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PRESS RELEASE

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WACKER replaces fossil coal with biogenic carbon in its silicon production

Holla, Norway, March 06, 2025 – WACKER is to start replacing coal with biogenic carbon for its silicon production in Holla. A long-term supply contract to this effect has been signed with Aymium. In Holla, Norway, WACKER currently uses coal to reduce quartz to metallurgical-grade silicon. This reaction is responsible for a significant portion of the CO_2 emissions generated there by WACKER and its products. The use of biogenic coal avoids fossil CO_2 emissions and is an important step on WACKER's journey to climate-neutral silicon production.

WACKER is systematically reducing its CO_2 emissions on its journey to achieving net zero. Now, another milestone has been reached: a long-term contract with Aymium, a Minnesota-based producer of biogenic carbon and biohydrogen products, to supply WACKER with biogenic carbon. The contract comes into force as soon as agreed requirements are met, such as successful completion of the qualification process. The biogenic carbon is to be produced in a new manufacturing plant that Aymium plans to build in the south-east of the USA.

"The agreed volume covers a substantial portion of our total carbon requirements at the Holla site," says WACKER Executive Board

member Christian Kirsten, “This is a major step toward climate-neutral silicon production.”
“Aymium is very excited about entering into this agreement and our long-term collaboration with Wacker,” says James A. Mennell, CEO of Aymium, “Together we will drive the decarbonization of metallurgical-grade silicon production.”

Switching to renewable raw materials

At WACKER’s Holla site, naturally occurring silicon dioxide (SiO_2), also known as quartz, is converted into metallurgical-grade silicon in an electric arc furnace. In addition to electrical energy, this chemical reaction requires carbon as a reducing agent. So far, the carbon has come from hard coal. This is now gradually being replaced by biogenic coal obtained from certified, renewable raw materials. The renewables have absorbed CO_2 from the atmosphere while they were growing and they now release it again during silicon production. The overall process can therefore be considered carbon-neutral. Metallurgical-grade silicon metal is one of WACKER’s most important raw materials and is required for the production of high-purity polysilicon for microchips, solar modules and the entire range of silicones.

Reducing the carbon footprint

WACKER has set ambitious sustainability goals for itself. By 2030, the company’s absolute greenhouse gas emissions are to be 50% lower than in 2020. By 2045, WACKER wants to achieve net zero, which means it would no longer emit any net CO_2 whatsoever. Silicon

production in Holla is a major piece of that puzzle. The objective for this site is fully carbon-neutral production. The energy-intensive manufacturing processes here began running on 100% green electricity from sources such as hydroelectric power back in 2022. Last year, carbon capture tests to separate CO_2 from the production process proved successful. Green electricity, biogenic carbon and carbon capture will one day make climate-neutral silicon value chains a reality.

The amount of carbon dioxide released during silicon production is the most critical factor in the carbon footprint of silicones. The use of carbon-neutral metallurgical-grade silicon from Holla could significantly reduce the carbon footprint of the company’s silicone products.

Carbon from renewable sources will soon be used at the WACKER site in Holla, Norway (Photo: WACKER)

Liquid metallurgical-grade silicon is an important intermediate product. Once cooled, it serves as the starting material for a whole range of products – from high-purity polysilicon for microchips and solar modules to silicones (Photo: WACKER)

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The company in brief:
WACKER is a global company with state-of-the-art specialty chemical products found in countless everyday items, ranging from tile adhesives to computer chips. The company has a global network of 27 production sites, 22 technical competence centers and 48 sales offices. With around 16,400 employees, WACKER generated annual sales of around €6.4 billion in fiscal 2023.

WACKER operates through four business divisions. The chemical divisions WACKER SILICONES and WACKER POLYMERS supply products (silicones, polymeric binders) for the automotive, construction, chemical, consumer goods and medical technology industries. WACKER BIOSOLUTIONS, the life sciences division, specializes in bioengineered products such as biopharmaceuticals and food additives. WACKER POLYSILICON produces hyperpure polysilicon for the semiconductor and photovoltaic industries.