

White cement: beyond colour

The white cement market is no longer seen as simply a niche market solely dependent on the colour of the product for sales. Recent megatrends have been a key driver for leading white cement producer, Cementir Holding NV, to develop new and more sustainable products in premix, dry-mix, precast and ultra-high performance concrete. ICR looks to the future of white cement products and new applications with Michele Di Marino, Cementir's chief sales, marketing and commercial development officer.

■ by *ICR Research, UK*

ICR: Can you give a brief history of the Cementir Group's white cement development to where it is today?

Michele Di Marino (MDM): Cementir entered the white cement market with the acquisition of Aalborg Portland Group in early 2000. Activity has since mainly focussed on internal growth, including investments into our own plants, terminals and logistics. We expanded in Europe and Asia, while building a new plant in Anqing, China, and doubling capacity in Malaysia. In Egypt we invested in a second line and moved the plant from an older location to a new site.

Cementir also grew strategically by acquisition in 2018 when it bought the majority shareholding (over 67 per cent) of Lehigh White Cement in the USA, having been a minority shareholder before.

We now have a more global asset portfolio. Production is located in the west with the US, where we have two plants, and the more than 1.1Mta capacity at our Sinai White Portland Cement facility, which is one of the largest white cement plants in the world. In China we are the top player with almost 700,000tpa of capacity and we also operate the 0.35Mta Ipoh plant in Malaysia.

Logistical assets have also been expanded with a mix of our owned assets and long-term leased assets in the UK, France, Benelux, Germany, Poland and the Baltic area and recently we have restarted distribution in Italy. We have more than 40 distribution points in the US with two main hubs in Tampa, Florida, and the Riverside entry point in California. In Asia-Pacific we improved the outbound logistics from Malaysia to southeast Asia and Australia, where we have four entry points and are market leaders. As a result, the group today sells to more than 80-90 countries with about a 20-25 per cent direct presence.



Cementir's chief sales, marketing and commercial development officer, Michele Di Marino, highlights the cement producer's product innovation drive

ICR: Does Cementir deliver more of its white cement by bulk than by bagged product?

MDM: In Europe we supply around 95 per cent of sales as bulk deliveries versus five per cent in 25kg bags. The market served by Sinai – the Middle East, Africa and South America, along with the Mediterranean or western Europe (where Aalborg's product is complemented with our product from Egypt) – is mostly served by bags. We use big bags sold by breakbulk or container. For the European markets supplied from the Sinai plant we currently split the bags into bulk for the end-user. We are improving the bulk solution – for instance, Italy will be served in bulk supplies directly from Egypt. In Asia-Pacific and China

distribution is mainly in bags, but we are moving to a bulk solution in China. The USA is also mainly a bulk market.

We also control and support the full value chain in Europe, USA and China and some countries in Asia-Pacific, including Australia, by selling up to the customer as industrial user. In many situations, we are responsible for the full supply chain, something that is again a bit different from our competitors who are mainly selling freight on board (FOB) or ex-works.

ICR: Where have you seen growth in white cement sales volumes for the group's regions in the 1Q21?

MDM: We sold more than 2.8Mt of white cement in 2020 and this year we expect to

be closer to 3Mt. Cementir covers 15-20 per cent of global white cement traded, excluding off-white cement sales in Australia and some volumes in China.

We expect the US white cement market to grow in volumes and in price terms. There are strong inflationary pressures in many countries, including Europe and the US, driven by pent-up demand and also by overheating markets for raw materials, fuel and freight, where costs are increasing. Europe is also showing growth and with the EU financial subsidies after COVID-19, we would expect the construction industry to benefit and building materials to do relatively better. In Asia-Pacific, and particularly in China, the group is already performing well. Looking ahead, it is in Europe, the US and China where we see the biggest potential for growth.

The big question mark is how Africa, Middle East and some regions in east Europe, like Russia, will develop and react after COVID-19, considering the consumption of white cement. West Africa and Africa has historically been at the low level of white cement consumption, so this is an opportunity to change the habit in the market and also the maturity in terms of application.

ICR: What are the main applications for white cement?

