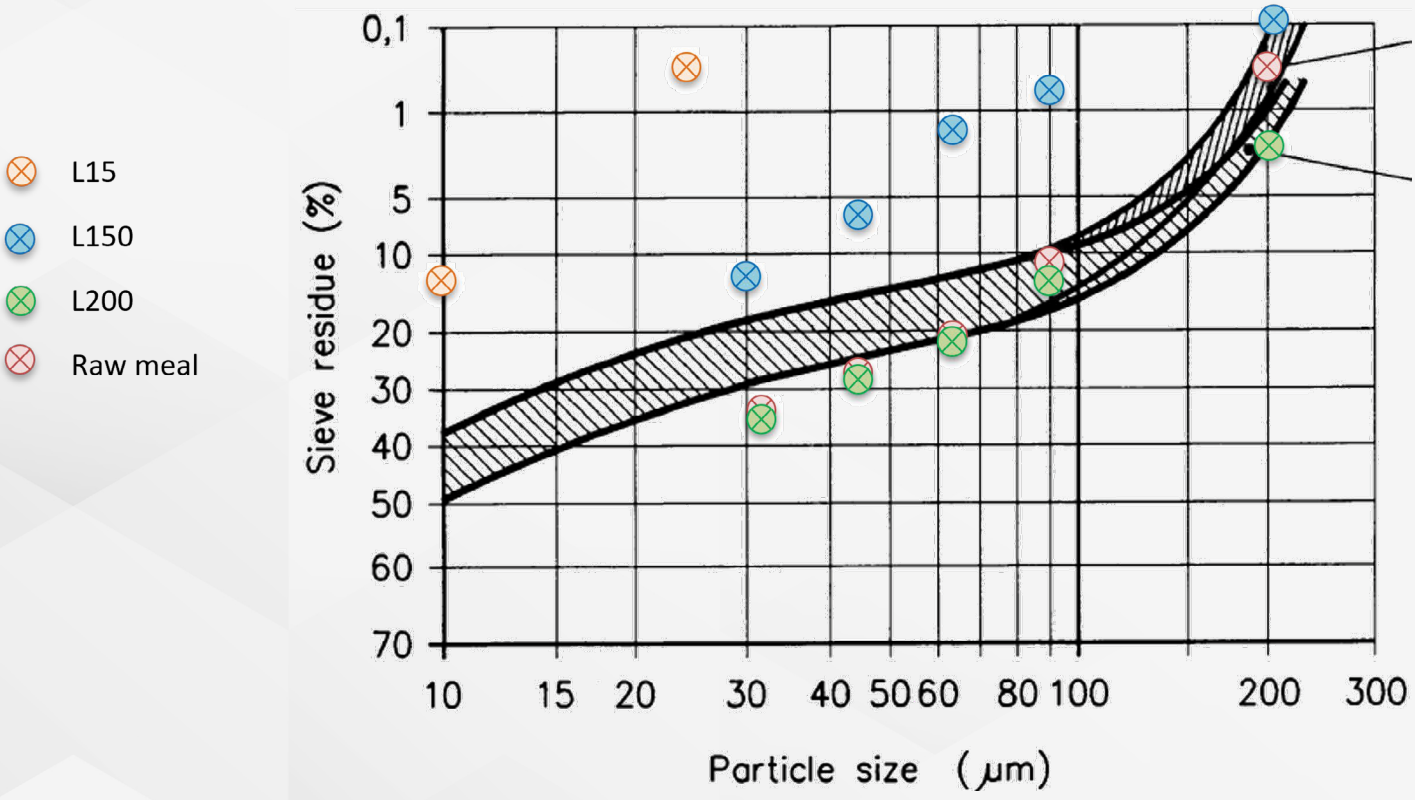


Figure 2: Typical raw meal PSD with commercial limestones used in trials

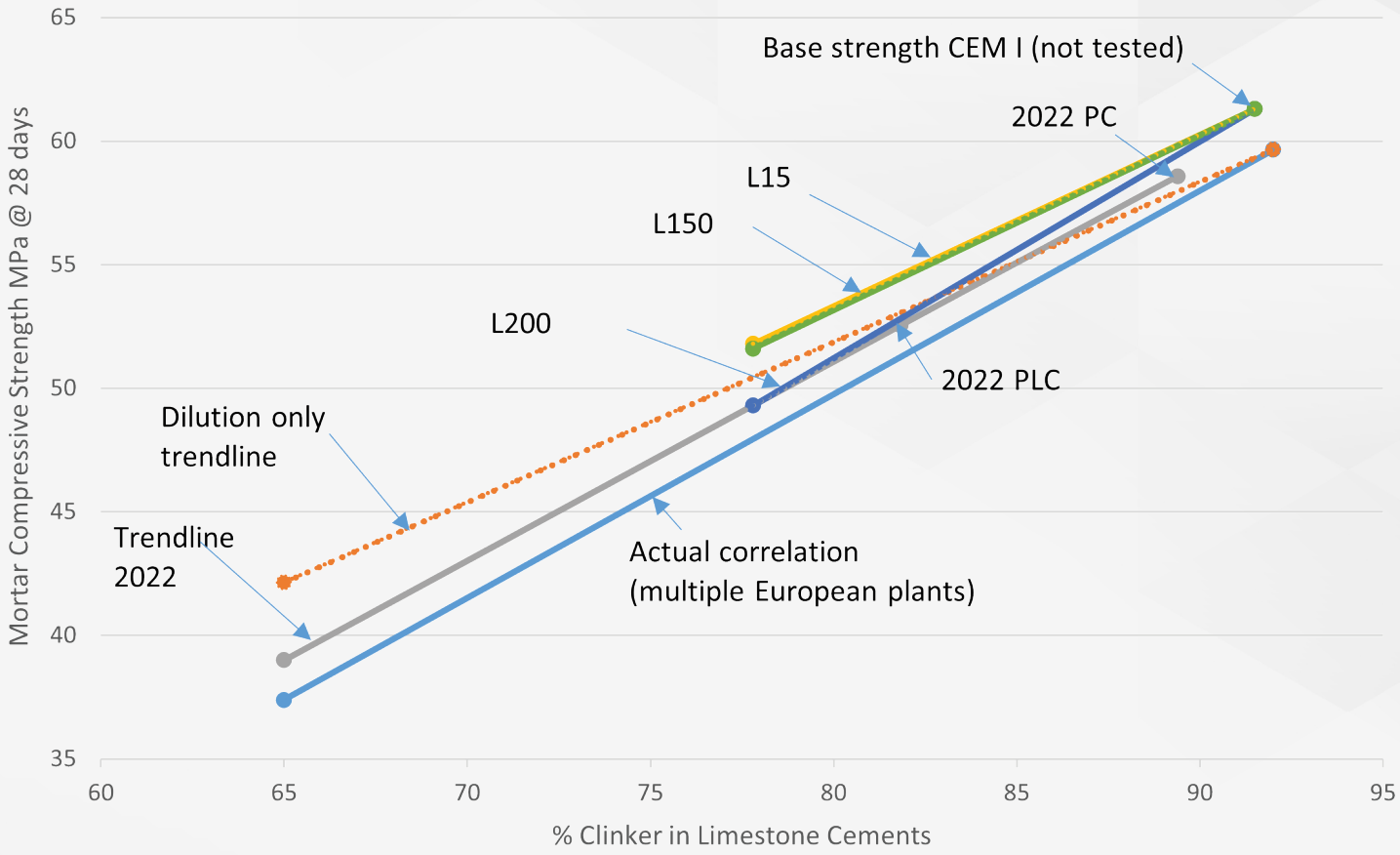


Figure 3: Comparison of 28-day mortar strength with clinker content

As can be seen in Figure 2, the product named L200 is very similar to raw meal, L150 is somewhat finer with a 90 micron residue of just under 1% and L15 is an extremely fine limestone with almost all material sub-32 micron. Each limestone was mixed with the CEM I at a 15% addition rate, with the results shown in Figure 3 showing the 28 day mortar strength of each mix, along with the results of various other cements produced by the plant.

As previously shown, we have presented the dilution line and the actual correlation line for various limestone cements in Europe on the graph. To this, we have added the trendline for the specific plant, showing the PC and PLC products from the plant. This runs almost parallel to the correlation line of the European PLC cements, confirming the effect of inter-grinding at this plant is similar to the European average.

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Also shown are the results of the three fine ground limestone trials – L15, L150 and L200. The two finer limestones – L15 and L150 – perform in a similar manner and produce a higher strength product than an equivalent inter-ground cement for a similar limestone addition level. The L200 – with the residue similar to that of real meal – produced a result similar to that of an inter-ground product. The results were lower than expected, and in the case of the finer limestones appeared to follow something similar to the dilution line in the graphs i.e., there was no real benefit from the addition of the fine limestone apart from the improved grinding of the CEM I to reduce the impact of limestone overgrinding, which resulted in the higher strength compared to the inter-ground product.

The effects that were observed can be explained in the following manner:

- The CEM I already contained 5% MAC, and therefore the effect of void filling could have already been taken by the 5% addition of limestone to the cement.
- As mentioned earlier in the article, the main strength gain observed in concrete with a limestone cement is due to the reduction in water demand. The mortar test as defined by the standards is with a fixed water quantity and therefore the benefit of the water reduction with the limestone cement will not be witnessed with the mortar test.

The fact that mortar test will not show the benefits of the fine limestone addition but the concrete could be performing extremely well is a challenge for cement producers. Many cement producers are trying to produce a CEM II 52.5 cement, and the addition of the limestone may take the cement below the lower strength boundary, at which point strength enhancers may be needed to increase the strength, which would potentially not be required in concrete due to the positive effect of the water demand reduction.

Therefore to continue the investigations, the trials will be repeated at different levels of limestone addition along with completing trials on the different limestone cements on concrete as well as mortar to fully evaluate the performance of the fine limestone addition.

Conclusion

For each plant the overall optimum solution for limestone addition to cement requires complex evaluation starting from the existing cement mill/separator performance, existing cements particle size distributions, limestone/clinker hardness, limestone cement qualities required in the market and compressive strength tests at both mortar and concrete levels. This can be time consuming, but protocols exist for the evaluation process.

launch of Nuado's pilot CCUS project with Buzzi in Italy.

The importance of innovation in achieving net zero

Thomas Guillot, CEO of the Global Cement and Concrete Association

The recent announcement that Nuada, a UK based carbon capture technology provider, has begun a pilot project with Italian company Buzzi, at its cement facility in Monselice, highlights the importance of innovation to decarbonisation of our essential global industry.

The trial project marks a milestone in carbon capture innovation, using Nuada's next-generation technology within cement manufacturing for the first time. But just as significant is the fact that Nuada's technology was developed with the support of the GCCA, through its pioneering Innovandi Open Challenge programme.

Innovation is a key pillar of the GCCA's work, an important lever in helping the industry deliver on its net zero goal, and the Open Challenge programme is an essential part of the GCCA's world class Innovandi programme, which focuses on innovation.

The GCCA's Open Challenge programme brings together tech start-ups with leading manufacturers, to work together on our shared net zero goal. In 2024, the third year of the programme, nearly 100 start-ups from around the world applied to take part on carbon capture, utilisation and storage (CCUS) technology. Four start-ups who were shortlisted to in last year's challenge, to work on further development of low carbon concrete, have now agreed partnerships with manufacturers. Nuada was one of the start-ups who took part in the first Innovandi Open Challenge, which also focused on CCUS.

Another important part of the Innovandi world class brand is the Global Cement and Concrete Research Network (GCCRN). The 450-strong network brings together some of the brightest researchers and scientists from more than 40 of the world's leading universities and academic institutions, together with business leaders from some of our industry's biggest manufacturers and suppliers.

the gathering of the Innovandi Global Cement and Concrete Research Network in Lausanne in Italy.

researchers discuss key findings with each other during the GCCRN Spring Week in Lausanne in Switzerland.

The GCCRN's annual gathering, known as Spring Week, took place in Lausanne in Switzerland earlier this year. The week provides an important opportunity for academics, professors, postdocs, PhD students, industry scientists and innovation leaders to get together to discuss their ideas, research and projects for decarbonising the world's most used building materials: cement and concrete.

University teams taking part in the week came from every continent and included the renowned EPFL in Lausanne, who were our hosts, researchers from South East University and Wuhan University in China, the University of Toronto, the Indian Institute of Technology in Delhi, the University of Cape Town, Imperial College London, the University of São Paulo and many more. They were all there to exchange ideas, contribute to workshops, review research progress and develop next steps for on-going and future research.

I had the pleasure of attending the week in Lausanne and was left in awe at the commitment, dedication and passion of participants and from meeting inspirational people from around the world. I got to hear about progress on so many exciting research projects, including: the use of AI in decarbonisation, new materials and processes for manufacturing cement, further development on the use of calcined clays, concrete recycling, the use of renewable energy and kiln electrification; and expansion of carbon capture, use and storage (CCUS) technology.

The GCCA has also now launched a new online library of Innovandi GCCRN projects, which provides transparent tracking of research progress published. You can see for yourself what those bright minds I met in Lausanne are working on **here**.

The third programme in the GCCA's Innovandi brand is our Innovandi Entrepreneur Network. Launched last year at COP28, it is open to start-ups interested in collaborating to support our industry's net zero mission. Membership gives them the opportunity to network with GCCA members and peers, access to mentorship, webinar programmes and workshops, and invitations to relevant GCCA events, amongst other benefits.

Cement and concrete are essential materials, vital for modern infrastructure, including our homes, hospitals, bridges, tunnels, roads and so much more. But because they are so widely used, they currently account for 7% of the world's CO_2 emissions. That is why we are all committed to delivering on the GCCA's 2050 Net Zero Roadmap.

Innovation, collaboration and research are all vital to helping our industry decarbonise. There is a long way to go, of course, if we are to achieve our shared net zero goal. But it is clear that our industry is leading the way in the use of research and innovation to help us decarbonise.

Carbon Footprint Assessment of Al-Nahda Cement Plant

A Case Study on Sustainable Practices

M. Afifi[1], Shehab. M.El-Aryan[1], A. Hamdy Abu Zaid[1], A. Zaghloul[1], M. Hekal[1], M. ElSaid[2]

[1] ASEC Technical Center

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Abstract:

Cement production is a significant contributor to global carbon emissions, accounting for approximately 7% of total CO_2 emissions worldwide (Mallagray, et al. 2020). In Egypt, the cement sector is responsible for 14% of CO_2 emissions, emitting over 800 kilograms of CO_2 per ton of cement, surpassing the global average of 600 (Elghamrawi 2023). This paper presents a case study of Al-Nahda Cement Plant, analyzing its carbon footprint across various operational processes. The study aims to identify key sources of emissions and evaluate potential mitigation strategies to enhance sustainability.

1. Introduction:

The cement industry is one of the most energy-intensive manufacturing sectors. Cement is made by fusing limestone and clay in temperatures up to 1450°C. The process produces gray, rock-like balls called clinker (which is then ground into cement), in chemical reactions that emit large amounts of carbon dioxide. The production of clinker accounts for about 90 percent of the CO_2 emissions of cement production (please see graphic below) (Mallagray, et al. 2020). This case study evaluates the carbon footprint of Al-Nahda Cement Plant, focusing on its production methods and energy sources during 2023 and compared to 2022 (Base year).

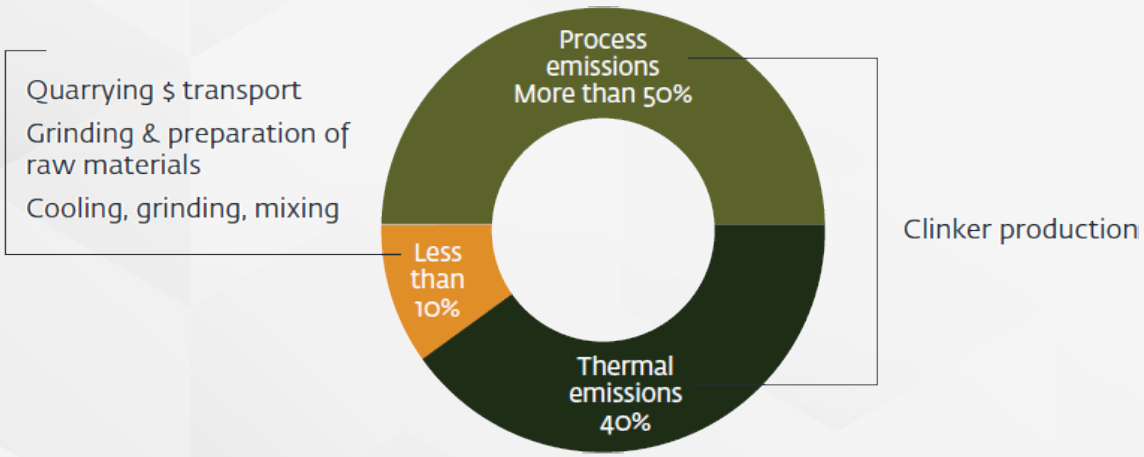


Fig (1): The production of "clinker" accounts for most of the CO2 emissions of cement production

2. Methodology:

The assessment employed a combination of quantitative data analysis and qualitative assessments.

The type of data that needs to be collected depends on the specific greenhouse gases (GHG) model, which depends on requirements such as the final admissible uncertainty, data availability, costs, pre-existence of other data or other reasons. The type of data that is used as input to different quantification methods includes:

a. activity data, such as mass, volume, energy;

b. net calorific values;

c. emission factor, expressed as ton CO_2e/ quantity of activity data;

d. composition data, expressed as carbon content;

e. oxidation factors;

f. conversion factors;

g. emissions, on a mass basis per a reference period. (ISO 14064 Technical Committee 2018)

Data were collected on site as primary data. Emissions were then calculated according to the GHG protocol (Ranganathan, et al. 2004).

3. Findings:

Direct emissions (Scope 1 according to GHG protocol) responsible for 93.49% of total emissions; while indirect emissions (Scope 2 according to GHG protocol) responsible for 6.51% of total emissions.

Direct emissions: The cement production process at Al-Nahda Cement Plant emits approximately 857 kg of CO_2e per ton of cement produced. The majority of emissions come from calcination (approximately 61.31%) and from stationary combustion (approximately 31.94%); while emissions come from mobile source only 0.24%.

Indirect emissions mainly calculated from electricity purchased.

