

De Nora Recognized in Water Europe Innovation Awards

Sludge ozonation technology addresses growing concern around contaminants in soil and water

MILAN, ITALY, July 7, 2022 /EINPresswire.com/ -- Committed to solving water treatment challenges with sustainable solutions, Industrie De Nora S.p.A. has been recognized in the 2022 Water Europe Innovation Awards, named best in the Water Technology & Infrastructure category for its sludge ozonation application in advanced sewage treatment. The technology, suitable for municipal or industrial use, improves process efficiencies without the use of harmful chemicals, protecting the environment from micropollutants in accord with the European Union's Zero Pollution Action Plan.



Pictured left to right: Hans Goossens, president of Water Europe, Frans Van de Ven Deltares, Water Europe Vision Leadership Team, Cristian Carboni, De Nora market development manager - innovative disinfection systems, and Tomas Michel, former president of Water Europe

"We are delighted to receive this honor from Water Europe alongside other trailblazers working

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The water industry is in a unique situation, where we are tasked with protecting our most precious resources using increasingly sustainable methods" *Cristian Carboni, De Nora S.p.A.* toward a Water-Smart Society," said Cristian Carboni, market development manager - innovative disinfection systems. "The water industry is in a unique situation, where we are tasked with protecting our most precious resources using increasingly sustainable methods from both an environmental and economic point of view. Our sludge ozonolysis technology and success at current installations will be crucial in the future of wastewater treatment, both in the EU and other countries around the globe." The sludge ozonolysis is a simple plugin process, where injectors dose ozone into a side stream of the returned activated sludge (RAS). Since no ozone buildup occurs, it does not leave a residual, allowing unreacted ozone to revert back to oxygen and be utilized by microorganisms in the aerobic reactor. Current installations in Italy have shown success minimizing excess sludge volumes, improving sludge settlement characteristics and effluent quality, and alleviating bulking problems. Dewaterability and micropollutant concentration levels are also improved - two characteristics that will be key as treatment providers explore new technologies in response to directives regarding agricultural sludge valorization and landfilling.

Economic sustainability was demonstrated in real cases with more than five years of data. ROI (return of investment) is typically 3-4 years. The application can also be used for sludge destined for biodigestion as the

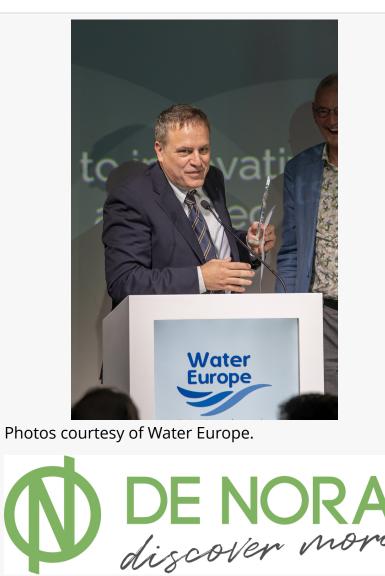
process increases the amount of biogas produced.

Carboni adds, "There is a lot of debate around the potential effects of spreading of untreated sludge on agricultural fields. Many believe the practice is reintroducing dangerous contaminants, such as 1,2,3-TCP and heavy metals, back into our soil and water. A recent study in the US estimated the number to be as high as 20 million contaminated acres. Sludge ozonolysis provides an option to address the widespread problem."

Representatives from De Nora were presented with the award at a special ceremony hosted by Water Europe on Tuesday, June 14. For a complete list of award categories and recipients, visit <u>https://watereurope.eu/innovation-awards/</u>.

About De Nora

Industrie De Nora is an Italian multinational company, listed on Euronext Milan stock exchange, specialized in electrochemistry, a leader in sustainable technologies and with a key role in the



industrial green hydrogen production chain. The Company has a portfolio of products and systems to optimize the energy efficiency of key industrial electrochemical processes and a range of products and solutions for water treatment. Globally, Industrie De Nora is the world's largest supplier of activated electrodes (serving a broad portfolio of customers operating in the fields of chlorine & caustic soda production, components for electronics, non-ferrous metal refining). Industrie De Nora is also among the world's leading suppliers of water filtration and disinfection technologies (for the industrial, municipal, and marine sectors) and the world's leading supplier of swimming pool disinfection components. Leveraging its well-established electrochemical knowledge, proven manufacturing capability, and a supply chain established over the years, the Company has developed and qualified a portfolio of electrodes and components to produce hydrogen through the electrolysis of water, which is critical for the energy transition. Founded in 1923, Industrie De Nora had total revenues of €616 million and EBITDA of €127 million in 2021. The Company's growth process has developed both organically, through continued penetration of new markets and applications, and through acquisitions in the U.S., Asia, and Europe. The Company's growth is supported by continuous innovation well represented by its evolving intellectual property portfolio, which currently includes more than 260 patent families with more than 2,600 territorial extensions. The Company's portfolio includes a stake (about 34 percent) in the thyssenkrupp nucera joint venture, a world-leading engineering company in chlorine production and water electrolysis plants to produce hydrogen. The Group is controlled by the De Nora family, which owns approximately 53 percent of the Company's share capital (assuming full exercise of the greenshoe option), with Snam S.p.A. as a minority shareholder with about 25 percent of the capital (assuming full exercise of the greenshoe option).

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