



THINKING ABOUT THE FUTURE OF CEMENT

World Cement spoke with Cementir Holding's Chairman & CEO and other experts to discover the company's plans to abate its environmental impact and guarantee a role for cement in the future of construction.



Francesco Caltagirone Jr.
Chairman & CEO

World Cement (WCT): How significant is the role of sustainability and decarbonisation in today's cement industry?

Francesco Caltagirone Jr. (FC): The industry is definitely approaching a moment of truth.

Covid-19 forced Governments worldwide to put in place restrictions that reduced the human footprint to a level not seen in decades. Months of empty roads, empty skies and sluggish economic activity reduced the year's global greenhouse gas emissions by an estimated 7%, the sharpest annual fall ever recorded.

However, the UN has stated that the impact of the coronavirus lockdown on the climate has lowered 2050 temperature projections by just 0.01°C and the earth is still on course for a catastrophic 3.2°C of warming by end of the century.

Most climate experts agree that the world must take urgent action to cut emissions and we cannot deny that cement manufacturing is an energy- and CO₂-intensive process. At the same time, cement is an integral part of our everyday lives. Indeed, globally, it is the second most-used product after potable water, and it is applied everywhere to build everything – from houses to strategic infrastructure, thanks to its reliable performance, durability and, in general, lower cost than other building materials.

We consider ourselves, and we should consider the cement industry as a whole, to be a responsible member of the community we live in and, as such, our part is to promote initiatives and solutions that bring wellbeing to society. Considering their relevant value to the community, cement and related products should be considered as part of the solution and not an issue for climate change.

Climate change and the urgent need for decarbonisation require the cement industry to take a proactive role in resetting strategies and approaches, looking at a complete revision of the way to run business.

To gain a sort of 'license to operate' we are all asked to quickly switch the business paradigms of the industry. To identify the best path towards sustainability, every player should assess digital and technological developments and rethink products, portfolios, partnerships, and construction methods. You could say that Covid-19 accelerated the need for the industry to respond to these structural trends.

Dilemmas and trade-offs are, of course, present – in some cases there is no economic rationale to embark on this challenge. The entire construction ecosystem, governments and institutions should therefore move to support industry by incentivising green solutions, and not just in financial terms.



(Left) Michele Di Marino – Chief Sales Marketing & Commercial Development Officer.
(Right) Stefano Zampaletta – Corporate Product Development.



CCB – plant Gaurain-Ramecroix in Belgium.



Aalborg Portland – plant Rørdal in Denmark.

Sustainability and decarbonisation must guide our day-by-day operations, and we want to be in the driver's seat.

WCT: What is Cementir Holding doing to meet the demands for 'greener' cement operations? Does the Group have a sustainability strategy?

FC: In the last few years, Cementir has been actively committed to pursuing a programme inspired by the principles of the 'circular economy', which envisages a series of initiatives focused on reducing the environmental impact of its operations for less CO₂-intensive process as well as on developing low carbon products and solutions.

By 2030, we will reduce our direct CO₂ emissions to less than 500 kg/t of grey cement produced, while for white cement, which is a specialty product with niche applications and markets (representing just 0.5% of total worldwide cement production), the plan is to reduce CO₂ emissions to 800 kg/t.

FUTURECEM™ technology will play a pivotal role in the plan, and we will exploit the best available technologies and look at new breakthroughs to mitigate CO₂ emission from processes.

Our commitment to a low-carbon economy and to transparency around our environmental impact has been also recognised by CDP, the gold standard of environmental reporting. In December 2020, we achieved a 'B' rating for climate change. This result puts Cementir amongst the top players in the cement industry, while ranking much higher than the average company, considering the CDP European and Global average rating of 'C'.

In July 2021, the Science Based Targets initiative (SBTi) validated Cementir's CO₂ emission reduction targets, judged to be consistent with the 'well below 2°C' objective, pursuant to the Paris Climate Agreement of 2015.

To date, 813 companies around the world have obtained the validation of their targets from SBTi, of which only five are cement producers with a 'well-below 2°C' target.

The validation of our CO₂ emissions reduction targets by SBTi is another important recognition of Cementir's decarbonisation path to 2030. Sustainable growth represents a commitment to all our stakeholders and, at the same time, it is a necessity for those who work in this sector.

WCT: What role does Cementir's commercial strategy play in promoting and meeting sustainability goals?

