Press release

Paris, February 10th, 2025

SUEZ and PYREG launch an innovative integrated pyrocarbonisation solution to produce biochar from sewage sludge

SUEZ and PYREG, a global leader in organic waste pyrolysis solutions, are pleased to announce the deployment of Pyrolis® S2B, an innovative integrated solution for pyrocarbonisation. This cutting-edge technology converts sewage sludge into biochar, offering a sustainable carbon sequestration solution while supporting the circular economy.

Approximately 340 million tonnes of industrial and agricultural effluents, including municipal wastewater sludge, are generated annually in France. The effective management, treatment, and valorisation of these effluents represent an increasing environmental challenge.

SUEZ and PYREG have developed the Pyrolis® S2B pyrocarbonisation process, which integrates drying and pyrolysis of organic waste within a single unit, enabling the transformation of dewatered sludge into biochar. This technology, which can be adapted to all types of infrastructure, significantly reduces the volume of waste derived from municipal and industrial wastewater while permanently sequestering the CO_2 contained within these residues.

An integrated, autothermal, compact, and modular process

Dewatered sludge is initially dried using a low-energy technology developed by SUEZ to achieve 90 % dry solids content. The dried sludge is then fed into the PYREG reactor technology where it undergoes pyrolysis—the heating of organic material to approximately 600 °C in a low-oxygen environment. This produces a stable, carbon-rich biochar that is free of PFAS, and a hydrocarbon-rich pyrolysis gas.

The pyrolysis gas is subsequently fully oxidised at temperatures exceeding 950 °C, generating heat to sustain both the low-energy drying stage and the pyrolysis itself, thus optimising the plant's overall energy efficiency. High-temperature oxidation also destroys any PFAS that may be present in the pyrolysis gas.

High-value biochar

Biochar produced via the Pyrolis® S2B process is recognised by the IPCC as an effective climate change mitigation tool due to its capacity for stable carbon sequestration.

It also serves as a soil amendment, rich in phosphorus and free from contaminants such as PFAS, microplastics, dioxins, and pharmaceutical residues. This biochar enhances nutrient and water retention, aeration, drainage, and microbial activity in soils. It promotes soil regeneration, improves fertiliser efficiency, and increases agricultural yields—offering significant benefits to the farming sector.

Moreover, it is a valuable additive in the construction industry. Incorporated into concrete, cement, or asphalt, it enhances material performance while substantially lowering their carbon footprint. The durable carbon sequestration facilitated by biochar further qualifies it for inclusion in carbon credit schemes.

Press release

A strategic partnership to accelerate the ecological transition

This partnership combines SUEZ's longstanding expertise in thermal sludge treatment technologies with PYREG's world-leading know-how in organic waste pyrolysis. It embodies a collaborative innovation approach dedicated to ecological transition and circular economy principles.

Grégory Tesse, Infrastructure and Innovation Director of the Engineering & Construction activities of SUEZ, stated: "*We are proud to collaborate with PYREG in offering an innovative pyrocarbonisation technology that not only processes sewage sludge effectively but also produces biochar—a sustainable carbon sequestration solution. This partnership showcases SUEZ's capacity to develop advanced water treatment processes while accelerating the sustainable valorisation of critical resources.*"

Alexander Friedrichkeit, CSO and Member of the Executive Management of PYREG, added: "*Pyrolis® S2B is a milestone: by combining our reactor technology with SUEZ's infrastructure expertise, we are delivering an immediately scalable solution for operators worldwide. We enable municipalities and industry to transform challenging waste streams into valuable, carbon-negative resources—efficiently and reliably.*"

About SUEZ:
Faced with growing environmental challenges, SUEZ has been delivering essential services that protect and improve our quality of life for more than 160 years. SUEZ provides its customers with innovative and resilient solutions for water and waste services. With 40 000 employees across 40 countries, the Group works with customers to create value over the full lifecycle of their assets and services, and to drive their low carbon transition. In 2024, SUEZ provided drinking water for 68 million people worldwide and sanitation services for 44 million people. The Group generated 8 TWh of energy from waste and wastewater. In 2024, SUEZ has generated revenues of 9.2 billion euros.
For more information: www.suez.com

About PYREG:
PYREG is a leader in pyrolysis and carbonization technologies. Its EBC-certified systems convert organic residues—such as sewage sludge, agricultural biomass, or wood waste—into climate-positive biochar and renewable energy. With more than 55 installations worldwide, PYREG supports project developers, municipalities, and companies in implementing economical and sustainable waste-to-resource solutions.
For more information: www.pyreg.com

Contacts:

SUEZ Press Office
Email: suez.media@suez.com
Tel: +33 6 32 18 39 54