

climate-kind

Discover Cementir Group's sustainable products transition



▲ FUTURECEM was used in the UN 17 Village in Copenhagen, Ready-Mix Concrete supplied by Unicon and managed by the construction company CG Jensen. The project designed by Sweco Architects and design layout by Lendager Group

Offering innovative building solutions in over 80 countries worldwide, Cementir Group Ltd (Cementir) is a multinational company specialising in concrete and cement production. Its extensive portfolio encompasses grey and white cement, aggregates, concrete, and value-added products. With operations across 18 countries, Cementir has a production capacity of over 13 million tons of white and grey cement. A trusted partner in infrastructure construction, maintenance, residential, and commercial projects, Cementir sells approximately ten million tons of aggregates and 4.5 million cubic metres of ready-mix concrete annually. Moreover, Cementir stands out as a leading concrete producer in the Scandinavian region, the third largest player in Belgium, and a primary international grey cement operator in Turkey.

Cementir's extensive global reach is evident through its operations organised into these main geographical areas: Nordic and Baltic, Belgium, North America, Turkey, Egypt, and Asia Pacific. The company's vertically integrated production platforms for aggregates, cement, and concrete are based in Denmark, Belgium, and Turkey. In Denmark, Cementir is a top producer of both cement and concrete. Boasting one of the largest aggregate quarries in Europe, Cementir's Belgian facility extracts a staggering ten million tons of aggregate each year. Although Cementir now embraces a global identity, history reveals this has not always been the case.

In 1947, Cementir – initially known as Cementerie del Tirreno – was established by the Istituto per la Ricostruzione Industriale (IRI) in Italy. The company's objective was to utilise blast furnace slag, an industrial waste

from steel plants. Another milestone was reached in 1992, as IRI sold its controlling stake in Cementir to Caltagirone Group through an auction. Under new ownership, the company embarked on an organisational and production restructuring phase before starting its international expansion. The year 2001 marked Cementir's first international acquisition, as the company purchased Çimentaş, a prominent Turkish company producing cement and ready-mix concrete. As per the Istanbul Stock exchange, Çimentaş presently operates four cement plants, boasting an annual cement capacity of 5.4 million tons. This represents a substantial increase from the two cement plants in Izmir and Kars that Cementir initially acquired from Çimentaş.

After many more years of acquisitions in the US, Denmark, Belgium, and Turkey, Cementir eventually divested from its original Italian cement and ready-mix business.

Starting from producing cement exclusively in Italy, Cementir has been through a transformative journey, evolving into a multinational group. To date, the company has invested an impressive total of 1.7 billion euros in its growth without any capital increase.

Low-carbon commitment

Over the past few years, Cementir has undertaken a resolute commitment to address the pressing challenges posed by environmental issues and climate change. This commitment is reflected in its multifaceted approach, targeting the reduction of CO₂ emissions and water consumption, preservation of natural habitats, and the promotion of technical solutions to minimise environmental risks. Cementir's dedication to a low-carbon economy has earned accolades from CDP, an independent organization, and a benchmark for environmental reporting.



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By Aarstiderne Architects

In December 2022, Cementir Group achieved an A-rating for the second consecutive year in the Climate Change category, surpassing sector averages (B) and European averages (B). Simultaneously, its leadership position in CDP Water Security, with an A-score, has been confirmed. For the first time Cementir has also been recognised as a Supplier Engagement Leader by CDP, positioning itself among the top eight percent overall of companies globally assessed for Supplier Engagement on climate change. The recognition as a Supplier Engagement Leader underlines once again, its commitment to environmental stewardship.

In July 2021, Cementir's CO₂ emission reduction targets were validated by the Science-Based Targets initiative (SBTi), aligning it with the ambitious 'well below 2°C' objective outlined in the Paris Climate Agreement of 2015. In 2023, following the formalisation of the guidelines for the cement sector by SBTi,

Cementir updated its transition plan and filed a commitment to be aligned to the 1.5°C SBTi scenario. As of January 2024, the validation process from SBTi was still in progress.

Market leader

For many years now, Cementir has been working to reduce its environmental impact throughout the value chain, from procurement and manufacturing to logistics and distribution and it actively collaborates with local communities, suppliers and customers, with non-governmental organisations and all local stakeholders.

Via a ten-year roadmap, Cementir Group has decided to take more disruptive actions for fighting climate change by maximising the deployment of existing technologies and laying the groundwork for the breakthrough innovations that will lead to the production of 'net-zero emissions' cement.



