

thyssenkrupp wins engineering contract for one of the largest carbon capture projects in Europe

- thyssenkrupp Polysius supplies state-of-the-art CO₂ separation technology to TITAN Group for large scale carbon capture project in Greece
- Modernization of the Kamari cement plant with oxyfuel systems reduces CO₂ emissions by 1.9 million tonnes per year
- Expected commissioning at the end of 2029

thyssenkrupp and TITAN Group signed in the Greek capital Athens a Front-End Engineering Design (FEED) contract for the Carbon Capture Project IFESTOS. IFESTOS is one of the largest carbon capture projects in Europe, enabling the production of zero-carbon cement and concrete. The signing ceremony was attended by Marcel Cobuz, Chairman of TITAN Group Executive Committee, Samir Cairae, Chief Technology Officer of TITAN Group, Leonidas Canellopoulos, Chief Sustainability and Innovation Officer of TITAN Group, Dr. Cetin Nazikkol, Chief Strategy Officer at thyssenkrupp Decarbon Technologies and Christian Myland, CEO thyssenkrupp Polysius. The engineering contract provides for thyssenkrupp to design and equip the two kiln lines of the Kamari cement plant with oxyfuel systems for CO₂ capture. This technology will enable the plant's CO₂ emissions to be reduced almost completely. The plant is scheduled to go into full operation at the end of 2029.

Dr. Cetin Nazikkol, Chief Strategy Officer at thyssenkrupp Decarbon Technologies: "With the oxyfuel technology we have developed, around 1.9 million tons of CO₂ can be captured annually at the Kamari plant alone. This corresponds to around twelve percent of all greenhouse gas emissions from Greek industry. We are thus making a significant contribution to one of the largest CO₂ capture projects in Europe."

The captured CO₂ is then liquefied and transported to a permanent storage site in the Mediterranean region. This makes thyssenkrupp's technology the starting point for the development of important CCS value chains in southern Europe.

09.10.2024
page 2

Christian Myland, CEO of thyssenkrupp Polysius: "For our customer TITAN Group, we will be using the latest CO₂ separation technology. We will design and equip the first kiln line with the proven oxyfuel technology. When modernizing the second kiln line, the latest generation of this technology will be used with the Pure Oxyfuel system. Overall, this will enable us to capture almost 100 percent of CO₂ emissions."

Cement is the world's most important building materials. However, global cement production is also responsible for around seven percent of global CO₂ emissions. A switch to climate-friendly processes is therefore unavoidable. With global annual cement production of more than four billion tons, there is still great growth potential for thyssenkrupp's CO₂ capture technologies. Equipment from thyssenkrupp is already installed or services are provided in around a third of all cement plants worldwide.

Marcel Cobuz, Chairman of TITAN Group Executive Committee, stated: "This partnership further advances our efforts to achieve net-zero emissions and produce zero-carbon cement. We are committed to driving meaningful decarbonization initiatives that align with our vision for a sustainable future. IFESTOS is a complex project and we are aligning multiple stakeholders across the value chain at fast pace. It is currently the largest carbon capture project in Europe and is expected to have a highly positive impact in advancing our sustainability targets and offering green cements as modern materials for infrastructure and housing."

Samir Cairae, Chief Technology Officer of TITAN Group, stated: "TITAN is harnessing cutting-edge carbon capture technologies in collaboration with global leaders who share our commitment to green innovation. The agreement with our partners on conducting this particular FEED study on oxyfuel technology is the next step in the technical implementation of the IFESTOS project and establishes that we are moving

systematically closer to our target. We are proud to be at the forefront of our industry's technological transition to a more sustainable future."

09.10.2024
page 3

Innovative process for CO₂ enrichment enables CO₂ capture

The basic principle of the "pure oxyfuel" technology developed by thyssenkrupp Polysius is to separate the CO₂ produced in a kiln plant from the exhaust gases of cement factories and thus prevent it from being released into the atmosphere. To achieve this, pure oxygen is used in the combustion process instead of ambient air. In combination with downstream treatment, almost 100 percent of CO₂ emissions from cement clinker production can be captured. The separated process gas is then treated to produce high-purity CO₂ and can then be used as a feedstock in the chemical industry or as a raw material in other industries, or alternatively stored. I

The "pure oxyfuel" technology was developed by thyssenkrupp Polysius, one of four business units of thyssenkrupp Decarbon Technologies. In this segment, thyssenkrupp bundles key technologies and services for CO₂ reduction for industrial customers. The product portfolio ranges from components and systems for wind energy, ammonia and ammonia cracker plants to large-scale hydrogen electrolysis technology and solutions for decarbonizing the cement and lime industries.

About thyssenkrupp Decarbon Technologies

The Decarbon Technologies segment offers innovative cutting-edge technologies for the transformation to a climate-neutral industrial economy. It includes the thyssenkrupp businesses Rothe Erde, Uhde and Polysius as well as the majority stake in thyssenkrupp nucera.

thyssenkrupp rothe erde is one of the leading suppliers of large-diameter slewing bearings and offers solutions for the wind industry, among others. In this way, the company is making a significant contribution to the energy transition and decarbonization. thyssenkrupp Uhde is one of the world's leading technology providers for ammonia supply chains, with a focus on the development and implementation of large-scale plants for sustainable ammonia production. thyssenkrupp Polysius is setting standards in the climate-neutral transformation of the cement and lime industry through innovative solutions. As a leading global provider of electrolysis technology for the industrial-scale production of clean hydrogen, thyssenkrupp nucera is helping its customers achieve climate neutrality. The businesses combine many years of experience, in-depth expertise in international plant construction, an extensive installed base and close customer relationships.

The segment has around 12,600 employees (as of June 30, 2024), who generated sales of around €3.4 billion in fiscal year 2022/2023.

About thyssenkrupp Polysius

thyssenkrupp Polysius GmbH develops and implements green technologies, automation solutions and a comprehensive and customized range of services for the cement and lime industry and increasingly for other industries as well. Our product and service portfolio reflects more than 160 years of expertise and experience. Our plants and machines use the most modern production processes, conserve resources, minimize environmental pollution and meet the requirements for economic efficiency and plant productivity. Our services are not only tailored to our own products, but also cover installations from third-party providers. We work in a global network close to our customers and offer innovative cutting-edge technologies for the transformation to a climate-neutral industrial economy.

09.10.2024

page 4

For more information, visit: www.thyssenkrupp-polysius.com

About TITAN Group

TITAN Group is a leading international business in the building and infrastructure materials industry, with passionate teams committed to providing innovative solutions for a better world. With most of its activity in the developed markets, the Group employs over 5,700 people and is present in more than 25 countries, holding prominent positions in the US, Europe, including Greece, the Balkans, and the Eastern Mediterranean. The Group also has a joint venture in Brazil. With a 120-year history, TITAN has always fostered a family-and entrepreneurial-oriented culture for its employees and works tirelessly with its customers to meet the modern needs of society while promoting sustainable growth with responsibility and integrity. TITAN has set a net-zero goal for 2050 and has its CO₂ reduction targets validated by the Science Based Targets initiative (SBTi). The company is listed on Euronext and the Athens Exchange. For more information, visit our website at www.titan-cement.com.

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