

CEMENT & BUILDING MATERIALS REVIEW

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Arab News Arab News

Algeria

Algeria to stop importing cement in 2017

Minister of Industry and Mining has said that Algeria will stop importing cement in 2017. He made the comments at a visit to the China Triumph International Engineering (CTIEC) cement plant being built at Adrar. "The year 2017 will mark the end of cement imports in Algeria, with the commissioning of all cement plants across the country, whose total annual production capacity is expected to reach 6Mt," the Minister said. He added that industrial projects will allow the country to achieve self-sufficiency in cement and begin to export it.

Global Cement News

GICA shows its ambitions for 2017

GICA announced it will ramp up its production capacity to 13.2Mt of cement, with the second line of the Aïn El Kebira cement plant (Setif) entering production in 2017.

Daily cement

GICA to start producing oil well cement

Groupe Industriel des Ciments d'Algérie (GICA), the government-owned cement producer, has launched the certification process of its oil well cement ahead of plans to produce the product itself. A sample batch of 300t was produced in November 2016. Rabah Guessoum, the chief executive officer of GICA, said that the cement will produced at the company's Setif plant and sold to Sonatrach group and foreign oil companies. A national demand of around 300,000t/yr is anticipated.

Global Cement News

New cement plants in Relizane and Djelfa

Djelfa plant will have joint-venture with Chinese partner.

CILAS, a joint venture between Lafarge Algeria, holding a 49% stake, and Souakri Group with a 51% stake, will officially inaugurate its Biskra cement plant in January 2017.

Daily Cement

Algerian investors to buy ASEC Algeria for US\$60m

A group of Algerian investors have agreed a share purchase framework to buy 100% of ASEC Algeria from ASEC Cement and ASEC Cement Djelfa Offshoren for US\$60m. ASEC Cement is an Egyptbased producer and supplier of cement and other construction materials. ASEC Cement Djelfa Offshoren is a subsidiary of ASEC Cement, a subsidiary of Qalaa Holdings.

Global Cement News

<u>New Cement Production Unit Inaugurated in</u> <u>Constantine</u>

A new cement production plant located in the industrial area of Benbadis, about 20 Km southeast of Constantine, was inaugurated last December.

Daily Cement

AUMUND and SWEIDAN open Spare Parts Stock in Riyadh with AUMUND Supervisor on site

In continuation of the valued partnership, AUMUND Fördertechnik GmbH, Germany, and SWEIDAN Industrial Services, Riyadh, are keen to announce the opening of the new Spare Parts Stock at the Riyadh Warehouse to be at full disposal with parts instantly available, this is of particular importance in a case of emergency to get the machine running again. Additionally, a local AUMUND Supervisor is available to support the customers.



The new SWEIDAN and AUMUND warehouse at Riyadh

AUMUND ensures a high level of After Sales Service along with top quality products. For onsite services local AUMUND supervisors are at any time ready to assist the customers for whatever reason: Troubleshooting, technical advice, installation supervision, preventive maintenance service PREMAS[®] and equipment inspection.

About the AUMUND Group

The AUMUND Group is active worldwide. The conveying and storage specialists have special expertise at their disposal when dealing with bulk materials. With their high degree of individuality, both its technically sophisticated as well as innovative products have contributed to the AUMUND Group today being a market leader in many areas of conveying and storage technology. The manufacturing companies AUMUND Förder-technik (Rheinberg, GmbH Germany), SCHADE Lagertechnik GmbH (Gelsenkirchen, Germany), SAMSON Materials Handling Ltd. (Ely, England), as well as AUMUND Logistic GmbH (Rheinberg, Germany) are consolidated under the umbrella of the AUMUND Group. In conjunction with the headquarters of the manufacturing companies, the global conveying and storage technology business is

spearheaded through a total of ten locations in Asia, Europe, North and South America and a total of five warehouses in Germany, USA, Brazil, Hong Kong and Riyadh.

About Sweidan

Sweidan Industrial Services is a focused service company that provides innovative solutions to achieve customer satisfaction by meeting and exceeding their expectations; utilizing the latest available technologies with the best practices.