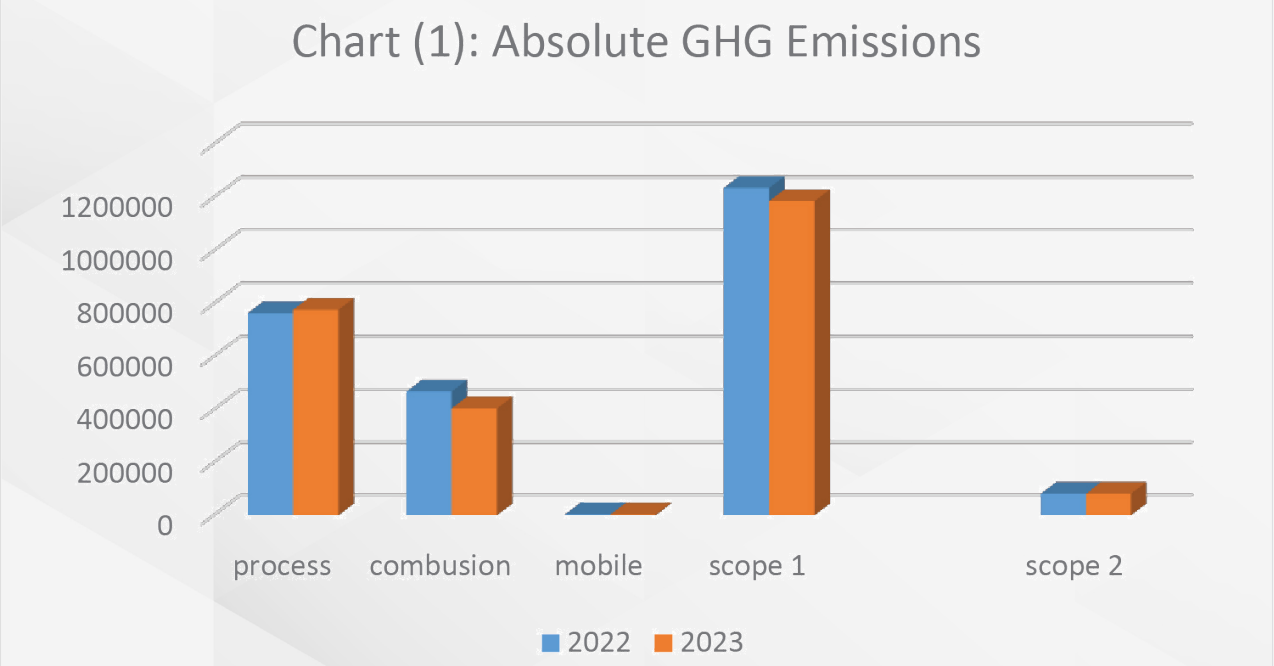
4. Discussion

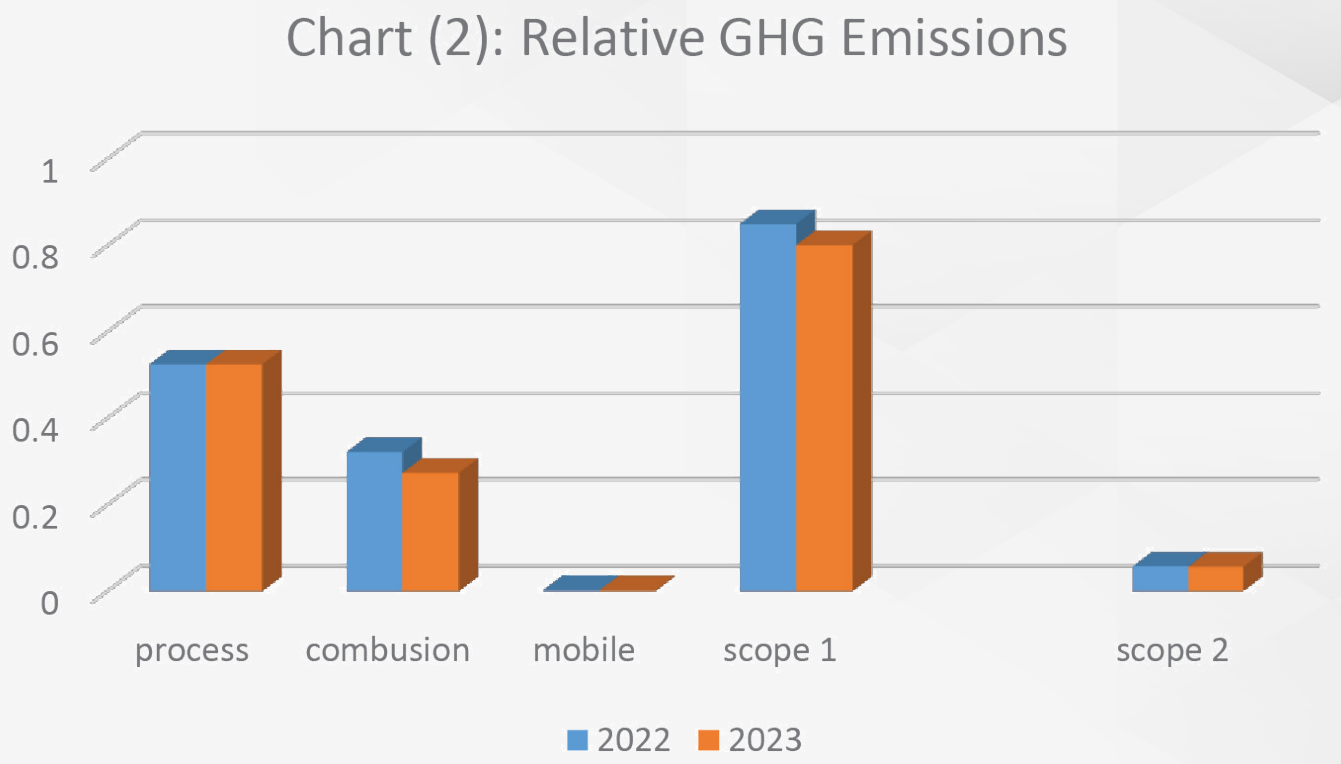
The findings highlight the decrease in GHG emissions compared to the base year 2022, as shown in chart (1):

Despite the increase in the value of absolute emissions related to process by 1.73% due to the increase in clinker production during 2023 compared to 2022; the total emissions values decreased by 3.99% due to the energy saving whether through optimizing specific heat consumption or optimizing specific power consumption.

This is clearly demonstrated by comparing the amount of carbon dioxide relative to the amount of clinker produced, as shown in chart (2):

Relative carbon dioxide emissions for process are the same 525 kg CO_2e/ton Clinker during 2022 and 2023; while Relative carbon dioxide emissions for stationary combustion decreased from 322 kg CO_2e/ ton Clinker during 2022 to 274 kg CO_2e/ton Clinker during 2023. In addition to Relative carbon dioxide emissions for purchased electricity decreased from 57.0 kg CO_2e/ton Clinker during 2022 to 55.8 kg CO2e/ton Clinker during 2023.





5. Recommendations

There are several opportunities available to reduce carbon dioxide emissions according to detailed studies by the ASEC Technical Center, as follows:

Alternative raw material (AR): ASEC's technical support team, in cooperation with National Research Center, is studying the by-product of one of the factories adjacent to the Al-Nahda plant with the aim of reducing carbon dioxide emissions by producing low energy cement.

Alternative fuels (AF): In light of the joint cooperation between ASEC and Al-Nahda Company, the use of alternative fuel is currently being studied in order to reduce carbon dioxide emissions resulting from stationary combustion.

Energy Saving: ASEC continues its plans to reduce energy consumption, whether by optimizing specific heat consumption or optimizing specific power consumption.

Blended Cement: The ASEC Technical Office, in cooperation with Al-Nahda Cement Company and with the support of National Research Center, is studying two types of cement with the aim of reducing GHG emissions up to 37%.

6. Conclusion

This case study on Al-Nahda Cement plant underscores the urgent need for the cement industry to adopt sustainable practices to mitigate its carbon footprint. The proposed strategies not only contribute to emission reductions but also create opportunities for innovation and improved resource management in the industry. Future research should focus on long-term effects of these practices on overall emissions and operational efficiency.

References

Elghamrawi, Saleh. 2023. Greening the Cement Industry in Egypt: Exploring Decarbonisation Policies for the Cement Industry. Cairo: American University in Cairo.

ISO 14064 Technical Committee, ISO. 2018. Greenhouse gases. Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals. Switzerland.: International Organization for Standardization.

Mallagray, Juan Villar , John Anagnostou, Marek Stec, Li Tu, and Sabine Schlorke. 2020. Strengthening Sustainability in the Cement Industry. Washington: International Finance Corporation.

Ranganathan, Janet , Laurent Corbier, Pankaj Bhatia, Simon Schmitz, Peter Gage, and Kjell Oren. 2004. The Greenhouse Gas Protocol-A Corporate Accounting and Reporting Standard. USA: World Resources Institute and World Business Council for Sustainable Development.

THE MENA CEMENT SECTOR'S RACE AGAINST CARBON

Amr A. Nader, A³&Co., UAE

Cement Sector Decarbonization in MENA

The MENA region is a key player in the global cement industry, contributing significantly to global carbon dioxide emissions due to its large-scale infrastructure projects. With cement being critical for construction, the MENA region has a unique opportunity to lead the decarbonization effort by integrating innovative technologies such as Organoid Intelligence (OI) and Artificial Intelligence (AI) into its cement production processes.

The cement industry is one of the largest contributors to global greenhouse gas (GHG) emissions, responsible for approximately 8 - 10% of the world's carbon dioxide (CO_2) emissions. As the global community intensifies efforts to mitigate climate change, the cement sector is under increasing pressure to decarbonize. This article explores the current state of decarbonization in the global cement sector, including innovative strategies, challenges, and the differing approaches between the MENA North and MENA South.

The Narrative of Decarbonizing the Cement Sector

The global cement sector's decarbonization narrative is heavily influenced by competing approaches, each with its unique advantages and limitations. On one end of the spectrum is Carbon Capture, Utilization, and Storage (CCUS), which is often considered the politically expedient solution. CCUS allows oil giants to maintain relevance by leveraging their infrastructure and expertise, ensuring they remain central to the decarbonization discourse. As a result, this approach is heavily funded and supported by major players, aligning with governmental agendas that favor continuity over disruptive change. CCUS's appeal lies in its ability to directly mitigate emissions without fundamentally altering cement production processes, but it also perpetuates a fossil fuel dependency.

Conversely, the cement replacement strategy via nature-based solutions or innovative materials like geopolymers offers an alternative pathway. However, scaling these solutions to meet the current 4.2 billion tons of global cement demand—or the projected 6.2 billion tons by 2050 under a business-as-usual scenario—remains a significant challenge. Furthermore, while supplementary cementitious materials like Ground Granulated Blast Furnace Slag (GGBFS) are touted as greener alternatives, their environmental benefits can be negated when considering the carbon footprint of their coal-dependent steel production and fossil fuel-intensive transportation.

In between these extremes lies a more practical approach centred on technologies with Technology Readiness Levels (TRL) above 8, which not only reduce emissions but also lower production costs and enhance circularity. This aligns with the "Decreasing Carbon while Decreasing Cost Strategy," capable of reducing up to 47% of the sector's carbon footprint by 2030, in line with Science Based Targets initiative (SBTi) scenarios of keeping global warming below 2 degrees Celsius. This approach is complemented by advanced technologies such as oxyfuel combustion, ultimately targeting near-zero emissions by 2050 with residual carbon below 10%. This balanced strategy offers a viable path forward, leveraging existing technologies while setting the stage for more complex solutions to achieve long-term decarbonization goals.

The Urgency of Decarbonizing the Cement Sector

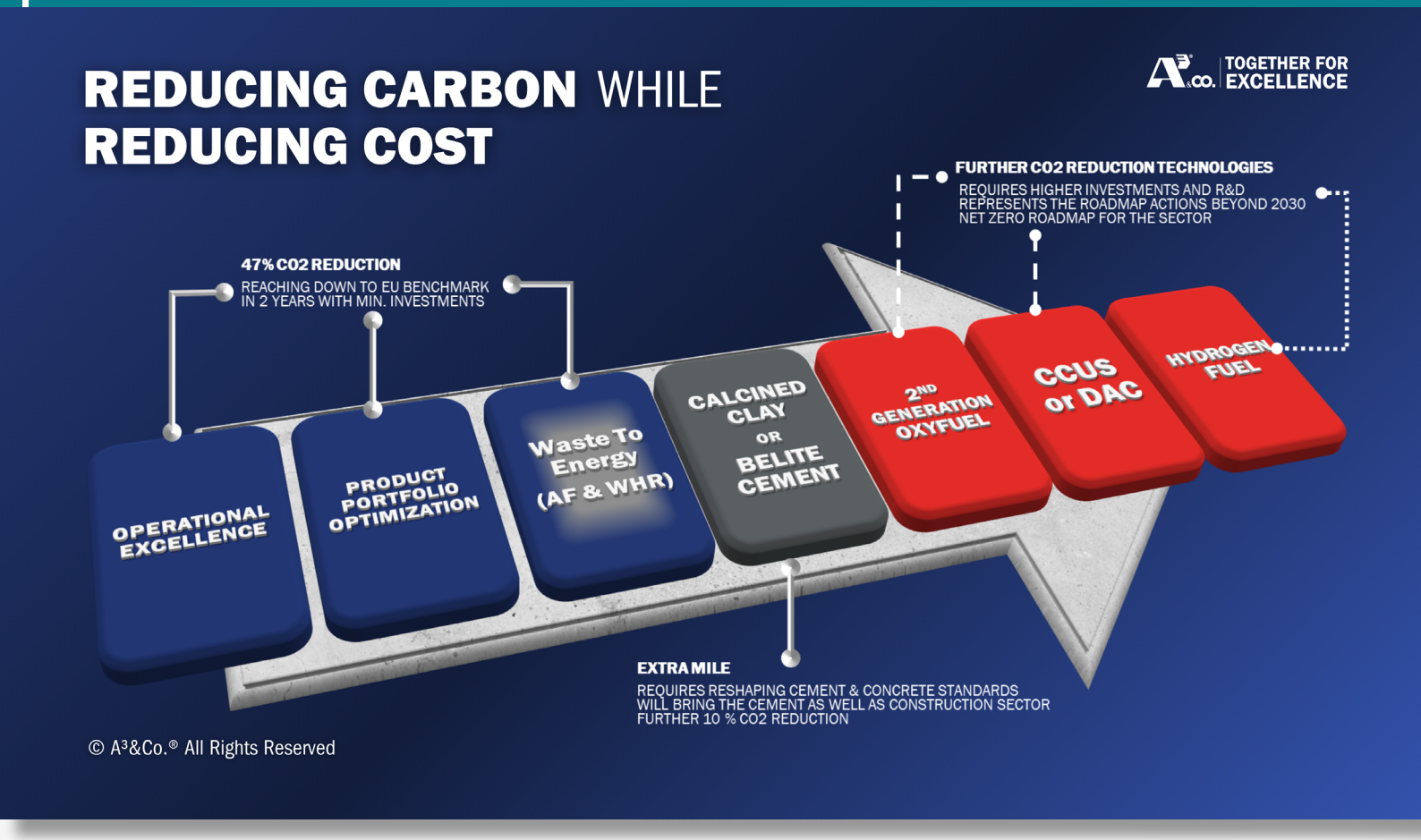
Cement production is an energy-intensive process that involves the calcination of limestone (calcium carbonate), which releases CO_2 as a byproduct. Additionally, the process requires substantial amounts of energy, typically derived from fossil fuels like coal and petcoke, further exacerbating its carbon footprint. With the Paris Agreement and the growing commitment to limit global warming to 1.5°C, the cement industry faces significant pressure to reduce its emissions.

Decarbonizing the cement sector is not just a regulatory necessity but also a business imperative. Investors, governments, and consumers are increasingly demanding sustainable practices, and companies that fail to adapt may find themselves at a competitive disadvantage. Moreover, with the advent of carbon pricing mechanisms, the financial implications of carbon emissions are becoming more pronounced, making decarbonization a critical component of long-term business strategy.

Decarbonizing the cement sector is not just a regulatory necessity but also a business imperative. Investors, governments, and consumers are increasingly demanding sustainable practices, and companies that fail to adapt may find themselves at a competitive disadvantage. Moreover, with the advent of carbon pricing mechanisms, the financial implications of carbon emissions are becoming more pronounced, making decarbonization a critical component of long-term business strategy.

A³&Co.® Decarbonization Roadmap in the MENA Region

A³&Co.® has been at the forefront of driving sustainability in the MENA cement sector. The Complete Decarbonization Solution® (CDS®) developed by A³&Co.® outlines a clear pathway for reducing carbon emissions while lowering operational costs, particularly relevant for the MENA region. By focusing on energy optimization and the adoption of alternative fuels such as biomass and hydrogen, MENA's cement industry can achieve significant decarbonization.



The "Reducing Carbon while Reducing Cost" Approach

The «Reducing Carbon while Reducing Cost» approach is a groundbreaking strategy developed by A³&Co.® that challenges the conventional wisdom that sustainability initiatives, particularly in carbon-intensive industries like cement, necessarily entail higher costs. This concept is built on the premise that effective decarbonization can go hand-in-hand with operational efficiency and cost reduction, thereby creating a win-win situation for businesses striving to lower their carbon footprint while maintaining or even enhancing their profitability.

Core Principles of the Approach

At its core, the «Reducing Carbon while Reducing Cost» approach is underpinned by three key principles:

Energy Optimization: The approach emphasizes the importance of optimizing energy use throughout the cement production process. Since energy consumption accounts for a significant portion of the operating costs and carbon emissions in cement manufacturing, improving energy efficiency is crucial. This can be achieved through various measures, including the upgrade of kiln technology, the adoption of more efficient fuel use strategies, and the implementation of waste heat recovery systems.

Process Efficiency: Improving the overall efficiency of the cement production process is another pillar of this approach. By streamlining operations, minimizing waste, and enhancing the precision of manufacturing processes, companies can reduce both their energy consumption and carbon emissions. This not only helps in meeting sustainability goals but also leads to cost savings by reducing resource use and improving productivity.

Technological Integration: The approach advocates for the integration of innovative technologies that can simultaneously reduce carbon emissions and lower operational costs. This includes the adoption of digital technologies for process optimization, the use of alternative fuels and raw materials, and the deployment of carbon capture, utilization, and storage (CCUS) systems where feasible.

Practical Applications of the Approach

The «Reducing Carbon while Reducing Cost» approach is not just a theoretical framework; it has practical applications that can be implemented across the cement sector. Below are some examples of how this approach can be put into practice:

Upgrading Kiln Technology: One of the most effective ways to reduce energy consumption in cement production is by upgrading kiln technology. Modern kilns are designed to operate more efficiently, with better heat recovery and reduced energy losses. For instance, preheater and precalciner technology can significantly lower the energy required to heat raw materials, leading to lower fuel consumption and reduced CO_2 emissions. Although upgrading kiln technology requires upfront investment, the long-term savings in energy costs and the reduction in carbon emissions make it a financially viable strategy.