Michele Di Marino (MDM): Cementir has gradually prioritised sustainability as the key driver in its overall value proposition, even in its commercial approach. That is to say:

sustainability is no longer an add-on or extra, but it is at the core of our offer. As climate change pressures increase and sales of traditional cement and concrete face threats, the combination of new thinking, innovation and new business models will be critical.

In this direction we are, indeed, looking at the entire value chain with a customer- and application-centric perspective, in order to untap all of the value drivers that could be linked to sustainability. To start, this involves the rethinking of solutions portfolios rather than just products, both in cement and concrete, towards a low-carbon footprint, and any opportunities to improve the overall impact of CO₂ in their lifecycle. Such a lifecycle perspective is also very important for supporting our partners further commercially in their green transition.

We have been developing and launching a number of strategic initiatives, starting from the most relevant one which undoubtedly is the full commercialisation of the FUTURECEM limestone calcined clay technology. This was first used in the InWhite range of products, ultra-high-performance-concrete premixes in 2019, then as grey cement this year in Denmark, with a clear plan to quickly launch in Western Europe next year. The low carbon transformation in this case is enabled through the use of a solution like FUTURECEM, which preserves the same performance in the products, while reducing CO₂ emissions by 30%. We are developing other FUTURECEM-related solutions as well as phasing in and focusing on other blended cements, both grey and white.

Within our value chain we are accelerating the conversion from conventional to FUTURECEM as the main, if not only, low-carbon solution in ready mix concrete. Our RMC company Unicon Denmark has a target to switch all of its production to FUTURECEM by the end of 2022.

WCT: What other new technologies is Cementir investing into?

MDM: Cementir has decided to take more disruptive action for fighting climate change by defining a 10 year roadmap to maximise the deployment of existing technologies and lay the groundwork for the breakthrough innovations that will lead to the production of 'net zero emissions' cement.

Lately, Aalborg Portland, a subsidiary of Cementir Group, has entered into Project Greensand 2, a pilot project to capture and store CO₂ in the subsoil under the North Sea.

In the 10 year roadmap, the Group planned the main investment needed until 2030, out of which 107 million is included in the 2021 – 2023 Industrial Plan, approved by the Cementir Board of Directors in February 2021.

In the 2021 – 2023 period, the major investments cover: Increased use of alternative fuels and raw

materials; a push on district heating and waste heat recovery; and full production of FUTURECEM.

WCT: Can you tell us more about FUTURECEM, and explain how it helps achieve reduced emissions?

Stefano Zampaletta (SZ): FUTURECEM is an innovative, validated and patented technology that allows clinker substitution rates of more than 35% in cement with limestone and calcined clay. Leveraging their synergy, the combination of materials in FUTURECEM has resulted in a more sustainable cement with a carbon footprint that is up to 30% lower compared to Ordinary Portland Cement. A further advantage is that the low-carbon benefits of the technology do not come at the expense of strength or quality.

The technology is fully recognised as a solution for clinker ratio reduction in the International Energy Agency's roadmap for 'Low Carbon transition in the cement industry' and is listed under 'low clinker cements' in the 'Cementing the European Green Deal' – 2020, making Cementir Group a frontrunner in the industry.¹ The technology is also formally recognised as referenced in the EN 197-5 European standard for even further clinker substitution with II/C-M cements (up to 50%).

WCT: What are the main applications for a technology like FUTURECEM?

SZ: FUTURECEM has been primarily focused on the RMC segment.

Customers within this segment exploit the technology's properties to make concrete better to pump and more stable against variations in consistency, which is usually a challenge with the rather cement-poor concrete used in Denmark.

Positive feedback has been recorded when replacing Ordinary Portland Cement, with finishing and final surfaces receiving praise.

Along with RMC, several Danish concrete precast producers are implementing FUTURECEM in their production through a complete testing programme on site with positive results. The light-brown colour of the concrete is a visible proof for end customers of the sustainable credentials of their building.

FUTURECEM will be used in RMC and concrete elements for the ambitious sustainable building UN17 Village in Ørestad, Copenhagen consisting of more than 500 apartments. When completed in 2024, it will be known as the world's first housing project, integrating all 17 UN world goals in the same building. ■

References

1. 'Lower clinker cements' – <https://cembureau.eu/about-our-industry/innovation/lower-clinker-cements> (accessed 09/09/21).