Sweidan forged strategic partnerships and business association with leading global companies and agents, to provide the best products and solutions to a significant number of industries, ranging from cement to petro-chemicals.

Sweidan diverse products and services; which are carefully selected and studied provide a range of options and intuitive support systems, along with the services that are delivered through Sweidan highskilled technical team.

Sweidan has established its presence in the Middle East region, specifically Saudi Arabia and Jordan, and expanded to Oman, Iraq and UAE markets, in order to gain an insight on the real market needs.

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Clinker conveying equipment for two new lines

Yamama Saudi Cement Company counts on AUMUND machines

Yamama Saudi Cement Company, one of the biggest cement producers in Saudi Arabia, will start up two turnkey clinker production lines in 2018 at a new site to the south west of the capital city, Riyadh. The two lines, with a combined capacity of 20,000 t/d, are being built by thyssenkrupp Industrial Solutions, a subsidiary of thyssenkrupp. In 2016, AUMUND Fördertechnik GmbH won the order to supply the clinker conveying equipment for both lines.



AUMUND Double bucket elevator (Graphic AUMUND)

The large supply package for Yamama Saudi Cement Company includes 29 chain bucket elevators and 18 belt bucket elevators, in heavy-duty and lighter designs, for these two lines in the Gulf. For raw meal, AUMUND belt

bucket elevators will be used. Filter dust will be conveyed by AUMUND chain bucket elevators optimal designed for low capacity.

Two AUMUND double chain bucket elevators with a capacity of 2,300 t/h were ordered per line as recirculating bucket elevators in the cement mill. Double chain bucket elevators are specially designed by AUMUND for capacities above 1,300 t/h, by combining two standard central chain bucket elevators. Both bucket strands run over the same drive shaft which is held by pillow block bearings and driven by double drive units. The symmetrical distribution of weight means that the chain and drive shaft will have long lifetimes. There is no mechanical connection between the two bucket strands. The chain wheels and tension shafts have separate bearings so that any lengthening of a chain that might occur after a long running time can be adjusted independently of the other.

The supply package for the two lines also includes six AUMUND pan conveyors as well as various flat gates, silo discharge gates, telescopic chutes and cleaning conveyors.

"We won the order among other things because of AUMUND's expertise in advising on concept and design", says AUMUND MD, Robert Gruss happily, when speaking of the trust of the customer. "Our strategy is to put our focus on a close relationship with our customers, accompanying them from the initial planning stages right through until after commissioning, and it is gratifying to reap the rewards."

108 Machines for greenfield project in Egypt AUMUND equipment for six new clinker production lines in Beni Suef

June 2016, Sinoma International Engineering announced that its subsidiary, Chengdu Design & Research Institute of Building Materials Industry (CDI) had signed a contract with the Egyptian government to build six production lines for clinker of 6,000 tpd each, in Beni Suef. AUMUND Fördertechnik GmbH, in close cooperation with its Chinese subsidiary AUMUND Beijing, has now won the order to supply the clinker conveying equipment for the project.



AUMUND Bucket Elevator type BWG (©AUMUND)

Egypt, with a capacity of 70 million tonnes, is one of the world's biggest producers of clinker. Around 52 -54 million tonnes of cement are consumed annually in Egypt. The identical lines will each be equipped by AUMUND with four BWG belt bucket elevators, with capacities up to 650 t/h and three BWZ chain bucket elevators (up to 550 t/h).

The machinery package also includes four BWG-L belt bucket elevators (170 t/h) one BWZ-L chain bucket elevator (80 t/h) as well as six pan conveyors (375 t/h), for each of the six lines.

The new greenfield project in Beni Suef is to be fully completed within the next three years. The pilot phase of the new production lines is due to start as early as December 2017.

AUMUND Fördertechnik will supply these 108 Machines to Egypt in three deliveries, between April and June 2017.