Optimizing Fuel Use: The choice of fuel plays a critical role in both the carbon intensity and cost of cement production. By optimizing fuel use, companies can reduce their reliance on carbon-intensive fossil fuels like coal and petcoke. For example, substituting traditional fuels with alternative fuels such as biomass, waste-derived fuels, or even hydrogen can lower emissions while potentially reducing fuel costs, especially when utilizing locally available resources. Additionally, optimizing the combustion process to maximize fuel efficiency can further reduce emissions and costs.

Waste Heat Recovery: Waste heat recovery systems capture the excess heat generated during cement production and reuse it to power other parts of the plant or generate electricity. This not only reduces the need for external energy sources but also lowers greenhouse gas emissions. The recovered heat can be used in preheating raw materials, drying raw feed, or even in power generation, depending on the plant›s setup. By reducing the reliance on purchased electricity or fossil fuels, waste heat recovery systems contribute to both cost savings and emissions reductions.

Alternative Raw Materials: Clinker, the primary component of cement, is responsible for the majority of CO_2 emissions in cement production. The «Reducing Carbon while Reducing Cost» approach encourages the use of alternative raw materials that can partially or fully replace clinker. Materials like fly ash, slag, and natural pozzolans not only reduce the carbon intensity of cement but also lower production costs, particularly if these materials are sourced from local industrial by-products. This not only contributes to a reduction in raw material costs but also supports the circular economy by reusing waste materials.

Digitalization and Process Optimization: The integration of digital technologies, such as advanced data analytics, machine learning, and artificial intelligence, can optimize cement production processes in real-time. These technologies can monitor and adjust variables such as temperature, fuel feed, and material flow to maximize efficiency and minimize waste. By reducing energy consumption and improving process efficiency, digitalization helps lower both operational costs and carbon emissions. For example, predictive maintenance enabled by AI can prevent equipment failures and reduce downtime, leading to more efficient operations and lower energy use.

The Economic and Environmental Benefits

The «Reducing Carbon while Reducing Cost» approach offers significant economic and environmental benefits for the cement industry:

Cost Savings: By optimizing energy use, improving process efficiency, and integrating innovative technologies, companies can achieve substantial cost savings. These savings come from reduced energy consumption, lower raw material costs, and decreased maintenance expenses. Over time, these savings can offset the initial investment required to implement these changes, making the approach financially sustainable.

Increased Competitiveness: As the cement industry faces increasing pressure to reduce carbon emissions, companies that adopt the «Reducing Carbon while Reducing Cost» approach will gain a competitive advantage. By reducing their carbon footprint and operating costs, these companies can offer more competitively priced products while meeting or exceeding regulatory requirements. This can enhance their market position and attract environmentally conscious customers and investors.

Enhanced Sustainability: The approach contributes to the broader sustainability goals of the cement industry by reducing greenhouse gas emissions and minimizing the environmental impact of production processes. This aligns with global efforts to combat climate change and supports the transition to a low-carbon economy. By demonstrating a commitment to sustainability, companies can build stronger relationships with stakeholders, including regulators, investors, and the community.

Resilience to Regulatory Changes: As governments around the world continue to tighten environmental regulations and introduce carbon pricing mechanisms, companies that have already reduced their carbon emissions will be better positioned to comply with new regulations without incurring significant additional costs. This proactive approach reduces the risk of regulatory penalties and ensures long-term business viability.

MENA Case Studies and Examples

The effectiveness of the «Reducing Carbon while Reducing Cost» approach can be seen in several real-world examples where cement companies have successfully implemented these strategies:

UAE - Emirates Arkan Cement Emirates Steel - Alain Cement, one of the UAE›s leading cement producers, has been at the forefront of integrating sustainability into its operations. The company is embracing a detailed decarbonisation roadmap achieving SBTi near term targets in 2030 and near zero 2050 by implementing “Reducing Carbon While Reducing Cost” strategy involving Operational excellence, Digital Maturity, Alternative Fuels, Alternative Raw materials as well as SCM product portfolio development up to 2030 followed by more expensive technologies till 2050.

Morocco – CIMAT (Ciments de l’Atlas), a major cement producer in Morocco, has made substantial progress in reducing its carbon footprint by leveraging alternative fuels and clinker substitutes. CIMAT has invested in co-processing facilities that use waste materials as fuel, reducing dependence on traditional fossil fuels like coal and petcoke. The company is also integrating more sustainable raw materials into its clinker production process, such as pozzolans and fly ash, which help in reducing the clinker-to-cement ratio—a key metric for lowering CO_2 emissions. CIMAT’s approach emphasizes a strong commitment to the circular economy, aligning with Morocco›s broader environmental strategy.

Egypt - Arabian Cement Arabian Cement Company in Egypt, has embraced digital transformation and operational excellence as key pillars of its decarbonization strategy. By deploying advanced process optimization software and digital tools like predictive maintenance, the company has significantly improved its operational efficiency and reduced its carbon emissions. Arabian Cement has also been proactive in adopting alternative fuels, including biomass and refuse-derived fuel (RDF), which have helped decrease its reliance on conventional fossil fuels. Furthermore, the company is exploring Oxy-fuel, further developments in AF utilisation, Solar energy expansion for scope 2 as well as actively increasing the use of SCMs.

Overview:

The «Reducing Carbon while Reducing Cost» approach developed by A³&Co.® represents a paradigm shift in how the cement industry can address the challenge of decarbonization. By focusing on energy optimization, process efficiency, and the integration of innovative technologies, this approach demonstrates that it is possible to achieve significant reductions in carbon emissions while simultaneously lowering operational costs.

As the cement industry continues to evolve in response to growing environmental and economic pressures, the «Reducing Carbon while Reducing Cost» approach provides a practical and financially viable pathway for companies to meet their sustainability goals. By embracing this approach, the cement industry can play a leading role in the global effort to combat climate change while maintaining its competitiveness in the market.

A³&Co.® CDS® – Fig 2

Complete Decarbonization Solution® by A³&Co.®

A³&Co.® has been at the forefront of driving the cement sector toward a more sustainable future with its Complete decarbonization Solution® (CDS®). This solution is designed to address the cement industry's complex challenges by integrating advanced technologies, strategic partnerships, and comprehensive roadmaps for decarbonization. The CDS® emphasizes a holistic approach that not only targets carbon reduction but also aligns with broader economic goals such as cost efficiency and compliance with international environmental standards.

The Complete decarbonization Solution® builds upon several core components:

Decarbonisation Baselining and Roadmap Development: A³&Co.® works with cement manufacturers to establish a baseline of current carbon emissions and operational efficiency. This process includes a detailed analysis of the energy and resource usage within the production processes. Following this, a tailored decarbonization roadmap is developed, outlining short, medium, and long-term goals for reducing carbon emissions while improving overall operational efficiency. This approach has been implemented in various projects, such as the collaboration with Emirates Steel Arkan in the UAE, where A³&Co.® is helping to achieve significant emission reductions in alignment with the UAE's Net Zero by 2050 strategic initiative.

Climate Corporate Governance (CCG): A critical element of the CDS® is the establishment of robust governance frameworks that ensure ongoing accountability and alignment with global sustainability standards. This includes developing frameworks for Climate Corporate Governance, which are crucial for cement companies to integrate decarbonization into their core business strategies. For instance, A³&Co.® has been instrumental in developing CCG frameworks for companies like Arabian Cement in Egypt, setting the stage for a comprehensive Environmental, Social, and Governance (ESG) system.

Technology Integration: The CDS® approach leverages cutting-edge technologies such as Artificial Intelligence (AI) to optimize production processes, mechanical sequestration to produce new SCMs from local materials and waste as well as thermal treatment and hydrogen to boost AF utilisation and Oxi-Fuel for carbon capture, utilisation and storage.

Compliance and Certification: Ensuring that cement manufacturers follow international carbon reduction standards is another critical aspect of the CDS®. A³&Co.® provides advisory support for compliance with initiatives such as the Science Based Targets initiative (SBTi) and the EU's Carbon Border Adjustment Mechanism (CBAM) as well as LCA EPDs. This not only aids companies in meeting regulatory requirements but also positions them as leaders in sustainable manufacturing.

Cost Efficiency and Competitiveness: A cornerstone of the CDS® is the alignment of decarbonization efforts with cost reduction strategies. By optimizing energy use and integrating innovative technologies, the CDS® ensures that cement manufacturers can reduce their carbon footprint while also cutting operational costs. This dual focus on environmental and economic sustainability is key to maintaining competitiveness in a global market increasingly dominated by green practices.

Projects Management Implementation and Financing: Are critical steps to ensuring the successful execution of decarbonization initiatives. This process is enhanced by strategic partnerships with financial institutions like the European Bank for Reconstruction and Development (EBRD) and engineering firms such as KHD Humboldt Wedag (KHD). Together, these partnerships facilitate the comprehensive Engineering, Procurement, and Construction (EPC) approach, which is pivotal for large-scale decarbonization projects in the cement industry.

Through these components, A³&Co.®s Complete decarbonization Solution® provides a comprehensive, actionable pathway for cement companies to transition to greener practices while ensuring long-term viability and leadership in the global market. This approach is not just about reducing emissions but about transforming the industry into one that can thrive in a carbon-constrained world.

Technological Innovations in Cement Decarbonization

The cement industry has seen a surge in technological innovations aimed at reducing its carbon footprint. Some of the most promising technologies include:

1. Clinker Substitution: Clinker, the primary component of cement, is responsible for the majority of CO_2 emissions in cement production. By substituting clinker with alternative materials like fly ash, slag, and natural pozzolans, emissions can be significantly reduced. These materials not only lower the carbon intensity of cement but also offer potential cost savings.
2. Carbon Capture, Utilization, and Storage (CCUS): CCUS technologies specially Oxi-Fuel capture CO_2 emissions from cement plants and either store them underground or repurpose them for other industrial processes. While still in the early stages of commercial deployment, CCUS holds the potential to drastically reduce emissions from cement production and integrates the sector in a circular carbon economy.
3. Alternative Fuels: The use of alternative fuels, such as biomass, waste-derived fuels, and hydrogen, can replace traditional fossil fuels in cement kilns, reducing the carbon intensity of the process. These fuels often come from renewable sources, further contributing to emissions reductions as well as boosts the role of the sector in circular economy.
4. Digitalization and Process Optimization: The integration of digital technologies, such as advanced data analytics, machine learning, and AI, allows for real-time monitoring and optimization of cement production processes. By fine-tuning operations, companies can reduce energy consumption and emissions while improving overall efficiency.

The Role of Circular Economy in Cement Decarbonization

The circular economy model is gaining traction in the cement industry as a means to reduce waste and emissions. By reusing materials, optimizing resource use, and minimizing waste, the circular economy can contribute to the decarbonization of the cement sector.

One example of circular economy practices in the cement industry is the use of industrial by-products, such as fly ash from power plants or slag from steel production, as alternative raw materials in cement production. These materials can partially replace clinker, reducing the need for virgin raw materials and the associated CO_2 emissions.

Another key aspect of the circular economy is waste heat recovery. By capturing and reusing heat generated during cement production, companies can reduce their reliance on external energy sources, lowering both emissions and energy costs.

Also, mechanical sequestration of wastes and novel material to an active SCM which is both circular economy and circular carbon mechanisms

Operational Excellence and Digital Maturity for Decarbonisation

Operational excellence and digital maturity are critical drivers for decarbonization in the cement sector, forming a foundation for achieving sustainability targets while enhancing overall business performance. Operational excellence focuses on the continuous enhancement of processes, systems, and organizational culture, aiming for superior outcomes in efficiency, quality, and sustainability. By embedding these principles into the core of their operations, cement companies can systematically reduce their carbon footprint while maintaining or even improving their competitive edge.

In the context of decarbonization, operational excellence entails a comprehensive approach to optimizing every facet of cement production. This includes enhancing energy efficiency through advanced energy management practices, optimizing kiln operations, and utilizing waste heat recovery systems. Additionally, reducing waste and integrating circular economy principles—such as using alternative fuels like biomass or waste-derived fuels and substituting clinker with low-carbon alternatives—are crucial steps. These measures not only reduce greenhouse gas emissions but also lower production costs, aligning with the “Decreasing Carbon while Decreasing Cost Strategy.”

Digital maturity further amplifies these efforts by enabling data-driven decision-making and predictive analytics, which can streamline operations and identify emission reduction opportunities in real-time. Digital tools like AI-driven process control, digital twins, and IoT-enabled sensors allow for precise monitoring and optimization of energy usage, maintenance schedules, and production efficiency. This integration of digital technologies enhances visibility and control over emissions sources, making it easier to implement targeted decarbonization measures.

Companies that prioritize operational excellence and digital maturity are not only better positioned to meet stringent decarbonization targets but also to adapt to evolving market demands and regulatory landscapes. By fostering a culture of continuous improvement and leveraging digital innovations, these companies can build a resilient, future-ready business model that supports both economic and environmental sustainability. This dual focus ensures that the cement sector can achieve significant emissions reductions, aiming for the SBTi’s <2-degree scenario by 2030, and progress towards near-zero emissions by 2050, with residual carbon levels below 10%.

Conclusion

Decarbonizing the global cement sector is an urgent and complex challenge that demands a comprehensive and multi-faceted approach. The journey involves a blend of technological innovations, such as carbon capture, utilization, and storage (CCUS), advanced kiln technologies, and the integration of alternative fuels and raw materials. Operational excellence, driven by digital maturity, plays a crucial role in optimizing energy efficiency and reducing emissions throughout the production process.

Strategies like “Reducing Carbon while Reducing Cost” and the Carbon Disclosure Strategy are essential for guiding companies toward effective decarbonization pathways that balance environmental goals with economic realities. Moreover, fostering collaboration between regions and sharing best practices can accelerate progress, enabling the cement industry to play a leading role in the global transition to a low-carbon economy.

The road to decarbonization is long and filled with challenges, but with the right strategies, continuous innovation, and a commitment to sustainability, the global cement sector can make significant strides in reducing its carbon footprint. By aligning efforts with Science Based Targets and national climate commitments, the industry can continue to support economic development and growth while moving toward a more sustainable and resilient future.

Advancing Dust Collection

Integrating Digitization, Sustainability, and Safety in Heavy Industry

Mr. Corrado Maggi, Head of Business Development – CleanAirEurope srl

The main issues addressed to the heavy industries sustainability concerns and more specifically to the impact for air pollution and powder emission control could be referred to the specific components of the machines as it is the case of the filter bag supports in dust collector.

Here the most well-known and advanced reference, representing the Best Available Technology at institutional sieges, implies control of emission by means of jet-pulse cleaning of filtering media, typically in the form of coupled fabric filter bag and metallic filter bag cages.

The technological crossing challenge here could not miss to refer to Digitization, Sustainability and Safety.

Digitization

Digitization implies the introduction of products with empowered digital features aimed to increase the information related to the product using conditions and environmental relation.

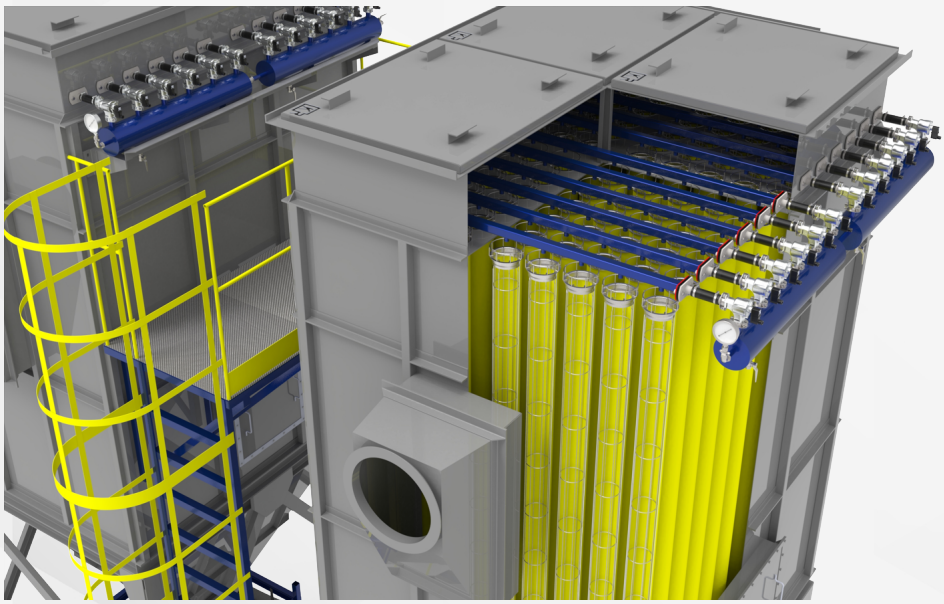
EAM system, data monitoring, threshold limit controls attributes, augmented reality could be an active mean for overall process improvement in working conditions.

Further they are base elements of predictive maintenance to a prolonged product durability.

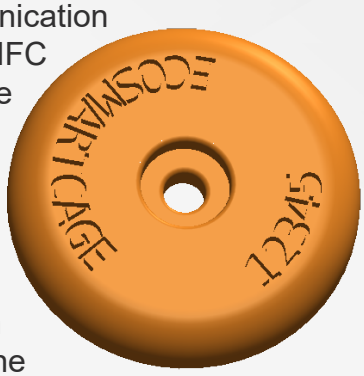
The harsh environment of dust collector imposes here a severe constraint to the application of high technology and electronics appliances.

Batteries and communication PCA are affected by the high temperature involved limiting the possibilities for a continuous environmental monitoring. High downtime costs are limiting the possibilities of humans to interact with the instruments on board. No AI weapon could be used to tune the process when data are unavailable or inconsistent.

A first step in this direction has been to introduce beacons in the filter bag cages able to report information useful for maintenance, identification and circuit-based controls able to determine thresholds limit surpassing which are able to survive, be stored and released during human interaction and communication.



Closer field communication technologies like NFC could resolve the safer need of energy to avoid batteries fire and explosions but limiting the monitoring activities to specific human interactions with the maintenance teams.



A digital platform in the Cloud should furnish the infrastructure necessary for new devices to come able to register more information and provide AI tools for control and maintenance processes.

A migration towards more clever devices which includes communication technology and sensors is the new challenge for future while new technics for protecting electronic in harsh environment are going to be available.

