

Media Release

Clariant completes construction of first commercial sunliquid® cellulosic ethanol plant in Podari, Romania

- **First full-scale commercial sunliquid® plant for the production of cellulosic ethanol from agricultural residues**
- **The flagship plant will process approx. 250,000 tons of straw to produce approx. 50,000 tons of cellulosic ethanol per annum.**
- **Cellulosic ethanol plays a key role in lowering greenhouse gas emissions in the transportation sector, as stipulated in the European Commission's REDII.**
- **Production site represents a significant contribution to the region's local employment and economic growth potential.**

Muttenz, October 15, 2021 – Clariant, a focused, sustainable and innovative specialty chemical company, today announced the official completion of its sunliquid® cellulosic ethanol plant in Podari, Romania. The completed construction is an important next step for the commercial deployment of sunliquid® technology and thus supports Clariant's sunliquid® licensing business strategy. The facility will be operational in the fourth quarter, producing cellulosic ethanol from agricultural residues.

Conrad Keijzer, Chief Executive Officer at Clariant, commented, “Biofuels and biochemicals produced from agricultural residues play a key role in reducing our carbon footprint. This investment and the successful commercialization of this new technology represents a major milestone for Clariant and is a further proof point for our ambitious growth strategy, led by innovations that contribute to a more sustainable world.”

This investment also brings substantial economic benefits to the region. By locally sourcing feedstock, greenhouse gas emission reduction can be maximized. Also, additional business opportunities will arise along the regional value chain. Co-products produced by the process will be used for the generation of renewable energy, making the plant independent of fossil energy sources. Therefore, the resulting cellulosic ethanol is an almost carbon neutral second generation biofuel. Besides application as a drop-in solution for fuel blending, this offers further downstream application opportunities into bio-based chemicals and for sustainable aviation fuel.

“It is encouraging to see how far we have come since the start of the development of our sunliquid® technology in 2006. The technology was successfully implemented in our pre-commercial plant in 2012 and five sunliquid® technology licenses have been sold in both Europe and China since then. This milestone in Romania underlines our commitment to building a more sustainable future”, added Christian Librera, Clariant’s Head of Business Line Biofuels and Derivatives.

The plant in Podari, Dolj county, is built on a 10-hectare area on which construction was initiated in 2019 with up to 800 workers onsite. Contracts with more than 300 local farmers have been signed to ensure the supply of the necessary feedstock.

Learn more about our sunliquid® technology .



Clariant’s flagship commercial sunliquid® cellulosic ethanol plant in Romania. (Picture: Clariant)

CORPORATE MEDIA RELATIONS

JOCHEN DUBIEL

Telefon +41 61 469 63 63
jochen.dubiel@clariant.com

CLAUDIA KAMENSKY

Telefon +41 61 469 63 63
claudia.kamensky@clariant.com

GLOBAL TRADE MEDIA RELATIONS

STEFANIE NEHLSSEN

Telefon +41 61 469 63 63
stefanie.nehlsen@clariant.com

CAROLINE SCHMID

Telefon +41 61 469 63 63
caroline.schmid@clariant.com

INVESTOR RELATIONS

ANDREAS SCHWARZWÄLDER

Phone +41 61 469 63 73
andreas.schwarzwaelder@clariant.com

MARIA IVEK

Phone +41 61 469 63 73
maria.ivek@clariant.com

ALEXANDER KAMB

Phone +41 61 469 63 73
alexander.kamb@clariant.com

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Clariant is a focused, sustainable and innovative specialty chemical company based in Muttenz, near Basel/Switzerland. On 31 December 2020, the company employed a total workforce of 13 235. In the financial year 2020, Clariant recorded sales of CHF 3.860 billion for its continuing businesses. The company reports in three business areas: Care Chemicals, Catalysis and Natural Resources. Clariant's corporate strategy is based on five pillars: focus on innovation and R&D, add value with sustainability, reposition portfolio, intensify growth, and increase profitability.

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, five license agreements have been concluded with renowned industry players in Slovakia, Poland, Bulgaria and China.

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 Bio-Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation program under Grant Agreement no. 709606 (LIGNOFLAG).