AUMUND Pan Conveyor type KZB (©AUMUND)

For more information, please contact AUMUND Holding B.V. Wilhelminapark 40 5911 EE Venlo / The Netherlands Phone: +31 77 32 00 111 marketing@aumund-holding.nl www.aumund.com

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VORTEX APPOINTS IBC AS NEW UAE AGENT

Vortex Global Limited, a solids and bulk handling Components Company, announces the appointment of Integrated Business Corporation (IBC) as its new agent in United Arab Emirates, Oman, and Kuwait. IBC is a portal company who utilises local knowledge of developing projects to integrate global partners into the local Omani market.

"IBC's aim is to be one of the top companies for agreements to hold business licenses to expand in Oman and UAE," Rey Acurantes, IBC Business Development Manager says. "We are able to mobilise within these regions at short notice and provide service for our global clients who wish to invest in these countries. We like to develop tailored sustainable solutions that integrate quality systems into the culture and practices of an organisation."

The UAE is currently diversifying its sources of income as oil prices continue to lower across the globe. The Ministry of Economy hope to increase the manufacturing industry sectors to absorb the financial shock of the current oil prices. Projects in base metals, chemicals, food and beverages, machinery, rubber and plastics, cement, glass, and wood are planned to help the UAE economy

"IBC is able to easily identify the challenges of the market in Oman and the Emirates," says Laurence Millington, Vortex Director of International Business. "Being a dry bulk components company, this is an exceptionally good time to enter the Middle Eastern markets. IBC has the expertise to get us there."

About IBC:

IBC, the portal to business in the Middle East, specialises in introducing international brands to the local market in the Middle East giving them unparalleled business opportunities both with private and government sectors. IBC's vision is to improve the business infrastructure and introduce new fields of business to the local and regional market.

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VPInstruments launches new website

VPInstruments is proud to announce the launch of its new website: www.vpinstruments. com. The producer of energy management solutions has worked hard on giving the site a new "look & feel", adding more features and more functionality.

This website is a dynamic forum that will change constantly. VPInstruments will add process related information, customer cases and educational videos to offer visitors a variety of information on how they can save money on their compressed air and how they can elevate their energy management to a higher level.

Customers are able to login and have access to information catered to their needs, prospects can enter inquiries and search on products or process related features.

VPInstruments provides real-time insight into the consumption of compressed air and technical gases. The equipment shows where, when and how much the usage is. The innovative and user-friendly meters and monitoring equipment guarantee substantial savings. The web-based software of the VPVision monitoring system is the cornerstone of any energy management system with ISO 50001 certification. Investments in products by VPInstruments very quickly pay for themselves.

For more information, contact: VPInstruments Elaine Foster elaine.foster@vpinstruments.com Buitenwatersloot 335, 2614 GS Delft Tel. +31 15 213 1580 Internet: www.vpinstruments.com

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THE "PARIS AGREEMENT" ON CLIMATE CHANGE: AN OPPORTUNITY FOR CEMENT SECTOR TO FURTHER REDUCE ITS CO₂ EMISSIONS

By: Philippe Fonta, Managing Director Cement Sustainability Initiative (CSI) World Business Council for Sustainable Development (WBCSD)

INTRODUCTION: A VOLUNTARY SECTORAL APPROACH

Carbon emissions is an important sustainability issue for the cement industry as global cement manufacture accounts for about five percent of all man-made CO_2 emissions: about 60% of these emissions come from the raw materials used in the manufacturing process of cement, the basic chemical de-carbonation of limestone into lime releasing CO_2 whereas about 40% of these emissions come from the energy required to ensure the above chemical reaction and to heat the materials to a temperature of about 1450°C.

Aware of the challenges of the sector, some leading companies decided in 1999 to voluntary cooperate in mitigating their CO_2 emissions and fighting against climate change, convinced that a collective approach would scale up the sector's improvements.

They then created the Cement Sustainability Initiative (CSI), a voluntary worldwide initiative under the auspices of the World Business Council for Sustainable Development (WBCSD) to collectively tackle the issue of climate change amongst other sustainability issues at stake for the sector. In order to be able to exchange information and best practices, while operating under the strict compliance of existing national and international anti-trust laws, the CSI established a robust governance structure with regular legal review of its operations.