Filter bag supports and filter bags are the ideal place to intercept the process flue gas with continuity and capillarity.

Sustainability

A major trend in sustainability within the dust collection industry is the drive towards achieving energetic balance by downsizing the energy consumption of various components that make up the filter system. This trend encompasses not only the parts directly involved with electrical consumption but also those components such as ducts, filter bag supports, and filtering media, which can require varying amounts of power from the filter fan and compressor.

A new frontier in the eco-design of filter supports can be explored using advanced techniques in Computational Fluid Dynamics (CFD) simulation models. These models offer a cost-effective alternative to the economic burden of traditional instrumental validation, allowing for more precise and innovative designs.

An excellent example of such sustainable design practices is found in the optimization of a Venturi tube and filter bag cage assembly. This configuration is designed to generate a stronger shaking action of the filter bag dust cake, leading to a more efficient release of dust into the hopper. This results in a lower average differential pressure within the dust collectors, enhancing overall efficiency.

This innovative design not only facilitates the intake of process air without compromising filtration but also introduces real savings in both compressed air usage and fan engine power application. By reducing the energy requirements for these components, the new design significantly contributes to sustainability goals.

In this way, sustainability extends beyond merely implementing eco-friendly production practices for the filter's bill of materials. It also focuses on the operational expenditure (Opex) of the machine throughout its lifecycle, resulting in evident cost savings and a lower environmental impact.

This approach underscores the importance of integrating advanced simulation technologies and sustainable design principles to create more energy-efficient and environmentally friendly dust collection systems.

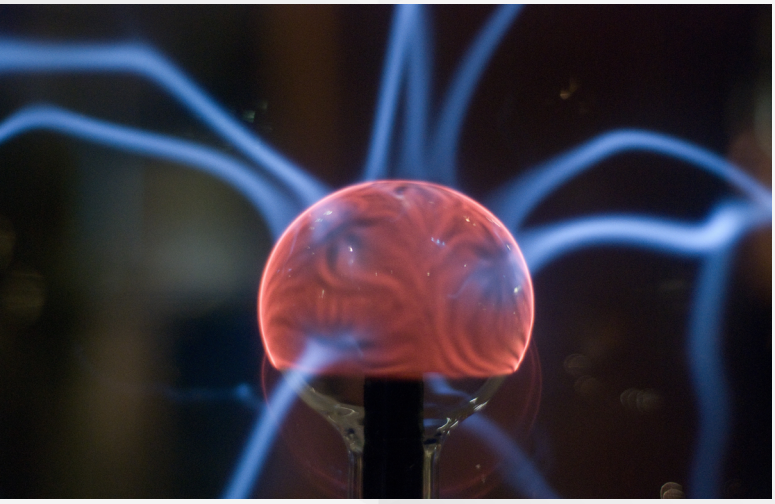
In the quest for sustainability, another effective strategy to reduce energy consumption in dust collection systems involves increasing the filtration area. New designs, such as milk bottle-shaped or pleated filter bags, aim to reduce differential pressure by expanding the filtration area during operation. This reduction in pressure translates to lower energy demands on the system, thereby improving overall efficiency.

Moreover, optimizing the air inlet and utilizing fans equipped with inverters can further enhance energy balance. By incorporating principles of eco-design into the filter bag, these systems can achieve significant energy savings. Fans with inverters adjust the motor speed based on the real-time demand, minimizing energy usage and improving the system's performance.

Advancements in filtering media also play a crucial role in sustainability efforts. New developments have enabled filtering media to lower particulate matter (PM) emissions to below 1 microgram per cubic meter. This remarkable improvement not only meets stringent environmental regulations but also enhances air quality, contributing to a healthier environment.

These innovations highlight the potential of combining advanced design techniques and state-of-the-art materials to create dust collection systems that are both energy-efficient and environmentally friendly. By focusing on expanding the filtration area, optimizing airflow, and improving filtering media, the dust collection industry can make significant strides towards reducing energy consumption and minimizing environmental impact.

In conclusion, the integration of eco-design principles, advanced filtration technologies, and energy-efficient components in dust collection systems offers a comprehensive approach to sustainability. This holistic strategy not only reduces operational expenses but also supports broader environmental goals, paving the way for a cleaner and more sustainable future in industrial filtration.



Safety

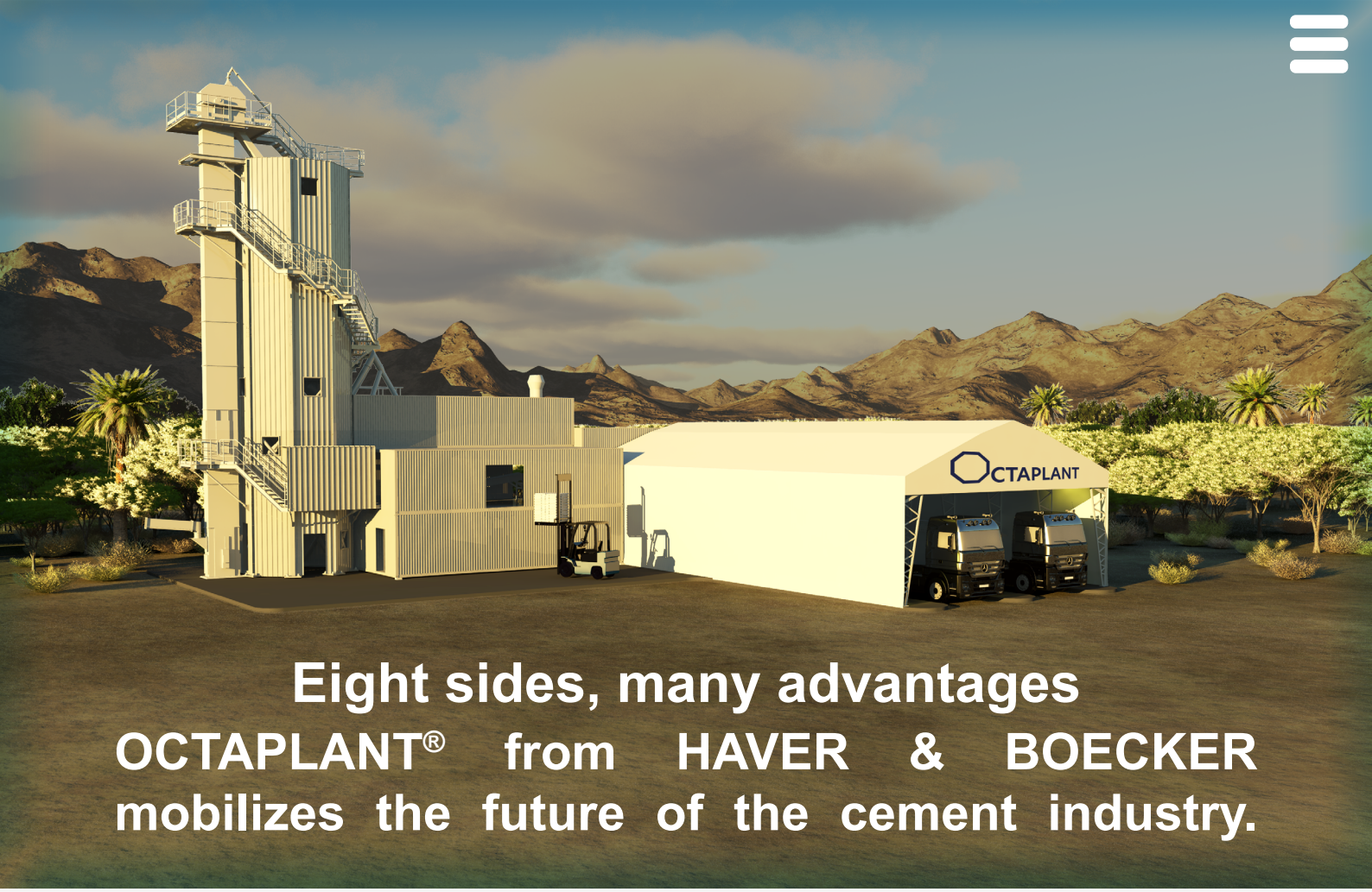
In the realm of dust collection, safety is a critical consideration, particularly when dealing with combustible dust. The presence of all five elements of the fire and explosion pentagon—fuel, oxygen, heat, chemical reaction, and confinement—creates a highly hazardous environment. This necessitates stringent regulations and innovative solutions to mitigate risks.

Both U.S. and European regulatory bodies have developed frameworks to address these hazards, categorizing the relevance and frequency of risks to offer comprehensive solutions ranging from prevention to mitigation. A key component of these regulations involves training operational maintenance teams in proper earthing procedures to ensure safety when interacting with such machinery.

While significant progress has been made in mitigation strategies, including venting, fire stopping, and spark detection, there remains considerable work to be done in prevention. One notable advancement in this area is the development of filter supports with anti-static features. These supports are designed to slowly dissipate any electrostatic charge present on the filtering media to a well-earthed cell plate, reducing the risk of ignition from electrostatic discharge.

This new generation of filter supports works to eliminate wide jumps in the triboelectric scale, thereby enhancing safety. Additionally, artificial intelligence (AI) is poised to play a major role in the future by analyzing the probability of ignition sources and preventing the formation of dangerous dust clouds. AI can optimize system operations to minimize risks, contributing to a safer working environment.

Digitization and AI advancements are crucial for enhancing safety and sustainability in dust collection systems. By leveraging these technologies, the industry can not only prevent catastrophic incidents but also improve overall system efficiency, thereby reducing air pollution and environmental impact.



Eight sides, many advantages OCTAPLANT® from HAVER & BOECKER mobilizes the future of the cement industry.

Guido Neu, HAVER & BOECKER OHG, Germany

Customer proximity, in-depth industry knowledge and innovative developments: In addition to trend-setting machines and systems, these are the key characteristics with which the packing specialists at Westphalian HAVER & BOECKER OHG are building on today for the future.

In view of the rapid developments of our time, anyone who wants to actively shape progress already knows the future requirements and fulfills needs before they arise. Guido Neu, Area Sales Manager HAVER Cement, explains in an interview how OCTAPLANT®, the new concept for the efficient, mobile packaging and loading of cement, masters the challenges of tomorrow.

Mr. Neu, what exactly is the OCTAPLANT® and to what extent is it a useful addition to the existing HAVER & BOECKER concepts and systems?

OCTAPLANT® is a fully developed concept for a modern, comparatively compact system for filling and loading cement. What is essentially new is the unprecedented level of risk reduction, time and cost optimization. This plant is not only particularly quick to plan, implement and commission, but it can also be dismantled just as quickly if required so that it can be reused at another location. Space-saving, pre-configured systems such as Smart Plant and numerous traditional pre-planned layouts have long been established at HAVER & BOECKER. OCTAPLANT® relies on very special features and advantages that redefine future viability.

What future developments have tipped the scales in favor of OCTAPLANT®?

One of the megatrends is increasing urbanization. This is currently in full swing and is an essential part of the future worldwide, especially in emerging countries in Asia, Africa and South America. Urbanization and rapid changes in the markets mean that speed and mobility are becoming increasingly important. On the one hand, the demand for living space, infrastructure and industry is increasing. Where cement is produced or ground, stored, packaged and loaded today, the use of dwindling space for residential areas could soon be a priority. On the other hand, the shipping of clinker and finished, loose cement has increased over the last 20 years. Building is underway in many formerly agrarian countries and the demand for cement is growing. This means being the first to enter the market at the point of sale if possible - and moving on again just as quickly if required!

It's about speed and mobility, but also about safety and cost efficiency. What makes OCTAPLANT® a suitable solution with regard to these requirements?

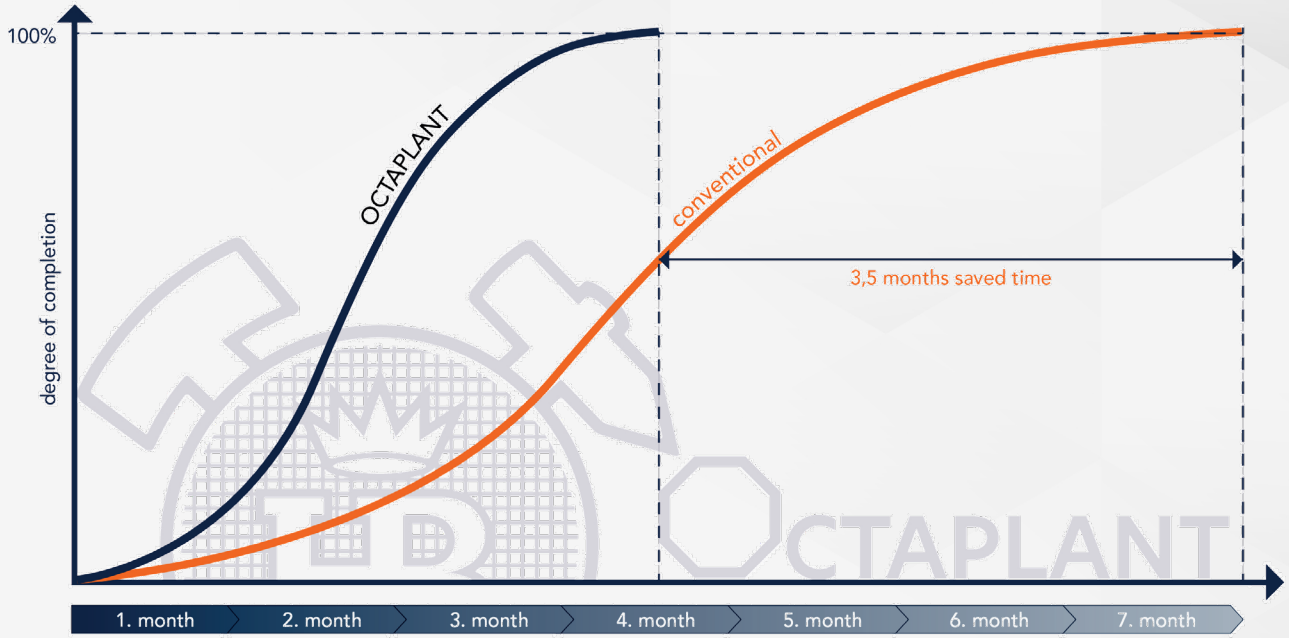
One of the most striking features of OCTAPLANT® is the exceptionally high degree of prefabrication. Right from the planning phase, customers benefit from engineering that has been completed down to the last detail. This guarantees the best possible planning security in terms of equipment and expected costs. It also leads to significant time savings, which are maximized later in the project through a significantly accelerated construction phase. All system elements are designed for fast and resource-optimized production. All the production steps that can already be carried out in the manufacturing plant are completed before delivery. This not only means a shorter construction time during on-site assembly, but also a reduction in the sources of error and personnel requirements. All of this leads to minimized costs, fewer problems and uncertainties, and faster revenue generation. OCTAPLANT® only requires around 20 percent of the number of crane lifts needed to erect a traditional system. Through our close contact with our customers, we know that the planning and erection of buildings for new plants often causes more headaches than the planning and installation of the equipment itself. With OCTAPLANT®, such difficulties and uncertainties are a thing of the past.

What elements does OCTAPLANT® actually consist of?

The OCTAPLANT® building consists of three segments. The centerpiece is the octagonal tower "OctaTower", which gives the building its name and houses the HAVER & BOECKER ROTO-PACKER® RVTs packing system, and includes the foreign body screening machine, pre-hopper, spillage return system, etc. The adjacent container building provides space for the bag discharge line, the fully automatic RADIMAT® bag applicator, the system control and the compressor unit. The final segment is a lightweight building in which the cement bags are loaded onto trucks in two possible variants. The HB 10 system for rear loading and the HB 17 system for loading open trucks are available here. As to the motto "form follows function", these three separate segments were designed so that they can be manufactured, delivered and assembled equally cost-effectively and quickly - without compromising on ease of use, safety and productivity.

The main arguments for OCTAPLANT® - mobility and the minimization of time and costs up to commissioning - were decisive for the concept. Just how were these special requirements implemented?

The OCTAPLANT® objectives actually determine the structure and appearance of the entire facility. The octagonal tower arose from the idea of using existing elements directly for the required building. The basic cylindrical shape is already the basis for the pre-hopper, ROTO-PACKER® and its protective housing, etc. in many packing plants today. The shell of the OctaTower consists mainly of a total of 2 x 8 wall modules in classic steel construction, which are manufactured without screw connections. Where possible, trapezoidal sheets, windows, vents and other components are also fitted directly in our factory. These modules only need to be screwed together on site.



But do the shape and design of the OctaTower's components also have a special advantage when it comes to shipping?

That's right. When stacked, these wall modules fit perfectly into a standard sea container, which enables simple and cost-optimized shipping. Rental containers with the equipment and the components of the tent hall are shipped from Germany and a European manufacturer. All elements for the tower are delivered directly from the manufacturer in seven containers. These are the other special features of OCTAPLANT® - after unloading the OctaTower, they then become the aforementioned container building of the plant. The containers are reinforced from the inside at the tower's manufacturing plant so that they can reliably withstand wind speeds of up to 200 km/h and earthquake loads. These are important basic requirements for the generally coastal locations of the main target markets. Window, wall and door openings are also marked at our factory. In order to maintain the approval of the containers for particularly economical standard shipping, these openings must be cut out later on site.

What other production steps are required at the future site and how do you make this task easier for the operators?

The delivery of the system includes all the tools required for assembly as standard. In this way, we avoid expensive delays caused by missing or incompatible equipment and systems. In addition, the container building's seams are rainproof and its exterior painted on site.

The tent hall for shipping is erected in a very short time. This even allows the installation of a photovoltaic system. The equipment is then installed. Thanks to the "plug and play" design, numerous elements only need to be connected and can be put into operation immediately.

OCTAPLANT® would therefore be ready for operation in a very short time. So what makes the system mobile?

Essentially, the same features that enable fast production, economical shipping and reduced set-up time ensure that the system can be dismantled and reassembled easily. In addition to the high degree of prefabrication, its compact design is particularly important. Once the machines have been secured, the OctaTower can simply be laid on its side and loaded onto a heavy-duty transporter or shipped by barge. This is made possible by the extremely small tower diameter of less than five meters. For example, we have moved the bucket elevators and filter systems to the outside. Even the foundations could be reused if the soil load-bearing conditions are right. We are also considering supplying prefabricated foundations in the near future and offering suitable steel formwork.

The keyword "site conditions" has already been mentioned several times. How would you briefly outline these, and to what extent has the new OCTAPLANT® concept been geared towards them?