MDM: We have been experiencing a switch in weight of application towards precast solutions and ultra-high performing concrete. This is something we have been experiencing in the last 5-10 years in Europe, USA and consistently in Asia-Pacific. Today, 40 per cent of European sales are in dry-mix and mortar, 45 per cent



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are in precast concrete products and up to 15 per cent are in special applications in ready-mix concrete and so on. We see this important shift and focus on precast concrete, also driven by the use of white cement mainly for new buildings, more than for repair and maintenance, which is a novelty in the market.

We see white cement used for residential and commercial as well as for structural projects. It is used for infrastructure, bridges, coverings on lifting bridges, etc. From the traditional residential and architectural buildings, we are moving more into commercial and infrastructure applications. This year, for example, Aalborg White will complete an office building in Bezannes, France, that has curved horizontal sunscreens made with Aalborg extreme Ultra High Performance Concrete

(UHPC). Last year, the company completed the new Sky Park in Bratislava, Slovakia, with glassfibre-reinforced concrete (GRC) as well as Aalborg White®.

White cement production process

ICR: What are the fundamental differences in producing white cement compared to grey cement?

MDM: The big difference for white cement is firstly the raw material. There are fewer places around the world for this treatable raw material and this makes the product more niche because of capacity. The production process can be slightly more energy-intensive due to semi-dry technology and the calcination temperatures are higher. However, last year at Aalborg we started a combination of product portfolio improvements, and technical and process improvements that reduce the product's clinker factor and CO₂ emissions. We also have a waste heat recovery (WHR) system and supply the Aalborg community with heating for more than 50,000 households. We will also use gas and biogas in our plants in Aalborg to make the process more efficient and to reduce CO₂ emissions per tonne of clinker.

ICR: Is Cementir limited in its use of alternative fuels in white cement production? What are your substitution rate targets going forward to 2025 and 2030?

MDM: This is a major constraint because if you use alternative fuels you also add pollution to the product colour. So here the targets are ambitious, but of course, if you compare them to grey cement they are



Aalborg extreme Ultra High Performance Concrete is used in the manufacture of the curved horizontal sunscreens at an office building in Bezannes, France



Cementir built a new white cement plant in Anqing, China (top), and doubled capacity at the Ipoh facility in Malaysia (right), while in Egypt the plant was moved to a new site and capacity doubled (bottom)

far away from targets in other parts of the group. For white cement, the target is 6-7 per cent alternative fuel usage. Paper and some recycled wood chips, for instance, can be used if they do not interfere with the colour of the cement.

ICR: Can you reduce CO₂ emissions from white cement production as the group is doing with grey manufacturing?

MDM: Sustainability is one of our strategic streams of activity. We will target up to 35 per cent reduction in group CO₂ emissions per tonne of cement by 2030, compared to the benchmark of 1990. Today, we are in the region of 915-925kg CO₂/t of cement, but by 2030 we will be down to 808kg CO₂/t of cement. In 2025 we have set a target of 870kg CO₂/t of cement.

Last year, we worked especially on the European platform at Aalborg, as the plant will be the first impacted by the EU ETS system, but this year we are also using the same approach with the other plants, starting with the US, Asia-Pacific and China. At Aalborg we will have two products in the range, the current CEM I 52.5R and a CEM II 52.5 R. Then in 2024, we will start production of White FUTURECEM™, which will have a replacement clinker ratio



content of 30 per cent. With CEM I 52.5R we aim to reduce the clinker content from 96 per cent to around 84 per cent in 6-7 years.

Aalborg UHPC premix concretes (InWhite® range)

ICR: How did the InWhite range of products come about?