In addition to this voluntary initiative, the CSI has been advocating for supporting policies and incentives to enable the sector implement the technical solutions at a scale and speed that is necessary to meet the challenges of climate change. For instance, the CSI has been advocating for on a long-term, universal climate agreement to enable the private sector to undertake appropriate long-term investments, and has been promoting the development of regulatory and financial incentives for innovative low-carbon cements.

THE PARIS AGREEMENT: A SIGNAL OF HOPE

Over the past decades, most people agree that the process of UN negotiations was long and unsuccessful, moreover with regards to the challenge of climate change and the urgency to solve it. The limited success of the Kyoto Protocol, adopted in 1997 and only entering into force in 2005 was the perfect illustrative example of this lack of commitment. In the run-up of the Paris meeting, in 2015, the most sceptical people were pointing out that the meeting was the COP21¹, i.e. the 21st meeting of that kind and that up until now, the results had always been disappointing.

However, in the various preparatory meetings of the COP21, every person involved could feel a different atmosphere, and although nobody would dare to say it openly, there was good hope to reach an agreement in Paris; one of the reasons why this relative optimism was present is because for the first time in the UNFCCC process, various stakeholders were sharing information, expertise and wishes. For the first time in history, the business was invited in the zone where the negotiations were happening and was not reduced to having side-events and meetings in another hotel at the over side of the city.

¹ COP21 is the twenty-first session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Paris from 30 November to 13 December 2015

Then, only two weeks before the beginning of the COP21, terrorist attacks struck the city of Paris, challenging the possibility to maintain the COP21 in Paris as scheduled, and if so, suggesting that head of states and governments would be more focused on immediate safety and security issues rather than on climate change ones that appear for some of them as being of a more longer-term horizon.

Despite the difficult environment, an international multilateral, legally-binding agreement, known as the "Paris Agreement", was officially adopted by 195 Parties on 12 December 2015 at COP21.



Adoption of the Paris Agreement on December 12, 2015

This agreement is a clear signal of hope and it also sets the framework for enhanced cooperation between the different stakeholders (States called Parties and non-party stakeholders being the private business companies as well as the civil society and non-governmental organisations).

Aiming at maintaining the global temperature increase well below the 2°C above the pre-industrial levels, pursuing efforts to limit the temperature increase to 1.5 °C above these levels, the Paris agreement targets a complete decarbonation of the economy by the end of the XXIst Century. It is an ambitious and balanced agreement, which defines commitments for all States based on their own impact on climate change through their own CO2 emissions. Contrary to the preceding Kyoto Protocol, the Paris agreement does not have a fixed and limited period of implementation but it sets a permanent regime with regular updates for reporting and adjusting the ambitions defined by the different Parties. As such, it is a bottom-up approach, built on the Parties' objectives of emissions reductions: it becomes obvious that the different Parties will ask the various sectors of the economy to report their emissions in order for them to consolidate their national stocktake (global volume of emissions) and be able to adjust their Nationally Determined Contributions (NDCs) with more ambitious targets. It will then be essential for the various sectors to be able to measure and report these emissions and, as requested for the Parties, to have these emissions reports verified and validated by an independent third party. Cooperation between states and non-state stakeholders will be more than ever essential, and some sectors like the cement sector, through CSI, have a long experience on reporting their emissions and having them verified by an independent third party.

Having these emission levels verified by an independent third party and the Parties committed to a regular update of their global stocktake and associated ambitions makes of the Paris agreement a legally binding text, which was a condition of success for this agreement.

Based on the Nationally Determined Contributions (NDC), the agreement is considered as successful as it sets the basis for implementing solutions, reinforcing the role and action of economic stakeholders and setting up a financial and technological package, essentially to help the developing countries.

"Multi-fuel Systems are the Future"

Alternative fuel expert Thomas Jennewein from FLSmidth Pfister talks about trends in secondary fuels

By: FLSmidth Pfister GmbH / Germany Interview with Thomas Jennewein, Expert for Alternative Fuels

One doesn't have to be a prophet to predict that oil and gas prices will rise again in a mediumterm perspective. These primary energy sources release carbon dioxide when combusted. And carbon dioxide is known to be climate-damaging. In the cement production branch the application of alternative fuels (AF) is perceived as crucial – under the aspect of decreasing of CO_2 emissions as well as under the aspect of the return on investment. Thomas Jennewein, expert for alternative fuels at weighing and dosing specialist FLSmidth Pfister, is commenting on his current findings on this market.