The "typical" location for OCTAPLANT® is windy due to its practical proximity to the coast. In addition, earthquakes can occur under certain circumstances. Moreover, possible high temperatures must be taken into account. The light-colored outer shell should reflect the sun's rays as well as possible. In addition, we not only achieve the desired low-dust environment with the air flow from the packing machine's dust extraction system, which is guided through the container building in a controlled manner, but also measurable temperature regulation. The OctaTower and container building can also be sufficiently insulated for operation in colder climatic conditions.

With OCTAPLANT®, you are talking about a significantly reduced time span from planning to the actual start of production. This offers potential savings in several respects and enables faster turnover. Can you summarize this and express it in figures?

The factors that ensure savings are actually multifaceted. It starts with the lower financing costs due to the minimized time to commissioning. Then there is the reduced need for steel and concrete and the extremely economical shipping.

Here's a concrete example calculation: With a conventional plant, we assume around seven months from the start of construction to market launch. With OCTAPLANT® this time is reduced to a good three and a half months. Next we assume a realistic operating time of eight hours a day, six days a week, an output of 100 tons per hour and a profit of around ten euros per ton. This results in a profit of around 672,000 euros. The plant mobility also allows new business to be generated with the existing resources at a new location in the event of serious market changes, and that turnover can be quickly generated again.

Once the installation of OCTAPLANT® is complete, how does the system perform during operation?

Despite the savings potential of OCTAPLANT®, customers can rely on maximum output with high efficiency, as with all systems and equipment from HAVER & BOECKER. Particularly with regard to the space-optimized, relocatable design of OCTAPLANT®, ease of operation and maintenance were at the forefront of development.

The packing machine level, for example, is optimally accessible. For access to the less frequented area of the screening machine, it made sense to move the stairs leading to it to the outside in order to save space. Thanks to our QUAT²RO® SYSTEM INTELLIGENCE for controlling, monitoring and optimizing all processes, all workflows are networked and designed in the best possible way. Last but not least, HAVER & BOECKER guarantees effective support with its PROcheck life-cycle approach: from selecting the right equipment with exactly the right empty bags, to diagnosing and rectifying faults or inefficient processes, to offering original spare parts and a wide range of services.

Keyword sustainability: How does OCTAPLANT® fit in with a responsible approach to our environment?

OCTAPLANT® is also impressive in terms of sustainability. First and foremost, it is reusable and equipped with high-quality, durable systems. Moreover, its space-saving design means less land and fewer resources are required. The space-optimized transport and its high degree of prefabrication also contribute to a reduced ecological footprint. Finally, the integration of our QUAT²RO® products and the PROcheck life cycle approach also minimizes greenhouse gas emissions, energy consumption and the use of raw materials and materials during plant operation. This in turn improves the work conditions for people. HAVER & BOECKER takes its ecological and social responsibility very seriously - and OCTAPLANT® meets the high standards in every respect.

You have already mentioned the primary target markets. Which other specific customer groups is OCTAPLANT® particularly interesting for?

A broad target group benefits from the many features and advantages of this new concept. Investors who want to exploit the growing cement industry potential are addressed just as much as cement manufacturers who want to open up new, attractive locations. In particular, companies that already operate grinding plants and want to further expand their business will find OCTAPLANT® to be a flexible solution that can be implemented quickly and efficiently.

The concept is still new. What can customers who are interested in OCTAPLANT® expect?

The engineering is complete and everything is ready. We can get straight to consulting and project planning and start production without any delays. This means that potential OCTAPLANT® customers can benefit immediately from the special advantages and benefits of the new concept!

Contact:

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About HAVER & BOECKER

HAVER & BOECKER is a family-run medium-sized company with its headquarters in Oelde, Westphalia. Under the umbrella of HAVER & BOECKER oHG are the Wire Weaving and Machinery divisions. Together with over 50 subsidiaries and 150 agencies on all five continents, HAVER & BOECKER has around 3,000 employees worldwide. In 2023, the company generated a turnover of 622 million euros.

The Wire Weaving Division manufactures wire mesh and processes it into engineered wire mesh products. They are used for screening and filtration in the chemical, plastics and automotive industries, aerospace, electronics, industrial and analytical screening, the food industry and for architectural applications.

With its technology brands HAVER & BOECKER, HAVER & BOECKER NIAGARA, IBAU HAMBURG, SOMMER, FEIGE FILLING, BEHN + BATES, AVENTUS, NEWTEC BAG PALLETIZING, QUAT²RO and HAVER Engineering, the Machinery Division specializes in the processing, transporting, storing, mixing, filling, packing, palletizing and loading of loose, bulk materials.

The product range includes packing and loading systems for powdered and granulated bulk materials, packing machines for filling food and pet food as well as filling stations and complete filling lines for liquid and pasty products. This range is supplemented by screening machines, washing systems and pelletizing discs, agitators and mixers, palletizing and loading technology as well as silos, ship loaders and unloaders. QUAT²RO® SYSTEM INTELLIGENCE links the individual process steps into a transparent and efficient process.

RHI Magnesita & Cement Industry

Expanding Horizons with Sustainable Solutions & Reliable Refractories in India, West Asia & Africa

RHI Magnesita

Foreword

RHI Magnesita, is the driving force of refractory industry, operating 47 production sites worldwide. including five state of the art five R&D hubs and centers located at different regions. RHIM is committed to expand its market share in the global high-temperature refractories sector through a consolidation strategy, focusing on businesses in high-growth markets. RHIM serves customers all over the world, through the global footprint, spanning North and South America, Europe, China, India, the rest of Asia and the Middle East, providing high-quality refractory products, supported by industry-leading R&D and underpinned by the vertically integrated structure.

The experience and track record of RHI Magnesita in the cement industry are unmatched and has contributed significantly to durability, reliability and functionality, essential factors for refractory materials in the cement industry. RHIM offers a complete product and service portfolio for the whole cement process, to exceed cement industry's expectations regarding productivity and profitability.

In the West Asia and Africa regions, RHIM supplies the cement industry from various locations, including Europe, India, China, Turkey, and Brazil, ensuring consistent service and safeguarding customers against potential supply chain disruptions.

This article will explore the latest developments in Indian production portfolio and the enhanced capabilities offered to serve and add value to the cement industry.

Introduction

RHI Magnesita, is a global leader in manufacturing and supply of high-grade refractory products, systems, and solutions, adding value to its customers worldwide. The successful integration of its Indian subsidiaries has resulted in the company now operating nine manufacturing facilities. The company also has, among others, a state-of-the art R&D center in India and Europe, driving breakthroughs in materials and data, and efficient new processes that transform what is possible under extreme conditions.

In the last two years, RHI Magnesita has significantly intensified its focus in cement refractories market in the region consisting of India, West Asia and Africa. With the acquisition of a major player in the region, Dalmia Refractory in 2022, RHIM has significantly increased its total refractory production capacity in India from 179,000MT to 537,000MT. The acquisition has provided a fillip to RHIM's cement refractory market, increasing its market share through streamlined capacity and range of products in last two years to independently supply to local regional customers and to export to other regions.

RHIM is commitment to delivering sustainable solutions and offering reliable refractories to its customers for higher productivity. These solutions include:

1. Refractory products and installation services.
2. Technical marketing services with help of digital solutions.
3. Sustainable solutions towards carbon footprint reduction.

Refractory products and installation services:

Due to integration between RHIM and Dalmia Refractories, opportunities have opened for recipe optimization and smart brand selection. Best of both sides have synergized product basket for cement industry. There has also been significant improvement in geographical coverage and pricing flexibility arising from best sourcing options. Most significant development in this field is production of RHIM's renowned basic brick brand ANKRAL in India. ANKRAL so far was only manufactured in Europe and China production units. Since last year RHIM production plant at Rajgangpur India started producing this brand of basic bricks. Magnesia alumina spinel based basic bricks like ANKRAL R8 for transition zones and critical burning zones and ANKRAL RC for burning zones are being made at Rajgangpur. Similarly, hercynite spinel based basic bricks like ANKRAL ZC or even ANKRAL Q1 which is a hybrid spinel brick transition and critical burning zones are available from India.

Major advantages of Indian basic bricks are reduced lead time for supply and availability for emergency repairs. Generally, some stock is always maintained at the plant from emergency repairs.

Next to basic brick lining comes alumina brick lining in a cement kiln. Dalmia Refractories traditionally dominated this alumina refractories market in India and west Asia region in the past. The entire range of high to medium range alumina bricks along with fireclay bricks for inlet, preheater areas in pyro system are available from RHIM production units at Khambalia, Dalmiapuram, Rajgangpur & Vizag. Special alumina bricks with high refractoriness like DALSINT, DALBURN etc. are also available for critical applications as economical alternative to basic bricks under normal thermal & volumetric loads.

Castable portfolio of RHI Magnesita has also witnessed significant improvement due to the recent acquisition

of Seven Refractories Slovenia, the most advanced European technology in the monolithic field.

As an alternative to Slovenia, Seven's castable portfolio is also now available in the RHIM India production footprint. New grades are being developed in low cement gunning & shot creating materials and chemical bonded castables. New products are also coming up with precast pre-fired technology.

RHI Magnesita also provides refractory drawings, installation & supervision services. For greenfield cement projects, turnkey contracts cover scopes for refractory design, supply & installation.

Technical Marketing Services & Digital Solutions.

In addition to installation and supervision services, RHI Magnesita provide technical service equipped with digital technology. Services offered are as under:

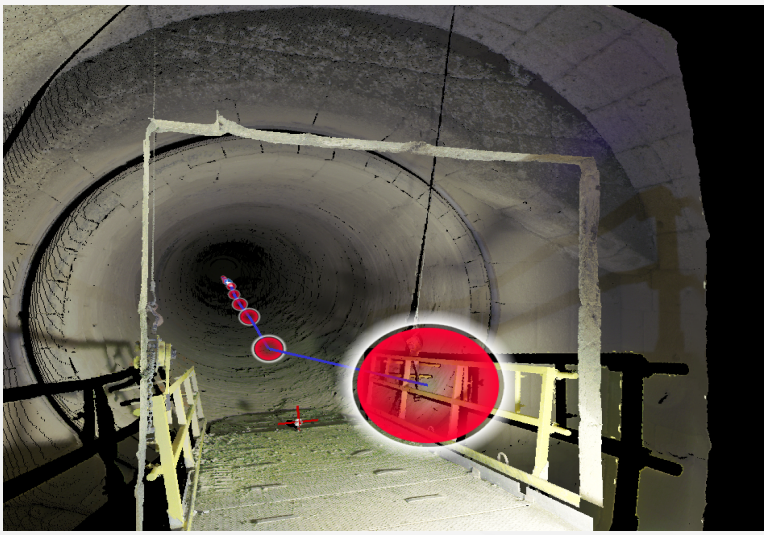
a. Optimized lining recommendation for improvement in productivity including refractory wear analysis.

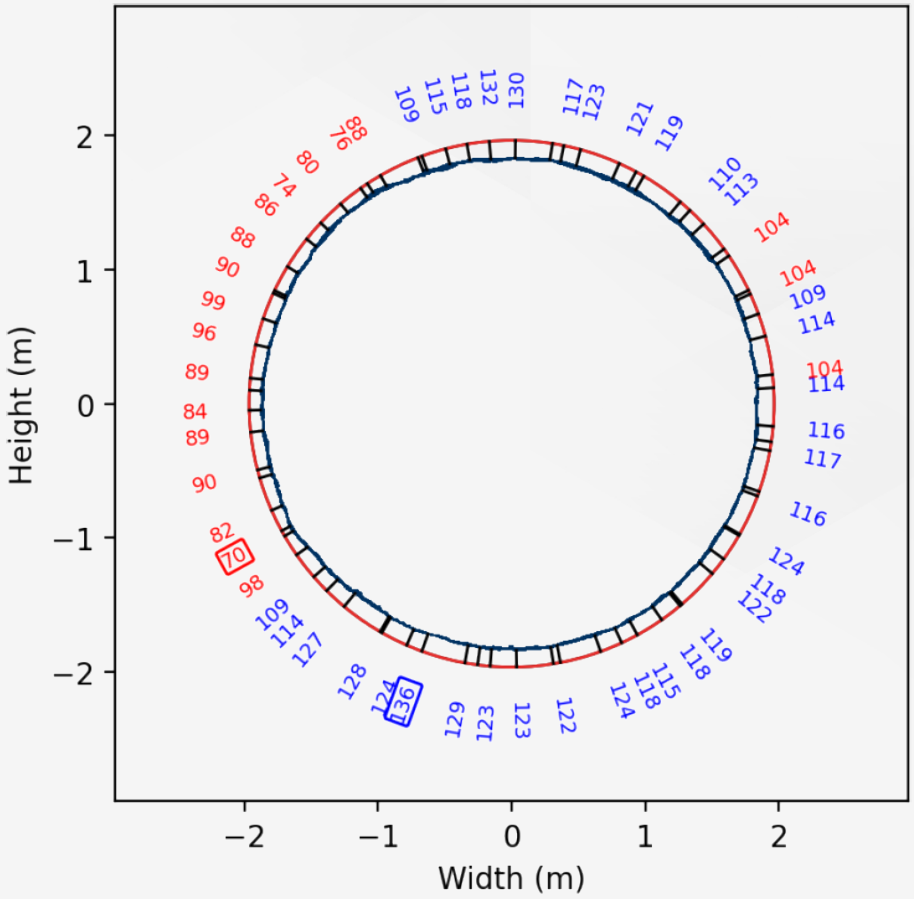
b. Mechanical kiln audit with laser equipment for checking shell runout and recording kiln shell deformity at every meter of the kiln.

c. Ovality testing with digital equipment at tyre areas and recommending remedial measures for bringing down migration back to normal level.

d. One very new development in the field of technical service is laser evaluation scan to determine residual lining thickness by nondestructive method. This leads to significant savings by way of retaining existing lining. This also provides a proper record and scientific basis behind the relining decision.

Any position of the kiln can be viewed as cross section to check the individual results or to review wear patterns. The graphic illustration of original- and acceptable lining thickness are displayed in graph for each zone. High-definition pictures and 3D point cloud helps to find lining thickness at any point in kiln lining.





Sustainable solutions towards carbon footprint reduction.

RHI Magnesita is also working towards net zero carbon emission. This is also one of the priorities for the region. Significant investments have been made in new and emerging technologies in this direction. RHI Magnesita is also driving progress through conventional means like increasing recycled materials in production, improving energy efficiency, switching to alternative fuels and using green electricity. Low carbon series of refractories and chemically bonded castables have been developed for reduction of carbon emission.

Transparency is the basis for sustainable decisions and a valid data base also essential to record progress. RHI Magnesita is proud to be the first company in refractory industry to provide full transparency by disclosing carbon footprint in all products in their technical data sheets.

Conclusion

RHI Magnesita has cemented its leadership position in the refractory industry driving innovation and building regional expertise. Through the acquisition of Dalmia Refractories, it has taken a significant stride towards enhancing its production capacity and diversifying its product portfolio. The company has a stronghold in India, West Asia and Africa region. Consequently, its adept in offering high performance solutions tailored to the unique demands of a diverse customer base.

RHI Magnesita's cutting-edge products, the company's technical services, powered by digital solutions, are driving productivity improvements through precise analysis and advanced kiln monitoring. The integration of sustainable practices—such as the use of recycled materials and energy-efficient processes—highlights RHI Magnesita's commitment to reducing its carbon footprint and leading the industry towards a greener future. As the first in the industry to provide full transparency on carbon emissions, the company is setting a new standard for responsible manufacturing.

Particle sizing of cement: what is the best analysis method?

FRITSCH GmbH, Germany

Particle size is an important quality feature of cement. It can be determined using static light scattering. However, which analysis method is best suited for this is a matter of debate among experts. Half of the experts prefer dispersion in an air jet, as the sample does not come into contact with liquid media. The other half prefers dispersion in alcohol in order to be able to break agglomerates in a targeted manner without damaging the primary particle.

Cement is a fine powder that is mainly used as a binding agent in the production of concrete and mortar. Depending on its composition, strength and use, a distinction is made between different types of cement, such as Portland or blast furnace cement. Cement has the property of first reacting with water to form cement paste and then hardening through hydration to form solid cement paste. The main component of cement is clinker, which is produced by firing a mixture of limestone, clay, sand and iron ore at temperatures of around 1450° C. In addition to the raw materials, other substances such as pozzolan or fly ash can be added in order to achieve certain properties such as a shorter setting time. The mixture is then ground into a fine powder.

Particle size as a quality feature

From the grinding of the raw materials into raw meal to the fine grinding of the fired clinker, the particle size distribution is a key quality feature of the cement in terms of reactivity, rheology, shrinkage behavior, water requirement and, above all, strength development. A balanced particle size distribution, which is often in the range between approx. 2 and 32 µm, leads to a denser packing of the cement particles, which optimizes the pore volume and thus increases the strength of the hardened concrete. Small particles (< 10 µm) have a larger specific surface area, which increases reactivity. This means that they react more quickly with water and can hydrate faster, which is particularly important for the early strength development of the cement. Larger particles (> 30 µm), on the other hand, hydrate more slowly, but contribute to long-term strength development. The particle size distribution also influences the rheology of the cement, with larger particles improving the flowability. A well-balanced particle size distribution also helps to optimize the water requirement. An excessive number of fine particles can increase the water requirement, which leads to an increase in porosity. In addition, the shrinkage is increased, which favors the formation of cracks and negatively affects the so-called 28-day compressive strength.

Measuring particle size

Compared to the time-consuming and limited particle size characterization by sieving or the determination of the specific surface area using a Blaine device, static light scattering enables fast, operator-independent, highly sensitive, clean and reproducible analysis. Both wet dispersion in the solvent 2 propanol and dry dispersion with compressed air are suitable for determining the particle size distribution. The advantage of wet dispersion is that it breaks agglomerates in a targeted manner and avoids re-agglomeration, for example due to electrostatic forces. Dispersion can be precisely controlled by using suitable parameters and dispersants. Care must be taken to ensure that the dispersing medium used does not chemically or physically alter the particles. Sample preparation is generally somewhat more complex than with dry dispersion. The latter has the advantage that the particle structure can be retained if suitable process parameters are used. However, the compressed air in particular must be set precisely so that agglomerates can be broken up and abrasion and thus destruction of the primary particles is avoided.

One solution for both

Using the A-22 from FRITSCH (Figure 1), the laser-based particle sizer for static light scattering, both variants of dispersion are easy to implement. The measuring instrument enables a detailed breakdown of the particle size distribution in a wide measuring range between 10 nm and 3800 µm. This covers the entire spectrum of particle size analysis in the laboratory environment for quality control in the cement industry, which is reflected in numerous international installations in the cement market.