▲ Pilot CCS unit installation underway at Aalborg Portland (Cementir Subsidiary), with ongoing feasibility studies at selected plants



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2022 saw a greater focus on innovation, one of the group's fundamental drivers, with ongoing studies and development of low carbon cement, as well as the installation of a pilot Carbon Capture Unit (CCS) at its Aalborg Portland facility and feasibility studies of CCS technologies at some of its other plants.

As a result, the 2030 roadmap has been updated to include the implementation of those carbon capture technologies at the Aalborg plant, in addition to the actions already planned for all operations. These include the replacement of fossil fuels with alternative 'green' fuels and the reduction of clinker content in its lower-carbon grey and white cements.

Focusing on grey cement, FUTURECEM® permits the reduction of 30 per cent CO₂ emissions compared to ordinary Portland cement, while preserving performances in concrete. This cement is the result of an innovative limestone and calcined

clay synergic combination - developed by Cementir's Group Research and Quality Centre located in Aalborg - which allows high clinker replacement.

FUTURECEM® has been available on the market in Denmark since January 2021, placing Cementir as the market leader in sustainable and low carbon cement, based on limestone calcined clay technology.

The product is already being used in significant projects - FUTURECEM® can be found in RMC and concrete elements in the ambitious sustainable building UN17 Village in Ørestad, Copenhagen, which includes more than 500 apartments. When completed in 2024, it will be known as the world's first housing project integrating all 17 UN Global Goals in the same building.

Following launching in Denmark, the FUTURECEM® roll-out is now accelerating across Cementir's European market. CCB, the Belgian subsidiary, commercialised

FUTURECEM® in France in 2022, while in Benelux the target was 2023. The scheduling is also linked to addressing the complexity of different markets, habits, and regulations, which could limit innovative and low carbon cements with additional local certifications.

In collaboration with customers, FUTURECEM® has been tested and used in a wide range of applications from Ready Mix Concrete (RMC) to precast elements. It was also included in the research project 'Blocs B40 for low carbon concrete' led by CERIB. FUTURECEM®'s experience in Denmark and now in France and the Benelux area is paving the way for limestone calcined clay technology in other markets as part of the group's ambitious sustainable roadmap towards 2030 and beyond.

Moving onto white cement, and we find Cementir embracing the challenge of lowering this cement's carbon footprint within color and

performance requirement constraints. White cement poses challenges. Almost no new materials can effectively replace white clinker without negatively impacting whiteness - the distinctive value proposition in comparison to grey cement. Therefore, the selection, availability, and consistency of quality materials are crucial in reducing the carbon footprint of white cement production.

Science-based sustainability

Leveraging its long-term expertise in research and development and industrial production, comprehensive investigation and applying fast-prototyping techniques, Cementir is going to launch D-Carb: a new umbrella brand for white low-carbon cements, supporting industry-wide decarbonisation efforts. Firstly rolling out in Europe, D-Carb will then be released in all regions. The first product of its kind, a CEM II/A-LL 52.5R will be



▲ Shanghai West Bund Orbit designed by Heatherwick studio, GRC claddings based on Aalborg White cement



produced in Aalborg and is set to be launched in April 2024 in bulk and bags, further expanding the product offerings in Europe.

D-Carb matches a lower carbon footprint (-15 per cent of emissions documented with an Environmental Product Declaration by a third party in this first product) with outstanding performances at early ages comparable to CEM I. Moreover, it offers improved rheology and whiteness in certain applications. The interaction between well-known Aalborg White® clinker and limestone has been optimised, leveraging in-house extended expertise in white cement.

This high quality standard enables the group's customers to consider replacing CEM I in their manufacturing processes after a specific testing programme. No incompatibility with admixtures has been experienced during the extensive experimental phase. Cementir will maintain its customer-centric approach with technical experts equipped to guide customers in adopting this new product and integrating it into their production processes.

As part of Cementir Group's overarching roadmap, ongoing evaluations are underway to strengthen the D-Carb offering within the low-carbon cement spectrum.

Shining through sustained science-based innovations and targets, Cementir upholds its commitment to sustainability, ensuring its continued leadership in the global cement industry. ■
Michele Di Marino, Stefano Zampaletta

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Reducing the overall footprint of concrete
- **High consistency**
Complying with highest standards
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Thanks to high purity > 98% Calcium Carbonate
- **Early Strength Boost**
Ideal for use in sustainable mortars and concrete along with high performance applications
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