1. From small to huge: Thomas Jennewein shows Pfister rotor weighfeeders for alternative fuels set up for different, individual demands

• In comparison to heating with primary energy sources, the use of AF poses a challenge. In which way?

When you remember that coal or lignite as well as oil and gas have been used since the beginning of the industrial age as an energy source, you'll understand that their processing is optimized and these fossil fuels are therefore available in homogenised forms. Also they are momentarily very cheap. Furthermore their material properties like handling ability and calorific value are fairly steady all year round.

This is quite different with alternative fuels whose origin is considerably different. The predominant portion in AF before processing is rubbish. It's an undefined material mixture which would have been collected most likely on a landfill in former times. In most cases only several processing steps make an AF from this garbage. Considering that the cement industry usually obtains its AF from a number of different suppliers, it's no surprise that their flow behaviour changes from charge to charge. Humidity and bulk density also vary substantially. On account of the origin of the fuel unfortunately foreign bodies can also never be fully excluded.



2. A selection of alternativ fuels: chunky, powderous, fluffy, light, heavy. the variety is large

• How can this challenge be met?

Generally speaking dosing systems have to be able to handle different levels of humidity and density as well as a varying level of quality even of the same material. You have to keep in mind that recycling companies inevitably also produce different qualities today from

BURNER TECHNOLOGY

tomorrow. When shredding, the blades wear out which of course influences the cut results. All this adds up to an initial position which cannot be solved by customary weighfeeders which are used for dosing of uniform bulk goods. On account of the extreme inhomogeneity of the AF we have learned that we need really "multifuel capable" weighfeeders. With the rotor weighfeeder Pfister[®] TRW-S (the 'S' refers to secondary fuels) we developed such a device. Why is it "multi-fuel"? Its pre-hopper is mounted directly at the inlet to the rotor weighfeeder and is equipped with a stirrer to prevent adhesion of the secondary fuel, loosens and homogenizes it at the same time. Its rotor consists of an ideal number of big rotor chambers and is constructed very robust. It resembles a round drag chain conveyor but is especially configured for dosing of diverse AFs. With the prospective control, ProsCon[®], which is implemented in all Pfister[®] rotor weighfeeders, the system reacts to variations in flow density or changes its flow behaviour even before material is discharged. So the material is fed into the firing process with extremely high constancy.



3. Thomas Jennewein shows two extremes of AF: On the left a very light AF (mixture of wood chips and rubber) which might be used in a calciner, on the right an AF (RDF mixture of plastic, paper and shreddered carpet) which might be used for a main burner

• What can the cement industry do to improve the quality of AFs?

Though the fuel suppliers are taken on board with checks and audits with regard to particle sizes, chlorine content and calorific results as well as humidity and granularity this often times is not enough. In spite of these measures most cement makers additionally employ an oversize and a magnetic separator to guarantee the quality of the material. Foreign bodies can still not be fully excluded. Hence, receiving, feeding and weighfeeder systems should be employed which do not have narrow gaps and whose engines are equipped with an overload protection.



4. For perfect handling of AF the homogenisation bins of Pfister rotorweighfeeders are equipped with stirrers like this.

• Are there any AFs which are suited better than others?

In my opinion this question cannot be answered in general. First of all the goal of any cement manufacturer is to produce clinker with a satisfactory quality. So not only the calorific value/price ratio is of interest, but also the chemical properties of the fuels related to the respective raw material. To reach a high substitution rate, several different alternative fuels are in use within a cement plant. Meanwhile many cement plants are able to apply 10 or even more AFs. Which AF is used then depends on the respective availability or the cost/performance ratio, but also on the chemical composition of the fuel.

• How does the market for dosing systems for alternative fuels present itself, momentarily?