There are various ways to optimize wet dispersion. This starts with the precise control of the pump speed and the ultrasonic power in one percent increments up to a maximum of 3.5 L/min or 50 W. In addition, the so-called swirl function of the FRITSCH patented return tube can generate turbulence in the sample bath, which improves the homogenization of the dispersion. De-agglomeration into primary particles can be supported by various additives, such as a special surfactant, which is always included in the scope of delivery of the A-22. The use of a pH probe and the tracking of the pH value during the measurement serves as an additional parameter to assess the stability of the dispersion.

Figure 1: Particle size analyzer A-22 including the modules for wet dispersion (left) and dry dispersion (right).

Dry dispersion enables the analysis of larger sample portions without solvents, thus facilitating representative sampling. Here too, the compressed air as the most important parameter can be regulated in one percent increments up to a maximum of 5 bar. Thanks to the automated regulation and control of the sample feed into the measuring cell, sample addition is extremely simple and suitable for every user. Thanks to automated rinsing cycles and the option of tool-free cleaning of the dispersion modules, cleaning can be carried out quickly and easily.

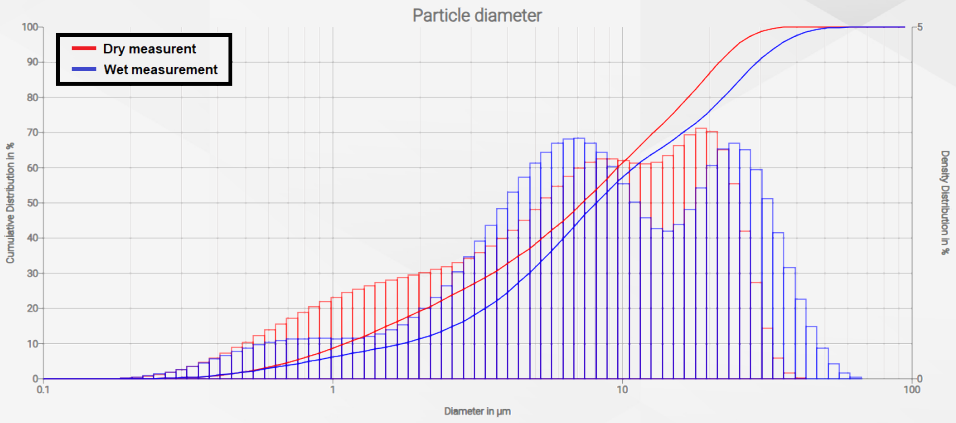


Figure 2: Comparison of the particle size distribution of cement in an analysis using wet dispersion in 2-propanol (blue) and dry dispersion using compressed air (red).

Figure 2 shows a comparison of the particle size distribution of similar cement samples (measured with the A-22 both wet in 2-propanol and dry with compressed air). The samples were fed directly into the dispersion unit without pre-treatment. The figure shows the average value from three measurements, each with a measurement duration of 10 s. In the example, the dry measurement results in a D10 of 1.1 µm (± 0.7 %), a D50 of 7.2 µm (± 1.0 %) and a D90 of 21.5 µm (± 0.5 %). The wet measurement results in a D10 of 1.7 µm (± 0.7 %), a D50 of 8.1 µm (± 0.2 %) and a D90 of 29.2 µm (± 0.4 %). The low variance shows the very high reproducibility and repeatability of both wet and dry dispersion, which can be achieved with a suitable choice of parameters.

Conclusion: Both options are justified and should be feasible

The optimum particle size distribution of cement is crucial for its physical properties, handling, workability and long-term durability and leads to more efficient use in terms of consumption and therefore to cost savings. However, the initial question of whether wet or dry dispersion is the more suitable method for measuring the particle size distribution of cement depends largely on the needs of the user and cannot be answered in general terms in the future. The fact is: regardless of whether one or the other method is preferred, with a modern particle sizer such as the A-22 from FRITSCH you are ideally equipped for both tasks.

About FRITSCH GmbH

FRITSCH GmbH is the epitome of grinding & measuring made in Germany. The long-established company is one of the world's leading suppliers of mills for sample preparation and measuring instruments for particle size analysis. Founded in 1920 as a two-man operation by Max and Alfred Fritsch, FRITSCH is now a global player with around 120 employees. Since 2020, the family business has been managed by the fourth generation of the family, brothers Sebastian and Maximilian Fritsch. Despite its international orientation, the traditional company is still firmly rooted in Idar-Oberstein, Germany. FRITSCH opened a new high-tech technology center here in 2022, which houses the company's entire development department and application technology. Leading technological solutions for the pharmaceutical industry, chemical engineering, construction and many other sectors are created there. FRITSCH's customers come from all sectors of industry involved in the research and quality control of solids. As a reliable partner, FRITSCH combines personal service with industry-specific expert knowledge and application technology experience to achieve the best possible results in the context of long-term cooperation.

Company contact

FRITSCH GmbH

Industriestraße 8 • D-55743 Idar-Oberstein

Phone: +49 67 84 70-0

Introducing Mondi's IntegoBag – building towards a more sustainable construction industry

- Mondi launches IntegoBag, a paper bag without a free film layer suitable for building materials, chemicals, feeds and more.
- By using Mondi's FunctionalBarrier Paper, the bag protects its contents from moisture to ensure shelf life.
- IntegoBag is produced with up to 50% less PE compared to the industry standard, 3 ply bags with a high-density PE intermediate layer, and is certified recyclable.

Mondi, a global leader in sustainable packaging and paper, has launched an alternative to paper bags with a free film barrier layer used in the construction industry. The new IntegoBag simplifies recycling and is designed to transport building materials and ensure their shelf life through protective barrier coatings instead of a free film. Mondi's FunctionalBarrier Paper provides the required moisture barrier to protect the content, significantly reducing PE content in its new solution.

To produce IntegoBag, Mondi leverages its integrated value chain: from creating the kraft paper from responsibly sourced fibres, enhancing it with a functional barrier coating, to bag converting, the solution is fully produced in-house. The innovation offers a fit-for-purpose moisture barrier while reducing plastic by up to 50%.

IntegoBag is an easy-to-use and versatile solution for customers. It has the same strength performance for processing as a standard paper bag with free film and can run on existing filling machinery. The paper bag is puncture-resistant and provides good printability. The bleached and unbleached bags are available in standard packaging sizes and are suitable for filling up to 25kg.

Mondi's innovative solution is certified recyclable based on tests conducted in its recycling laboratory in Frantschach according to CEPI v.2 test method and 4evergreen's fibre-based packaging recyclability evaluation protocol and scored 19 out of 20 points in the certification of Interseroh+. It is another example of circular-driven packaging solutions that Mondi has developed in line with one of its MAP2030 (Mondi Action Plan 2030) targets - working towards a circular economy by developing reusable, recyclable or compostable solutions that keep materials in use and prevent waste.

"We collaborated with leading companies in the construction industry such as Saint-Gobain to make sure our new solution fits specific industry needs and creates value for all partners," said Mauro Vitali, Sales Manager for Paper Bags Italy at Mondi. "By bringing together our expertise, we've developed a recyclable alternative and can avoid waste, helping our customers stay ahead of the regulatory curve. And we are excited to see that IntegoBag is already getting attention from the industry: we've been nominated for the Austrian Green Star Packaging Award and shortlisted for The Sustainability Awards."

About Mondi

Mondi is a global leader in packaging and paper, contributing to a better world by producing products that are sustainable by design. We employ 22,000 people in more than 30 countries and operate an integrated business with expertise spanning the entire value chain, enabling us to offer our customers a broad range of innovative solutions for consumer and industrial end-use applications. 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.

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EMG
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Fan motor for cement plant as express custom configuration

“Have your cake and eat it too” – impossible? German motor manufacturer Menzel Elektromotoren is used to customers who want to have everything nice without compromise. In many cases, plant operators need an industrial motor immediately, which would normally require six months of production time. On top of that, the motor also needs to be customized. Menzel would not be Menzel if they did not take on such challenges willingly, as recently happened with a fan motor for a privately run Algerian cement plant. Within 13 weeks, the Berlin-based family-run company built a robust replacement for a failed slip ring motor, which was then flown out to the customer.

A number of individual adjustments were required so that the new motor could smoothly replace the existing model. Menzel was able to reduce manufacturing time to a minimum by using components in stock and adjusting them accordingly. The highly robust MEBSSL-type 6-pole slip ring motor in frame size 630 has a rated output of 1950 kW, an operating voltage of 11000 V and a rated torque of 18754 Nm. It is suitable for operation in both directions of rotation and features protection class IP55 with IC 611 cooling (air-to-air heat exchanger). Menzel replicated the dimensions of the original motor that were crucial for interchangeability – shaft dimensions, foot mounting holes and terminal box positions – and also manufactured special terminal boxes to customer specifications. Despite the urgency, Menzel even implemented other special requests, such as the installation of a filter monitoring system and vibration sensors of a particular brand, which must fit into the existing monitoring architecture. The motor manufacturer won over the customer with expert and continuous advice, including on-site support during commissioning. The cement manufacturer had initially sent several representatives to visit the new Menzel motor plant, where senior management received them, showed them around the plant and discussed the project with them in detail. This welcoming reception was rewarded with the contract.

Customized and fully tested: Menzel delivered the individually adapted motor within 13 weeks according to exact customer specifications

Menzel’s offer for international companies in the cement industry:

About Menzel Elektromotoren

Menzel Elektromotoren GmbH has been manufacturing and distributing electric motors since 1927. The German family-run company based in Hennigsdorf near Berlin specializes in the delivery of large electric motors, including special models, within the shortest time possible. The product range comprises high and low voltage motors, DC motors, transformers, and frequency inverters. Services include motor production up to and beyond 25 MW and short-term adaptation of stock motors to application-specific requirements. In order to ensure short delivery times, Menzel maintains a large inventory with over 20,000 motors up to 15 MW. Qualified engineering, experienced staff, and state-of-the-art production and testing facilities help the manufacturer provide excellent reliability. Menzel operates subsidiaries in the UK, France, Italy, Spain, and Sweden, and cooperates with numerous partners worldwide.

Contact:
Menzel Elektromotoren GmbH
Mathis Menzel


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Problem solving in cement production: Dust and spills

ScrapeTec work closely with customers in various industries to address dust emissions,material spillage, conveyor belt damage, preventing production downtime, expensive repairs, and hazardous accidents, as seen in a recent project where a cement industry.

In a recent project, a cement production plant needed assistance with excessive dust emissions during the handling of clinker, sand and gravel, that were causing Occupational Health and Safety (OHS) issues. In addition, the operator faced the problems of costly material spillage and the need for ongoing conveyor belt repairs.

A comprehensive site inspection revealed that a standard chute sealing system was used in conjunction with a basic clamping system positioned outside the chute. The existing skirting system and lack of inner skirting failed to contain excessive dust emission and material spillage at the transfer points. High dust levels resulted in poor visibility of the 70-metre-long conveyor tunnel, which negatively affected the maintenance team's ability to monitor efficiencies during the ship unloading process and to prevent bottlenecks in the production process.

"Apart from concerns about safety and environmental hazards, management needed to find an urgent solution to eliminating the need for additional cleaning of the spillage piles. Dust extraction trucks were a costly necessity to clean the walkway and tunnel on regular base to prevent tripping and slipping.

"ScrapeTec initially installed the contact-free AirScrape® conveyor belt skirting system in the ship's unloading transfer chute in 2020 on a trial basis. The operator was satisfied with the outcomes achieved at this transfer point and welcomed the implementation of additional systems to further improve efficiencies at the plant," explains "Ken Mouritzen, Managing Director, BLT World. "This entailed a few necessary adjustments before the AirScrape, TailScrape and the ceramic ST-Containment seal and ST-Sure belt support system was installed and fully operational within the chute area.

“After the second phase installation, the operator records problem-free transfer points and a reduction of approximately 98% of dust emissions and material spillage. His onsite team reports no belt damage since the new equipment was installation and no maintenance or cleaning services have been necessary. Maintenance teams are relieved that with dust and spillage now under control, visibility of the tail end of the 70-metre-long conveyor from the head chute is vastly improved.”

The plant operator plans to upgrade all the chutes in the conveyor stream, from ship unloading to the stockpiles, which represents five transfer points. The core business focuses on unloading cement materials utilised for cement production. Finished cement products are then packed into 20 kg bags and bulk raw materials are loaded into trucks to service building, construction and road development projects.

Additional information: AirScrape

The contact-free AirScrape conveyor belt skirting system is an effective side seal that lies over the conveyor belt, without contact and creates negative pressure on the belt, due to its specially-designed lamella structure.

Because this system hovers freely above the conveyor belt, skirt friction and belt damage are eliminated and service life of every component of the conveyor is extended.

The AirScrape system encompasses inward facing, hardened-steel diagonal blades and operates according to a new principle where it hovers 1-2 mm, on the left and right side above the conveyor belt. These blades deflect larger particles inwards, while using the air-flow of the conveyor belt and conveyed material to create an inward suction, forcing any dust and fine particles back into the product flow. Through these diagonally fitted plates and the speed of the running belt, air is drawn from the outside inwards. As a result, neither the dust nor material can escape.

Conventional skirting is pressed against a conveyor belt to keep dust and material in the middle of the belt, but after a period, wear of the skirting and belt can be so severe, that material and dust escapes. Material spillage at transfer points needs to be removed and regular maintenance of belt skirting and transfer points is necessary.

With the AirScrape dust-free and contact-free, side-sealing system for belt conveyors, there is no skirt contact and therefore no belt wear or damage. Motor power requirements are reduced as there is no belt-skirt friction and because there is continuous skirting with no gaps, product loss is minimal.

This system is fitted using spacers, floating the blades just above the belt and is attached to the outside of the chute by utilising existing skirt clamps or a simple bolt and nut system. It is longitudinally adjustable to follow the contours of conveyor belt rollers and the belt trough angle.

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The Russian-language periodical professional publication devoted to the production of cement and other binders, concretes, dry mixes and their applications, as to research and design.

A conspicuous place in the journal materials is given to the problems of plant development, capital movement, economic problems facing the cement industries of Russia and other countries.

The journal comes out once in two months and includes news, analytical materials and detailed abstracts of all the articles in English.

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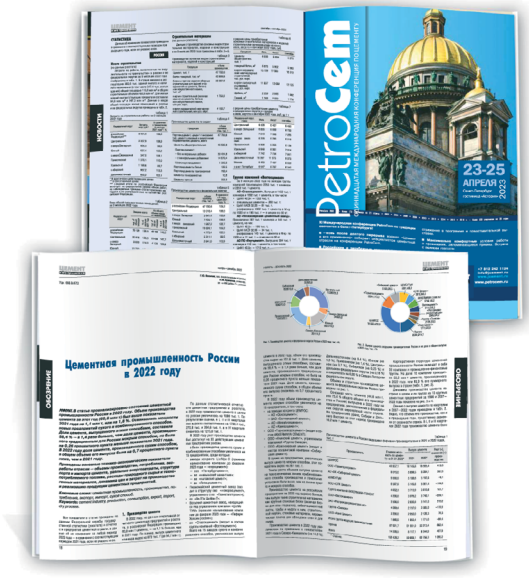

4B Group Introduces IE-GUARDFLEX – Distributed Hazard Monitoring Solution

4B Group proudly announces the launch of their Distributed Hazard Monitoring Solution (DHMS) featuring the IE-GuardFlex. Leveraging advanced industrial Ethernet technology, the IE-GuardFlex control unit seamlessly connects and monitors sensors across multiple machines using 4B's state-of-the-art IE-Node technology. This robust system can be configured for multiple machines, IE-Nodes, and sensors, directly interfacing with machine control centres to initiate shutdowns upon detecting potential risks.

Ideal for central control rooms and "non-hazardous areas," the IE-GuardFlex connects to IE-Nodes in "at-risk zones" via industrial CAT6 Ethernet cables. Monitored machinery includes bucket elevators, enclosed and open conveyors, chain conveyors, rollers, and more. ATEX-certified sensors connected to local IE-Nodes monitor critical conditions like belt slip (SlipSwitch, Milli-Speed), belt misalignment (TouchSwitch, Bulldog), bearing temperatures (ADB, Milli-Temp), vibration (Milli-Vib), and blockages (Binswitch).

Engineers can easily locate and configure nodes using the intuitive 7'' colour touchscreen interface. The system supports up to 3 different ALARM / STOP configurations per sensor, with output relays assignable to alarm and/or stop conditions per sensor or per machine. Common ALARM / STOP relays indicate alarms or stops across any connected sensor.

"The IE-GuardFlex system has been developed to empower facility engineering and maintenance staff to implement a comprehensive, de-centralised hazard monitoring system, using the simple and intuitive programming interface", explains Sam Payne, 4B Group CTO for electronics. "This eliminates the need to implement the hazard monitoring system into the plant process control system / PLC and hence means there is NO special PLC programming software required, No need for specialist and expensive control system engineers, NO additional PLC capacity and SCADA tags and NO plant disruption during implementation. Separating the plant control and hazard monitoring systems also provides an extra layer of redundancy and reliability."

More information 4B's website

About 4B GROUP:

A subsidiary of The Braime Group, 4B GROUP has been an industry leader in developing high quality, innovative, and dependable material handling components for the agricultural and industrial sectors.

4B's product line ranges from elevator buckets, elevator bolts and drop forged conveyor chain to level monitors, speed switches and hazard monitoring systems. With offices in North America, Europe, Asia, Africa, Australia and the Middle East along with a worldwide distribution network, 4B can provide practical solutions for applications in any location.

The only proven and representative automatic sampling system for solid alternative fuels by MMe

MMe Entwicklung, Fertigung und Service GmbH presents its fully automatic sampler, which was specially developed for representative sampling for quality control of solid alternative fuels and waste wood and was successfully tested by the Laboratory for Waste Management (LASU) at Münster University of Applied Sciences in accordance with DIN EN 15442.

The production of demand-orientated qualities and the safe use of solid alternative fuels must always be guaranteed. Neither the emissions via the waste gas nor the product properties may be impaired in any way. For a comprehensible and reliable analysis, the chemical and physical properties of the input materials must therefore be determined in a representative manner as well as its output.

An analysis result can only be as good as its previous sampling.

The automatic PEA sampler independently takes samples from the falling and free-flowing bulk materials without the need for an employee to be present and is therefore also protected in terms of occupational health and safety.

The PEA can be customised to the required space conditions and installed at the end of the belt under the transfer point of the conveyor belts, in the lower run. It removes the representative sample quantity continuously across the entire belt width and depth. The constantly and regularly dipping tray collects from the free-falling stream and ejects into a hermetically self-closing container, which can be positioned either laterally or vertically, to protect against dust and loss of moisture.

