

MEDIA RELEASE

Clariant produces first commercial sunliquid[®] cellulosic ethanol at new plant in Podari, Romania

- **After construction completion in October 2021, the plant underwent a thorough commissioning process and has successfully started production**
- **The offtake of the entire production has been contracted to global energy company Shell for several years**
- **The flagship plant will process approx. 250,000 tons of straw to produce approx. 50,000 tons of cellulosic ethanol per annum**
- **The production start at this first sunliquid[®] cellulosic ethanol plant proves the commercial viability of Clariant’s innovative technology and with that supports the licensing business strategy**

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Clariant, a focused, sustainable, and innovative specialty chemical company, today announced that it has produced the first commercial cellulosic ethanol at its sunliquid[®] production plant in Podari, Romania¹. The entire offtake is contracted with a multi-year agreement to Shell, a leading global energy company. Over the last six months, the plant underwent a thorough commissioning process resulting in the successful start of production. Approximately 50,000 tons of second-generation biofuels will be derived from 250,000 tons of locally sourced agricultural residues. The cellulosic ethanol produced at this plant can be applied as a drop-in solution for fuel blending but also offers further downstream application opportunities for sustainable aviation fuel and bio-based chemicals.

“Protecting the climate is a central part of our purpose ‘Greater chemistry – between people and planet’,” said Conrad Keijzer, Chief Executive Officer at Clariant. “Biofuels and biochemicals made from agricultural waste play a crucial role, since they reduce greenhouse gas emissions. To establish their use more widely, their commercial production and availability must be increased rapidly, which is why the successful start of our sunliquid[®] plant in Podari is so vital.”

Building a more sustainable future is at the core of what drives Clariant to develop innovative solutions. Christian Librera, Head of Business Line Biofuels & Derivatives added: “The advanced biofuel produced by the sunliquid[®] technology process supports the decarbonization of the transport sector by providing up to 120 % CO₂ savings compared to fossil fuel. It is particularly encouraging to see that despite the global pandemic, we have successfully managed to start production in our flagship sunliquid[®] cellulosic ethanol plant on schedule. This proves that

Clariant's technology is commercially deployable and accelerates our licensing business strategy. I would like to express my sincere thanks to all colleagues and partners involved.”

Shell aims to be a material, profitable supplier of sustainable advanced low-carbon fuels as part of its wider work to become a net-zero emissions energy business by 2050.

“Low-carbon fuels are essential for helping our customers to decarbonize their businesses,” said Geoff Mansfield, General Manager for Low-Carbon Fuels at Shell Trading and Supply.

The plant in Podari, Romania, is built on a 10-hectare area and employs a workforce numbering approximately 100. Contracts have been signed with more than 300 local farmers to ensure the supply of the necessary feedstock.

Learn more about our sunliquid[®] technology [here](#).



Clariant's flagship sunliquid® cellulosic ethanol plant in Podari, Romania. (Photo: Clariant)



Clariant's flagship sunliquid® cellulosic ethanol plant in Podari, Romania. (Photo: Clariant)

¹The project receives funding from the European Union's Seventh Framework Program for research, technological development and demonstration under Grant Agreement no. 322386 ([SUNLIQUID](#)) and from the Circular Bio-based Europe Joint Undertaking under the European Union's Horizon 2020 research and innovation program under Grant Agreement no. 709606 ([LIGNOFLAG](#)).

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sunliquid[®] IS A TRADEMARK OF CLARIANT REGISTERED IN MANY COUNTRIES.

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This media release contains certain statements that are neither reported financial results nor other historical information. This document also includes forward-looking statements. Because these forward-looking statements are subject to risks and uncertainties, actual future results may differ materially from those expressed in or implied by the statements. Many of these risks and uncertainties relate to factors that are beyond Clariant's ability to control or estimate precisely, such as future market conditions, currency fluctuations, the behavior of other market participants, the actions of governmental regulators and other risk factors such as: the timing and strength of new product offerings; pricing strategies of competitors; the Company's ability to continue to receive adequate products from its vendors on acceptable terms, or at all, and to continue to obtain sufficient financing to meet its liquidity needs; and changes in the political, social and regulatory framework in which the Company operates or in economic or technological trends or conditions, including currency fluctuations, inflation and consumer confidence, on a global, regional or national basis. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this document. Clariant does not undertake any obligation to publicly release any revisions to these forward-looking statements to reflect events or circumstances after the date of these materials.

www.clariant.com

Clariant is a focused, sustainable and innovative specialty chemical company based in Muttenz, near Basel/Switzerland. On 31 December 2021, the company employed a total workforce of 13 374. In the financial year 2021, Clariant recorded sales of CHF 4.372 billion for its continuing businesses. The company reports in three business areas: Care Chemicals, Catalysis and Natural Resources. Clariant's corporate strategy is led by the overarching purpose of 'Greater chemistry – between people and planet' and reflects the importance of connecting customer focus, innovation, sustainability, and people.

www.sunliquid.com
<http://www.clariant.com/romania>

sunliquid[®] is an innovative biotechnological method for manufacturing cellulosic ethanol from agricultural residues such as cereal straw, corn stover or sugar cane bagasse. In the completely integrated process, highly optimized, raw material-specific biocatalysts decompose cellulose and hemicellulose in high yields under stable processing conditions into fermentable sugar. The process-integrated production of the biocatalysts offers flexibility and reduces production costs. In the next step, an optimized fermentation organism simultaneously converts C5 and C6 into ethanol with high yields and short reaction times. A highly optimized purification process is instrumental in enabling all the energy required for the process to be derived from the process byproducts like insoluble lignin. Since July 2012, Clariant has been operating a precommercial plant in Straubing, Germany, which produces up to 1,000 metric tons of cellulosic ethanol every year, confirming technical and economic performance. In September 2018, Clariant broke ground for its first-of-its-kind commercial facility in Podari, Romania, which is now completed. Clariant licenses its sunliquid[®] technology platform globally. So far, license agreements have been signed with renowned industry players in Slovakia, Poland, Bulgaria and China.