

PRESS RELEASE

Syclus chooses Axens to provide Atol® technology for Europe's first ethanol-based renewable ethylene production plant

Geleen and Rueil-Malmaison, 3 July 2023

Syclus intends to build and operate a plant for the production of renewable ethylene from sustainable ethanol in Chemelot Industrial Park, Geleen, The Netherlands. With an annual production capacity in the range of 100,000 tonnes, this renewable ethanol-to-ethylene production plant would be a first in Europe, paving the way for a more sustainable way of producing plastics.

The facility will rely on [Atol®](#) technology from French company Axens. Among many other benefits, [Atol®](#) features very high, cost-effective, ethylene yields thanks to a best-in-class catalyst, and allows for an optimized use of process energy, which minimizes emissions. The technology can produce ethylene widely regarded as having the highest quality on the market, fulfilling the specifications required by Chemelot and also by the ARG, the extensive ethylene pipeline network in Northwest Europe.

Basic engineering is scheduled to start in late 2023, and production in 2026. Ethanol will be regionally produced by CropEnergies, who operates a plant for the production of renewable ethanol nearby and who have acquired a major share in Syclus in 2022. The investment required is estimated to be more than EUR 130 million.

Igor Hensing, General Director of Syclus B.V.: "Syclus has selected Axens as licensor for the ethanol to ethylene project. Axens' Atol® technology provides a high efficiency combined with a low energy consumption process next to high product quality and safety performance. This supports Syclus' ambition to set a new benchmark in renewable ethylene. Based on our cooperation Axens has shown to share Syclus' ambition and we are convinced to have selected the right partner to make the design, construction and operation of our plant a success."

Stephan Meeder, CEO/CFO of CropEnergies AG, said: "Having a 50 percent stake in Syclus, we are very happy that they have taken the next step for the realization of the ethanol to ethylene project with the selection of Axens as a partner. Renewable ethylene is an important step in defossilizing the production of plastics, making it more sustainable. Depending on the results of the feasibility study which is currently being carried out, CropEnergies expects to make a decision for the next phase, which will be the basic engineering, by the end of this year."

Jacques Rault, Executive Vice President Technology & Technical Support of Axens: *“Atol is a mature technology that already counts 5 references around the world. We couldn’t be happier to work on Atol’s first reference in Europe and are honored to have been selected by Syclus. Atol is a safe, reliable, low-carbon solution and we have all the reasons to believe that it is the future of renewable ethylene.”*

About Syclus B.V.

Syclus is a young enterprise started in 2021 by a team of professionals from the chemical industry in the Chemelot-ecosystem in Limburg, the Netherlands. Our ambition is to reduce the carbon footprint of ethylene used in plastics and chemical products, and do this on an industrial scale.

To achieve this, Syclus wants to produce large volumes of renewable ethylene, using the most efficient manufacturing processes, at multiple sites. Our aim is to make available high quality renewable ethylene to European chemical companies and polymer producers at affordable costs. Syclus’ effort fits seamless in the future recycle economy of post-consumer plastics, as there will be a continued need for new virgin renewable materials to compensate for recycling losses. Our objective is to fill this gap with regionally sourced renewable feedstock, instead of fossil oil and gas based resources.

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About CropEnergies AG

Sustainable, renewable products made from biomass – that is what CropEnergies stands for. Our products contribute to a climate-friendly world and ensure that fossil carbons remain in the ground permanently and do not continue to drive climate change.

Founded in Mannheim in 2006, the member of the Südzucker Group is the leading European producer of renewable ethanol. With a production capacity of 1.3 million m³ of ethanol per year, CropEnergies produces neutral alcohol as well as technical alcohol (ethanol) for a wide range of applications at locations in Germany, Belgium, the UK, and France: Sustainably produced ethanol as a petrol substitute is an answer to the future challenges of climate-friendly energy supply in the transport sector. Thanks to highly efficient production plants, our ethanol reduces CO₂ emissions by an average of more than 70 percent across the entire value chain compared to fossil fuel. Our high-quality alcohol is also used in beverage production, cosmetics, pharmaceutical applications, for example as a basis for disinfectants, or as a raw material for innovative biochemicals.

Equally important are the resulting protein food and animal feed products as a sustainable regional alternative to emission-intensive protein imports from overseas, as well as biogenic carbon dioxide. It is used in beverage production, among other things, and will be a valuable raw material for a wide range of applications in transport and industry in the future. Thus, all raw material components are utilized in our circular economy.

CropEnergies AG (ISIN DE000A0LAUP1) is listed on the regulated market (Prime Standard) of the Frankfurt Stock Exchange.

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About Axens

Axens group (www.axens.net) provides a complete range of solutions for the conversion of oil and biomass to cleaner fuels, the production and purification of major petrochemical intermediates, the chemical recycling of plastics, all natural gas treatment and conversion options along with water treatment and carbon capture. The offer includes technologies, equipment, furnaces, modular units, catalysts, adsorbents and related services. Axens is ideally positioned to cover the entire value chain, from feasibility study to unit start-up and follow-up throughout the entire unit life cycle. This unique position ensures the highest level of performance with a reduced environmental footprint. Axens global offer is based on highly trained human resources, modern production facilities and an extended global network for industrial, technical supports & commercial services. Axens is an IFP Group company.

Learn more on our [website](http://www.axens.net), and follow us on [Twitter](#) and [LinkedIn](#).

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About AtoI®

[AtoI®](#) is a technology for production of polymer grade ethylene by dehydration of any kind of renewable ethanol from biomass or waste. The ethylene produced can be integrated in partial and/or total replacement of fossil hydrocarbon based ethylene in various downstream polymerization installations without requiring modifications.

[AtoI®](#) is the result of a strong partnership between TotalEnergies, IFP Energies nouvelles (IFPEN) and its affiliate Axens that began in 2011. It benefits from each partner bringing mutually compatible skills to the table, from catalyst development, cracker operations and ethylene purification, to scale-up, modeling and process expertise. Axens is the entity in charge of commercializing [AtoI®](#), providing all licensing services so that end customers and investors can benefit from end-to-end guarantees.

The [AtoI®](#) program forged the solid background and technology reputation of Axens as technology provider in the alcohol dehydration field and has led to a family of processes with the clear ambition of bringing bio-olefins production to scale, unlocking the potential of alcohols for biofuels and biochemicals applications.