Depending on the particle size, the frequency of immersion is determined individually so that representative individual or collective samples are available for further analysis preparation. From a throughput of >50,000 tpy, the specific costs are lower than with manual sampling in the works.

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D-59320 Ennigerloh
Phone: +49 173 2920557

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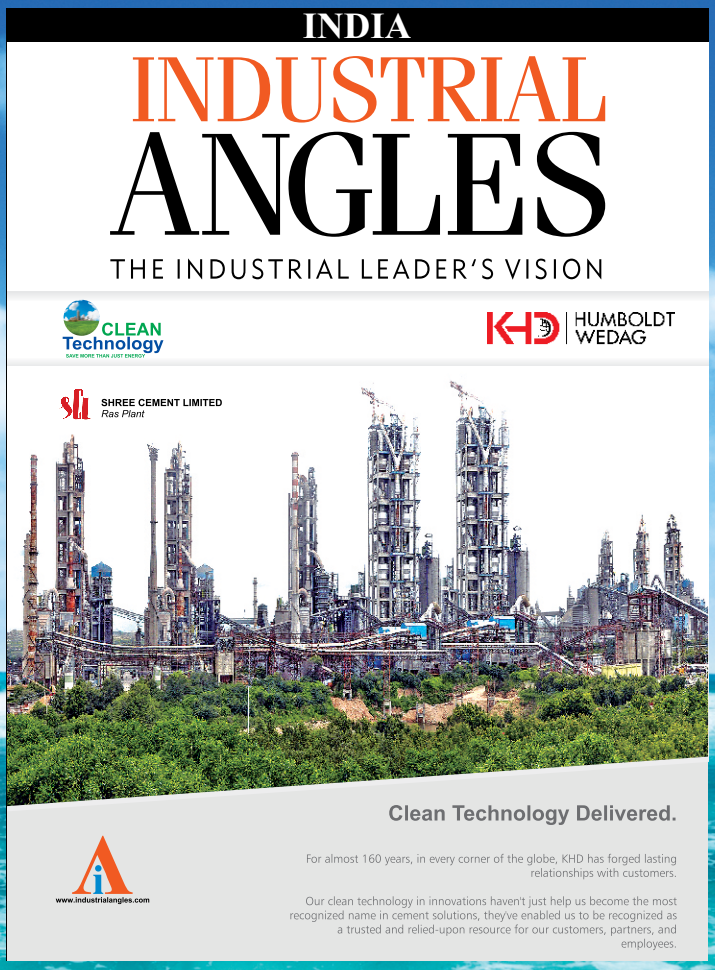
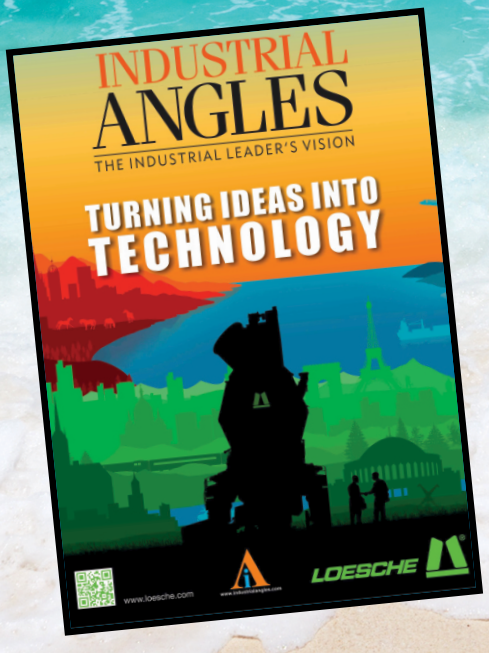
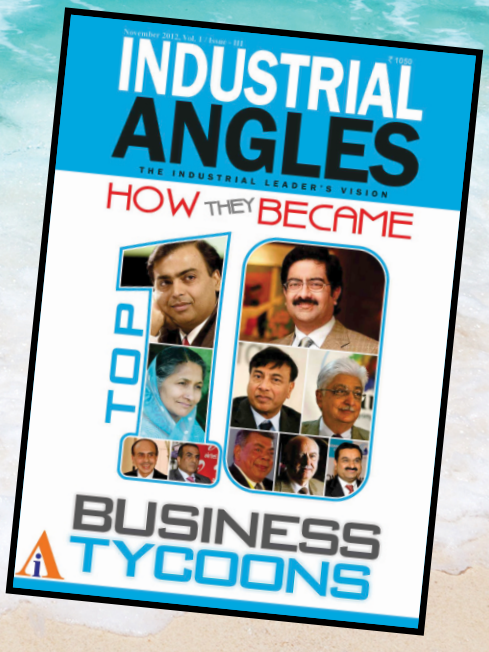






HELIOS JETBOXX important product information

HELIOS JETBOXX WINneo and WINsystem, which have been successfully in operation on the market since 2004, will be replaced by the completely newly developed WINneo2

The HELIOS® JETBOXX® dryer controls of the series WINneo® and WINsystem®, which have been successfully in operation on the market since 2004, will be replaced by the completely newly developed WINneo® 2 series, which have been tried and tested for over a year.

OPC-UA and MODBUS-RTU: the digitalization benefits

The new WINneo® 2 control is equipped with the latest communication interfaces.

Thanks to OPC-UA and MODBUS-RTU, the drying systems can seamlessly be intergrated into the digital infrastructure. Monitoring of the drying process in real time, optimizing the parameters and accessing of important data – all via a standardized interface.

Compatibility backwards and integration seamlessly

The new WINneo® 2 is seamlessly compatible with all previous HELIOS dryers. This means, that the existing systems can be easily upgraded to the WINneo® 2 without interrupting the existing production processes. The proven quality and performance of the previous series will be further improved.

		WINneo® 2	WINsystem®	WINneo®
quick dial keys	drying program	✔	✔	–
	filling level calculator	✔	–	–
	week timer	✔	✔	✔
	system settings	✔	–	–
	conveying ON/OFF	✔	✔	✔
conveying points	conveying point 1 (drying container filling) - 1 component with dedusting	○	○	○
	conveying point 1 (drying container filling) - 2 components with dedusting	○	○	–
	conveying point 1 (drying container outlet) discharge aid through air pulses	○	○	○
	conveying point 2 (production unit) - 1 component with dedusting	○	○	○
functions	dew point monitoring	✔	✔	○
	dew point alarm	✔	✔	–
	overdrying protection	✔	✔	✔
	drying temperature limitation with adjustable tolerance	✔	–	–
system interfaces	interface for MODBUS-RTU	✔	–	–
	interface for OPC-UA ready	✔	–	–
	interface for OPC-UA fully	○	–	–
	Service-Key	○	–	–

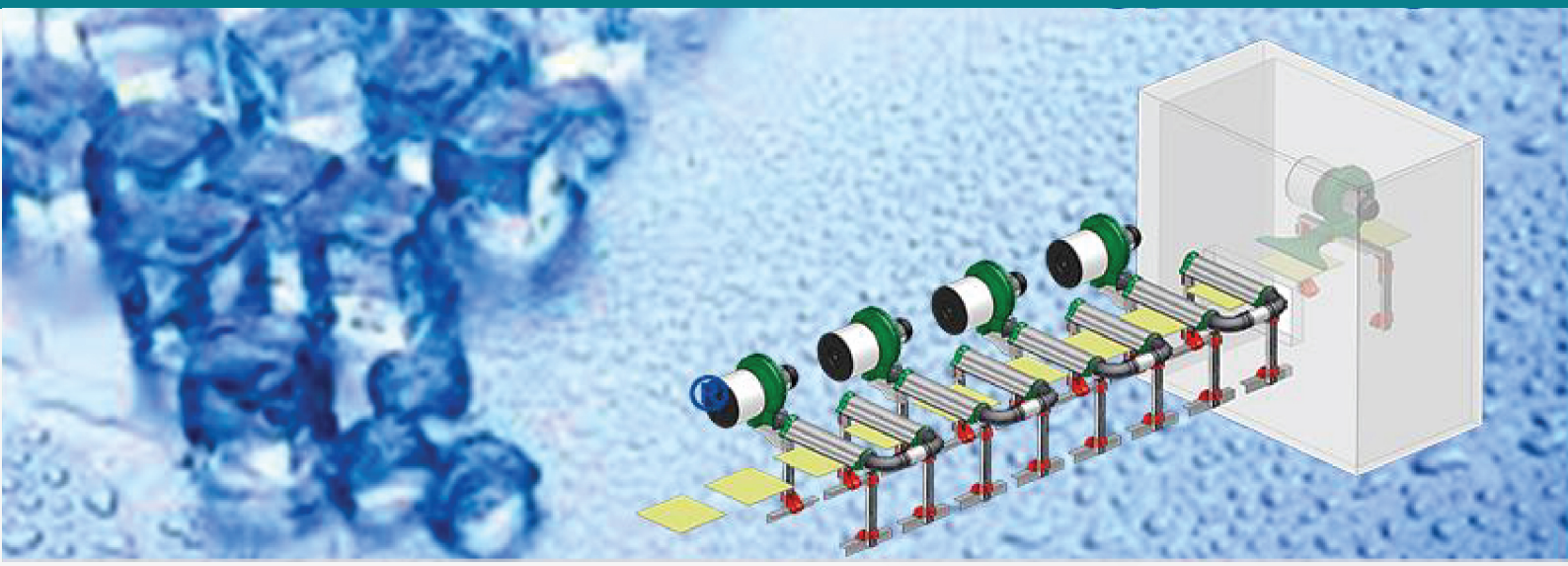
as standard ✔ optionally ○ not available –

Tecnografica presents its new three-dimensional digital surfaces

The evolution of design in the ceramic industry is closely linked to advances in the field of digital decoration. Technology is evolving towards a model that is capable of creating ceramic surfaces with astonishingly realistic effects combined with the high level of production flexibility typical of the Sassuolo tile cluster.

Tecnografica is responding to this latest trend with a series of innovations capable of creating three-dimensional surfaces of varying depths based on natural materials. These surfaces are subsequently scanned with a new 3D scanning system to obtain specific digital files for this new decoration technology.

The results are truly astounding and open up a major new chapter in digital innovation in ceramics.



Cooling and Energy Saving, with GreenBlow® is possible !!!

The digital tile printing process, in order to be effective, needs two fundamental conditions:

- receive the tile at a temperature compatible with the printer;
- absence of surface steam which could damage the print heads.

For these reasons, the cooling process of the tiles before the digital printer is essential to obtain an optimal printing result, limit production waste but also preserve the expensive print heads.

Is it possible to cool and limit energy consumption?

With the components of our GreenBlow® Air Line it is possible to create battery cooling systems with a low energy impact thanks to the use of high-performance and low-consumption motors.

The blowers used for the cooling process are GreenBlow IE3, equipped with a high efficiency 0.37kW 50Hz electric motor, built to our specifications. This motor, if combined with an inverter, can operate up to 65Hz without dropping of torque making it adaptable to environmental conditions.

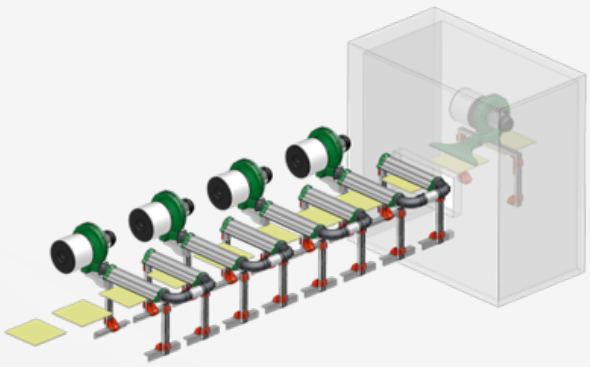
Therefore, in the event of lower ambient temperatures, it is possible to optimize the operation of the blower in order to increase energy savings (the programmed inverter, supplied by us, already includes this function which can be activated).

A cooling battery made up of about 10 GB IE3 at 65 Hz with relative air knives can consume a maximum of 4,8Kw !!!

How does cooling through blowers work?

The GreenBlow® blowers system uses air at room temperature, it does not create a thermal shock but a turbulence on the tile surface which both cools the surface and interrupts the evaporation process of the glaze – or of the engobe.

This phenomenon has sufficient persistence to overcome the passage under the print heads, optimizing printing and preserving the heads.



What do I need to create a cooling system?

The GreenBlow® catalog includes all the necessary components: blowers, diffusers and air knives, together with connectors and supports that allow you to quickly and easily create your own cooling combination that can be adapted to your production line and production needs.

Possible system configurations

Thanks to the wide range of components available, it is possible to "tailor-made" the cooling system to your needs.

The configurations can be many: very compact systems with reduced dimensions, modular systems that can operate at full capacity or reduced depending on the temperatures, systems integrated with other cooling stations depending on the type of production in progress, fixed or trailerable systems, etc. …

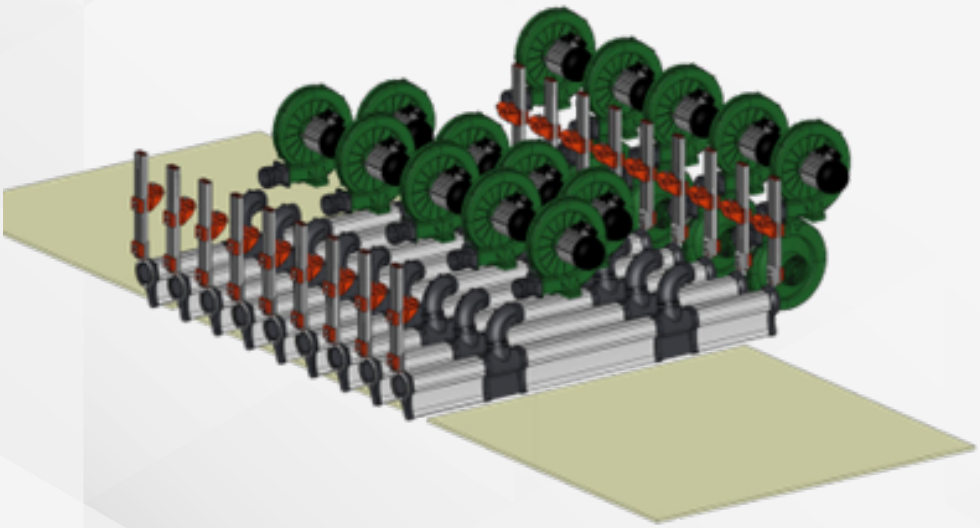
Finally, to complete the system, it is also possible to integrate a suction station to intercept deposits of dust and eliminate them both from the tile and from the work environment (even in the absence of suction centralized system).

Maintenance costs ?

This system has practically zero maintenance costs.

Furthermore, if a blower stops, the cooling system does not stop, so production can continue at the same speed with minimal loss of efficiency.

Replacement is very quick and can be done by any maintenance worker without waiting for the specialized technician.



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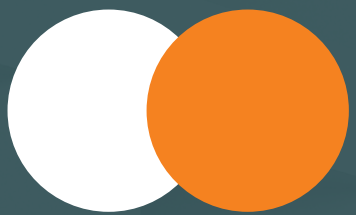

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General

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جدول موضوعات المجلة

العدد	الموضوعات
ديسمبر/كانون أول 2024 (العدد رقم 98)	* المبردات * المراوح * مدافع الهواء * الصحة والسلامة المهنية * تكنولوجيا الطحن * الطواحين العمودية * 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

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الإعلانات

(بالدولار الأمريكي)

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

أبعاد الإعلان: A4
أبعاد الإعلان على الغلاف الخارجي: ارتفاع 20 سم وعرض 20 سم
الدقة : 300dpi
نوع الملف: PSD أو EPS أو PDF

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الإمارات العربية المتحدة

”ألتراتيك“ تستحوذ على 25% من رأس مال ”رأس الخيمة لصناعة الإسمنت“

أعلنت "شركة رأس الخيمة لصناعة الإسمنت الأبيض والمواد الإنشائية" اكتمال استحواذ شركة ألتراتيك سيمنت ميدل إيست إنفستمنتس ليمتد على 25% من رأس مالها.

وأوضحت الشركة أن العدد الإجمالي المالي الذي تم الحصول بموجبه على قبول العرض بلغ 133.6 مليون سهم من أسهم "رأس الخيمة للإسمنت الأبيض والمواد الإنشائية"، تمثل 26.71% من رأس مالها.

وذكرت أن عدد الأوراق المالية المملوكة من قبل شركة ألتراتيك قبل فترة العرض بلغ 147 مليون سهم من أسهم رأس الخيمة للإسمنت الأبيض والتي تمثل 29.39% من رأس مالها.

كما بلغ عدد الأوراق المالية التي سيتم الاستحواذ عليها بموجب موافقة هيئة الأوراق المالية 125 مليون سهم من أسهم رأس الخيمة للإسمنت الأبيض والتي تمثل 25%.

وحققت رأس الخيمة لصناعة الإسمنت الأبيض أرباحاً بقيمة 20.5 مليون درهم بنهاية عام 2023، مقارنة بأرباح بلغت 21.1 مليون درهم بنهاية عام 2022 للإسمنت الأبيض والتي تمثل نسبة 29.39% من رأس المال العادي المصدر الحالي للشركة.

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المملكة العربية السعودية

صادرات الإسمنت سمنت السعودية تتجاوز 8.48 مليون طن

بلغت صادرات الإسمنت والكلنكر السعودية عام 2023 أكثر من 8.48 مليون طن، ما يعكس تطوُّر القدرات الإنتاجية لشركات الإسمنت السعودية، وتلبيتها لاحتياجات السوق المحلية والمشروعات التنموية في المملكة.

وتحتل المملكة المرتبة الأولى عربياً والعاشرة عالمياً في حجم إنتاج الإسمنت، بطاقة إنتاجية تزيد عن 80 مليون طن سنوياً، يتم إنتاجها من خلال 20 مصنعاً سعودياً.

وبلغ الطلب المحلي على الإسمنت قرابة 47.3 مليون طن العام الماضي، مع توقعات بوصول حجم الإنفاق على قطاع البناء والتشييد إلى 6 تريليونات ريال بحلول عام 2030، مما يُنبئ عن نموٍ متزايد في معدلات الطلب على الإسمنت، في ظل المشروعات التنموية العملاقة الجاري تنفيذها في المملكة.

وقد وضعت وزارة الصناعة والثروة المعدنية توصيات استراتيجية لقطاع الإسمنت، تستهدف تحويله إلى قطاع أكثر استدامة، حيث تعمل بالتعاون مع الجهات المعنية على تنفيذ العديد من المبادرات والبرامج الداعمة لهذا التحول، مثل برنامج تنافسية القطاع الصناعي، وبرنامج إزاحة الوقود السائل.