At the moment the market is difficult because of the low oil price. To start firing with AF now, means that a plant first has to invest in alterations, e.g. in the building of storage, transport, dosing and in the modification of the combustion process. Previously, these investments had to be amortized over less than ten years, then less than five. In the meantime the pressure has clearly become greater.

On the other hand, the whole business branch has committed to a considerable reduction of the CO_2 output. An important step to achieve this is the use of AFs. In this connection I would like to point out that from the decision to use AFs and the final implementation several years can easily pass by: This is due to necessary approvals, investment planning and the organisation of the fuel supply.



5. In this installation rotor weighfeeder $Pfister^{\otimes}$. TRW-S is utilized for feeding fluffy and dusty alternative fuels with a feed rate of 8 t/h. Above the red rotor weighfeeder an homogenization bin is installed.

Can you identify any trends in employing AFs in the cement industry?

At first sight there are two opposing trends: Some cement plants are using more and more grounded fluff. This fuel has a very short burning time and is thus suitable for application at the main burner. Here, the substitution rate could be increased further in a number of plants. Because this dried fluff shows a high proportion of dust, ATEX conform and pressure-proof dosing systems should be employed. Because of the high calorific value and the low bulk density, I can only advise to use highly precise dosing systems to guarantee stable fuel processing.

At the calciner there is a contrary trend: Some cement plants try to apply extremely coarse fuels. Though this reduces the effort for preparation and thus makes the use of the fuel apparently more lucrative, but it clearly shows a bigger challenge for fuel storage, transport and the dosing process itself. Plus, without bigger rebuilding this trend is limited. The retention time – this is the period between inserting the material in a modern calciner to its complete burn out – is only between 8 to 10 seconds. If only one pre-shredding device is employed so called "burning chambers" are necessary. But these mostly necessitate extensive rebuildings at the calciner.

It's in the nature of things that when applying only one shredding-step, big particle sizes remain more often. To be able to nevertheless guarantee smooth and trouble-free operation, conveying and weighing systems are necessary, which allow these big chunks to pass without blocking.

• What's your recommendation to the cement plant operators with regard to the use of AF?

The installation of multi-fuel systems is clearly the trend. With small AF substitution rates a simple dosing system might be enough as compared to a more costly rotor weighfeeder. But, indeed, the question is why not investing in something absolutely decent, capable and future-oriented right from the beginning as the cement industry aims to higher AF substitution rates anyway. These can never be satisfyingly handled by volumetric

dosing devices. If an investment has to be made in a few years anyway, isn't it more clever to invest in the right system from the beginning as for example in the gravimetric Pfister[®] rotor weightfeeder TRW-S? These devices are multi-fuel per se and are able to handle a larger range of materials with different flow behaviour. Considering that the quality, availability and the prices of AF are constantly changing this is an important aspect for cement plant operators.

A TEC Rocket Mill[®] RM 2.50 double starts operation in Austria



After seven month of engineering, construction works and installation on-site A TEC's Rocket Mill[®] was commissioned on 07.11.2016 in Wiener Neustadt.

Highly caloric residue-derived fuels

To optimize the production of highly caloric residuederived fuels for the cement industry the Austrian company .A.S.A. installed A TEC's Rocket Mill[®] RM 2.50 double in their treatment plant in Wiener Neustadt.

Pre-sorted and shredded household and commercial waste with a bulk density ranging from $100 - 300 \text{ kg/m}^3$ can be grinded down to a size of 15mm - 50% is smaller than 5mm - in only one step (depending on the size of the sieves). The material has excellent ignition properties due to a change of physical properties (higher specific surface). Subsequently it is used by cement manufacturers from the region. Mainly produced by A TEC Plant Construction in Eberstein the mill has a capacity of 7- 40 t/h and for different output size useable and is equipped with two grinding

chambers which can be independently loaded. Each one has a main drive with 315kW. Due to the grinding technology an additional drying effect of approx.10 % is given.

The mill convinces not only with its excellent output material it's also easy to maintain (no knives) and insusceptible against extraneous material and heavy items.

Contact: Mag. Christina Kastner c.kastner@atec-ltd.com +43 4257 3600 117

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