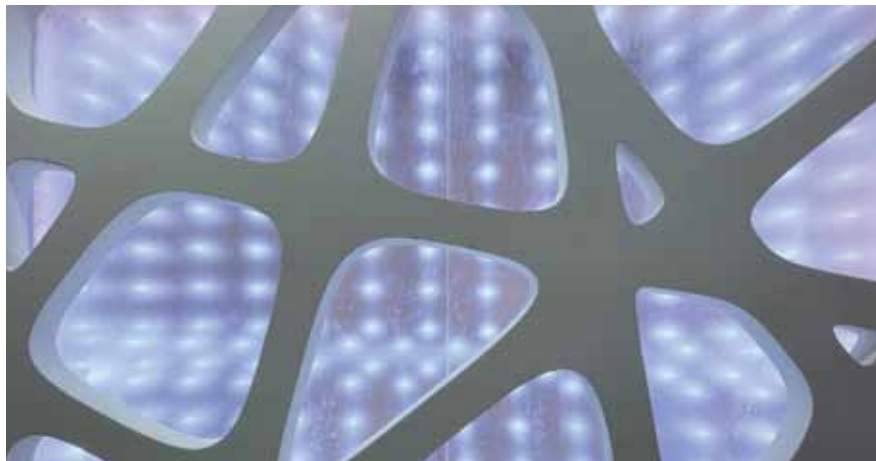
MDM: We decided to look at application-driven products and customer needs, and go downstream in the value chain from white cement into developing ready-to-use products for specific high-value applications that only need water to be added.

The products are currently mainly used in Europe, Asia and in particular in China, with a good development potential in the USA. They offer the ability to build faster and with different forms with high durability.

Another aspect was the lifecycle and CO₂ footprint of the full chain as there is pressure on delivering more with lower costs and CO₂ emissions. We also wanted to build more outside the building site and procure the finished product.

ICR: What are the main differences between Ultra High Performance Concrete (UHPC) premix products of Excel® and Extreme® Light 120?

MDM: The products are bought for aesthetics, savings and infrastructure applications. The difference between the two UHPCs is mainly the workability, fineness and the possibility for the Excel Light 120 to be more flexible in certain applications. With Extreme® the brand name is the giveaway as it has 120MPa (compressive strength in 28-days) which is more than enough for most applications, but we are developing a 150MPa Extreme® product.



Excel Ultra High Performance Concrete premix product is more flexible in certain applications



Cementir is looking to improve its logistics support in some markets

“For the group white cement is a strategic pillar. We want people to understand that white cement is not special and particularly value-adding only for its white colour.”

Michele Di Marino, Cementir

ICR: You are still innovating more products for the InWhite range?

MDM: From our experiences with Extreme® and Excel® a new flexible binder is being developed in between white cement and the finished product. Meanwhile, next year will see the launch of Aalborg Recover®, which is a high-performance concrete for covering and repairing roads and bridges based on white cement. Many countries need self-healing products to maintain bridges, roofs or historical buildings.

All the InWhite products are based on

patented FUTURECEM™ technology as we are introducing calcined clay in the mixes. They also provide a more sustainable path as we are looking at better mixes and more sustainable value chains.

2021 and beyond

ICR: What are Cementir’s objectives for white cement in 2021?

MDM: 2021 is an important year for the group because it the first formal year of the 2030 roadmap in terms of sustainability. Last year we started digitalisation with Cementir 4.0, which is covering all the aspects from production, via the supply chain to customer-orientated services.

In terms of production, the group has many projects running in most of its plants, starting in Europe with AI used on optimising production from the quarry to the kiln pyroprocessing. Everything is being deployed to achieve savings and competitive advantages in terms of response speed to the market, improving the supply chain as well as quality control, quality assurance and customer interaction and support.

For the group white cement is a strategic pillar. We want people to understand that white cement is not considered special and particularly value-adding only for its white colour. It has so many other benefits too.

The Cementir group is unique within the cement industry in its leadership. We will continue to invest and we are looking at the possibility of entering new markets, improving the logistics support in some markets and making organic investments such as improving our assets in Asia-Pacific and China. So, we are basing our strategy on white cement, sustainability and digitalisation. ■



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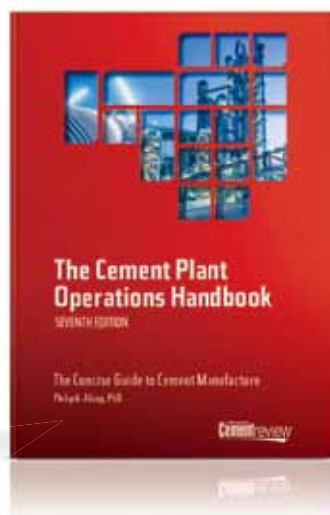
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