ومن شأن هذه التوصيات تحسين كفاءة الطاقة، وتقليل تكاليف الإنتاج، وتقليل الانبعاثات الكربونية في شركات القطاع الصناعي، بما في ذلك شركات قطاع الإسمنت، ضمن سعي الوزارة بالتعاون مع اللجنة الوطنية لشركات الإسمنت وجامعة الملك عبد الله للعلوم والتقنية والجهات ذات العلاقة؛ على مبادرة لتنفيذ دراسات بحثية تهدف إلى خفض انبعاثات الكربون في صناعة الإسمنت، وتقديم منتجات إسمنتية صديقة للبيئة، والاستفادة من أفضل الممارسات العالمية في هذا المجال.

akhbaar24.com

رئيس إسمنت القصيم: سنعمل على رفع الطاقة الإنتاجية بعد الاستحواذ على إسمنت حائل

قال الرئيس التنفيذي لشركة إسمنت القصيم عمر العمر، إن أثر صفقة الاستحواذ على إسمنت حائل سيظهر في الربع الثالث 2024، مشيراً إلى أن الاستحواذ على إسمنت حائل جاء ضمن استراتيجية الشركة التوسعية، بهدف تعظيم حقوق المساهمين ورفع الطاقات الإنتاجية للشركة.

وذكر أن شركة إسمنت حائل تتمتع بمميزات كبيرة في ظل انتشارها الجغرافي، ما يساعد في زيادة معدلات الوصول لعملاء جدد من خلال توسيع النطاق الجغرافي للشركة بعد الاستحواذ، قائلاً: سنعمل على رفع الطاقة الإنتاجية للشركتين بعد الاستحواذ.

وأضاف العمر أن الشركتين تتمتعان بمركز مالي قوي، ولا يوجد أي التزامات على الشركتين. وأكد أن تقييم أصول شركة حائل تم من خلال شركات عالمية، بناءً على سعر السهم والتدفقات النقدية، مبيناً أن أصول حائل ستنضم إلى إسمنت القصيم بعد الاستحواذ.

وكانت كل من الجمعية العامة غير العادية لشركتي إسمنت القصيم وإسمنت حائل قد وافقت على عملية الاستحواذ، حيث وافقت العموميتان على زيادة رأس مال إسمنت القصيم من 900 مليون ريال إلى 1105.59 مليون ريال، وذلك لغرض الاستحواذ على جميع أسهم إسمنت حائل والبالغ عددها 97.9 مليون سهم.

مذكرة تفاهم بين "إسمنت الجنوب" و"إسمنت ينبع" لتقييم جدوى اندماج الشركتين

أعلنت كل من شركة إسمنت المنطقة الجنوبية، وشركة إسمنت ينبع، عن توقيع مذكرة تفاهم غير ملزمة، لتقييم جدوى اندماج الشركتين. أوضحت الشركتان أنهما ستقومان ببدء عملية التحقق وفحص النواحي العملية والفنية والمالية والقانونية والدخول في مناقشات غير ملزمة فيما يتعلق بتفاصيل الأحكام والشروط لعملية الاندماج المقترحة. وأشارت إلى أنه سينتهي العمل بمذكرة التفاهم بتوقيع الشركتين على اتفاقية الاندماج أو بعد انقضاء 12 شهراً من تاريخ توقيع مذكرة التفاهم، أيهما أسبق. ويمكن تمديد مذكرة التفاهم بموافقة الشركتين المشتركة، كما يمكن لأي من الشركتين إنهاء مذكرة التفاهم بتوجيه إخطار خطي إلى الطرف الآخر بهذا الخصوص. وتعد عملية الاندماج المقترحة مشروطة باكتمال عمليات التحقق والفحص بما يتوافق مع متطلبات كافة الأطراف ذات العلاقة، وبشرط الاتفاق على الشروط والأحكام النهائية لاتفاقية الاندماج. وأكدت الشركتان، أنه سيتم إعلان أية تطورات جوهرية بشأن عملية الاندماج المقترحة وحسب القوانين والتعليمات ذات العلاقة، وأثناء ذلك، تعتزم الشركتان الاستمرار بممارسة أعمالهما حسب المعتاد.

mubasher.info

"إسمنت الجوف" تقرر إلغاء توصية زيادة رأس المال وتوضح الأسباب

قرر مجلس إدارة شركة إسمنت الجوف إلغاء توصية المجلس السابق بزيادة رأس المال والتي كانت تهدف لسداد التزامات الشركة المالية وتوزيع أرباح على المساهمين.

وأوضحت الشركة أن قرار مجلس الإدارة بإلغاء توصية المجلس السابق صدر لعدة أسباب منها إعادة جدولة قروض الشركة مع كلٍ من بنك الإنماء وساب.

وأشارت إلى أن أسباب إلغاء زيادة رأس المال تشمل كذلك تحسن مبيعات الشركة؛ مما ساهم في تعزيز التدفقات النقدية، بالإضافة إلى القيام بالعديد من المبادرات التي أدت إلى تخفيض التكاليف.

وأشارت الشركة إلى أنها قامت بجدولة القروض مع البنوك وتحسين مبيعات الشركة وإنجاز العديد من المبادرات التي تهدف إلى خفض التكاليف.

mubasher.info

"إسمنت الجوف" توقع عقداً بـ104.19 مليون ريال مع "ويبيلد إس بي إيه" لتوريد كميات من الإسمنت ضمن مشاريع "نيوم"

أعلنت شركة إسمنت الجوف عن توقيع عقد مع شركة ويبيلد اس بي ايه في يوليو / تموز 2024. بموجب هذا العقد تقوم شركة إسمنت الجوف ببيع مادة الإسمنت لشركة ويبيلد اس بي ايه ضمن مشاريع نيوم. وتبلغ قيمة العقد (104,191,650) مائة وأربعة مليون ومائة وواحد وتسعين الف وستمائة وخمسين ريال غير شاملة ضريبة القيمة المضافة.

وستقوم شركة إسمنت الجوف، ضمن هذا العقد، ببيع مادة الإسمنت إلى شركة ويبيلد اس بي ايه ولمدة 41 شهر ميلادي من تاريخ التوقيع، علماً أن العقد قابل لزيادة الكميات.

3yonnews.com

"إسمنت الشرقية" تحصل على تسهيلات من "الأهلي" بـ850 مليون ريال

وقعت شركة إسمنت المنطقة الشرقية اتفاقية تسهيلات ائتمانية مع البنك الأهلي السعودي بقيمة 850 مليون ريال.

وأوضحت الشركة في بيان لها أن الهدف من التسهيلات المساهمة في تمويل احتياجاتها المالية لتنفيذ مشروع إنشاء خط انتاج جديد في مصنع الشركة بطاقة انتاجية 10 آلاف طن/يوم وبتكلفة تبلغ 1.01 مليار ريال بالإضافة إلى تمويل رأس المال العامل للشركة.

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العراق

في تطورٍ غير مسبوق: مدير عام السمنت يعلن عن اقتراب بادوش التوسيع من طاقته التصميمية... والإفصاح عن إضافة خط إنتاجي جديد بطاقة 5 آلاف طن

أعلن مدير عام الشركة العامة للسمنت العراقية، المهندس حيدر هادي علي، عن اقتراب معمل سمنت بادوش التوسيع من تحقيق طاقته التصميمية.

وأوضح بخصوص ذلك تمكن المعمل من إنجاز خطته الإنتاجية خلال النصف الأول من السنة وصولاً إلى السابع من شهر أغسطس / آب بكمياتٍ إنتاجية تراكمية من السمنت بلغت (522) ألف طن، ومعدل إنتاج تراكمي لمادة الكلنكر بلغ (551) ألف طن، وبمبيعاتٍ تراكمية للفترة ذاتها بلغت (529) ألف طن، مكتسباً بذلك تطوراً عن العام الماضي 2023 بنسبة 8% لمادة الكلنكر، و3% لكل من إنتاج السمنت والمبيعات.

مؤكداً أن هذا التطور المكتسب والتصاعد المتواتر في الطاقة الإنتاجية جاء نتيجة التحول الذي أحدثته عملية توظيف الغاز المصاحب والجاف في عملية الحرق بديلاً عن الاستخدام المعروف لوقود النفط الأسود، وما ترتب على هذا التحول من منفعة اقتصادية أثرت على خفض الكلف الإنتاجية، وخلقه مناخ إنتاجي يتوافق مع شروط الحفاظ على البيئة عبر تقليل الإنبعاثات الملوثة الناتجة عن صناعة السمنت.

وتبلغ الطاقة التصميمية للمعمل (3200) طن يومياً، وستشهد الخطة الاستثمارية للمرحلة المقبلة الإعلان الفعلي عن مضاعفة الطاقة الإنتاجية عبر إضافة خط إنتاجي جديد بطاقة (5) آلاف طن يومياً، ليتم عبر ذلك تحقيق الرؤية والأهداف الإستراتيجية الرامية لتعزيز الصناعة الوطنية.

معاونية السمنت الشمالية وبادوش التوسيع يحصلان على شهادتي جودة بالمواصفة القياسية الدولية ISO 9001:2015

كشفت الشركة العامة للسمنت العراقية عن حصول معاونية السمنت الشمالية ومعمل سمنت بادوش التوسيع التابع لها، على شهادتي جودة وفق المواصفة القياسية الدولية ISO 9001:2015 الممنوحة لها من شركة ضمان الجودة لخدمات التدريب ومطابقة نظم الجودة (QAC) والمعتمدة من هيأة الاعتماد العراقية (IQAS)، وشركة (IFC) الدولية المعتمدة من هيأة الإعتماد الأمريكية (UAF).

ليبيا

توقيع محضر اتفاق تعاون بين الشركة الأهلية للإسمنت المساهمة وشركة سينوما الصينية بشأن مشروع إنشاء خط انتاج جديد بمصنع لبدة للإسمنت

تم في أغسطس / آب 2024 في مصنع إسمنت زليتن توقيع محضر اتفاق تعاون بين الشركة الأهلية للإسمنت المساهمة وشركة سينوما الصينية بشأن مشروع إنشاء خط انتاج جديد بمصنع لبدة للإسمنت وبطاقة إنتاجية قدرها 6600 طن كلنكر يومياً.

هذا وتم الاتفاق على إجراء سلسلة من الاجتماعات والدراسات لدراسة الحيز المكاني ومحاجر المواد الخام والحرص على تحول ذلك إلى خطوات تنفيذية، الأمر الذي سوف يكون أثره جليّ في وفرة الإنتاج.

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جمهورية مصر العربية

إسمنت سيناء تبيع حصتها في سيناء للإسمنت الأبيض بـ30 مليون يورو

أعلنت شركة إسمنت سيناء عن بيع كامل حصتها في شركة سيناء للإسمنت الأبيض - بورتلاند، لصالح شركة آلبورج بورتلاند هولدنج أيه/أس.

وأوضحت الشركة أن قيمة عملية البيع بلغت 29.99 مليون يورو أي ما يعادل 33.75 يورو للسهم والذي يمثل مبلغ 1.81 جنيه لكل سهم.

يشار إلى أن إسمنت سيناء حققت صافي ربح بلغ 301.1 مليون جنيه خلال الفترة من يناير / كانون الثاني حتى نهاية مارس / آذار 2024، مقابل خسائر بلغت 58.47 مليون جنيه في الفترة المقارنة من 2023، مع الأخذ في الاعتبار حقوق الأقلية.

وتراجعت مبيعات الشركة خلال الربع الأول من العام الجاري إلى 1.16 مليار جنيه، مقابل مبيعات بلغت 1.24 مليار جنيه في الربع المقارن من 2023.

وعلى صعيد القوائم غير المجمعة، تحولت الشركة إلى الربحية خلال الربع الأول من العام الجاري لتحقق 302.77 مليون جنيه، مقابل خسائر بقيمة 56.29 مليون جنيه خلال الفترة نفسها من 2023.

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افتتاح محطة استعادة الطاقة المهدرة بشركة «هايدلبرج ماتيريالز» للإسمنت

تم افتتاح محطة استعادة الطاقة المهدرة التي أقامتها شركة «هايدلبرج ماتيريالز مصر» بمصنع الشركة للإسمنت بحلوان.

ويبلغ إجمالى استثمار المشروع 30 مليون دولار، ويشمل بناء أول نظام مبتكر من نوعه فى صناعة الإسمنت بمصر لاستعادة الطاقة بهدف استغلال الحرارة المهدرة من خطوط الإنتاج وإعادتها لتوليد طاقة بدلاً من إطلاق الحرارة فى الغلاف الجوي بما يسهم في الحفاظ على البيئة وتوفير الطاقة، ويحافظ على الصحة والمناخ، وإيجاد عوائد إيجابية على الاقتصاد من خلال توفير الكثير من استخدام الغاز الطبيعي سنوياً.

وإلى جانب هذه المحطة التي تعمل على استعادة الحرارة المهدرة أثناء عملية الإنتاج وتحويلها لطاقة كهربائية يتم استخدامها فى التصنيع يتم استغلال الوقود البديل (RDF) كمصدر للطاقة أيضاً، وذلك في إطار الاهتمام بالطاقة النظيفة بما يساهم في عمليات التصنيع وتوفير الطاقة ليكون هذا المصنع من أوائل المصانع التي تأخذ بالأساليب العلمية في توليد الطاقة في عمليات الإنتاج.

egypttelegraph.com

سيمكس توقع الإتفاقية الثانية لتدوير المخلفات تحت مظلة «ريجينيرا» بمصر

وقعت شركة سيمكس إتفاقية مع محافظة أسيوط لتشغيل ثاني مصنع تحت مظلة "ريجينيرا" في مصر.

ويستقبل المصنع أكثر من 7,000 طن من المخلفات البلدية الصلبة شهرياً، ومن خلال هذه الإتفاقية، ستقوم سيمكس بمعالجة المخلفات لتحويلها لوقود بديل والتي يتبعها إنتاج السماد العضوي – مما يضمن توجيه الحد الأدنى من المخلفات المتبقية للمدافن الصحية.

وفي عام 2023، إستثمرت الشركة أكثر من 2,5 مليون دولار في مشروع مجفف الوقود البديل في مصنعها بأسيوط والذي يعمل على استعادة الطاقة الحرارية في عملية إنتاج الكلنكر مما يحسن جودة الوقود البديل من خلال الإدارة السليمة لفصل المخلفات مما يعظم فرص إستبدال الوقود الأحفوري والذي بدوره يقلل من إنبعاثات ثاني أكسيد الكربون. بالإضافة إلى ذلك، تعود هذه الإتفاقية بالنفع على سكان المحافظة من خلال ضمان المعالجة الآمنة للمخلفات اليومية المجمعة، مع تقليل الآثار السلبية المرتبطة بالمدافن الصحية.

بإعتبارها شركة رائدة في مجال العمل المناخي وإلتزامها بأن تصبح شركة حيادية الكربون في عام 2050، تعد ريجينيرا جزءاً من جهود سيمكس لدعم الإقتصاد الدوار عن طريق العديد من الأنشطة منها استلام المخلفات البلدية الصلبة وإدارتها ومعالجتها. وتطمح ريجينيرا لإستخدام المزيد من المخلفات غير القابلة لإعادة التدوير والمشتقات الصناعية كبديل أكثر إستدامه للوقود الأحفوري والمواد الخام الطبيعية.

tahiamasr.com

الحكومة تتعهد بتدبير كامل احتياجات الصناعة من المازوت

تعهدت وزارة البترول المصرية بتوفير خام المازوت لجميع المصانع اعتباراً من الأول من أكتوبر / تشرين الأول، حيث سيتم التوزيع المركزي للمازوت على المصانع من خلال الأمانة الفنية للمجموعة الوزارية برئاسة رئيس هيئة التنمية الصناعية، التي كُلفت بحصر احتياجات المصانع العاملة في قطاع مواد البناء مع أهمية استخدام الوقود البديل للمازوت في صناعة الإسمنت.

almasryalyoum.com

المملكة المغربية

شركة إسمنت المغرب توقع اتفاقية للاستحواذ على نسبة من إسمنت تمارة

أعلنت شركة سيمنت المغرب، التابعة لمجموعة هايدلبرغ ماتيريالز، عن خطوة استراتيجية جديدة بتوقيع اتفاقية للاستحواذ على نسبة 62.62% من رأس مال إسمنت تمارة و99.99% من شركة غرابمارو، وهما شركتان رئيسيتان في مجال صناعة الإسمنت والخرسانة الجاهزة والمواد الأولية للبناء في المغرب، والتابعتان لمجموعة فوتورانتيم سيمينتوس.

تمنح هذه الصفقة لشركة سيمنت المغرب السيطرة على مصنع إسمنت في منطقة عين عتيق بطاقة إنتاجية تصل إلى 1.4 مليون طن، بالإضافة إلى ثماني محطات للخرسانة الجاهزة بطاقة إجمالية قدرها 510 متر مكعب في الساعة. كما أن دمج شركة غرابمارو، المتخصصة في المواد الأولية للبناء بقدرة إنتاج سنوية تصل إلى 1.6 مليون طن، سيعزز توفير هذه المواد في السوق المحلية.

تعكس هذه الخطوة التزام سيمنت المغرب بتعزيز حضورها في مناطق مثل الرباط – سلا - القنيطرة والدار البيضاء، وتؤكد رغبتها في مواكبة النمو العمراني والبنية التحتية في تلك المناطق الحيوية. وفي تصريح لرئيس مجلس إدارة سيمنت المغرب، محمد الشعيبي، أكد أن "هذه الصفقة تأتي ضمن رؤيتنا الاستراتيجية على المديين المتوسط والبعيد لتعزيز موقعنا في سوق مواد البناء وحلول البناء المستدامة".

تتجاوز هذه الصفقة الأبعاد الصناعية لتسهم في تعزيز التزام الشركة بالاستدامة البيئية. حيث تلعب الشركة المغربية للطحن وإعادة تدوير المواد، التي تملك إسمنت تمارة 48.99% من أسهمها، دوراً حيوياً في الاقتصاد الدائري من خلال معالجة النفايات الصناعية وإعادة تدويرها، ما يساعد في تقليل التكاليف الطاقية وتحسين الأداء البيئي.

على الرغم من أهمية هذه الصفقة لشركة سيمنت المغرب، إلا أن إتمامها يبقى مرهوناً بموافقة مجلس المنافسة وبعض الشروط الأخرى المتفق عليها بين الأطراف المعنية.

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