

Media Release

Clariant and Anhui Guozhen and Chemtex announce license agreement on sunliquid® cellulosic ethanol technology in China

- **Agreement marks first license deal for Clariant’s sunliquid® technology in China and its third signed license deal overall**
- **Anhui Guozhen and Chemtex agreed to form a joint venture to realize a full scale commercial plant for the production of cellulosic ethanol in Anhui province with Clariant’s sunliquid® technology**
- **Planned annual plant production capacity of 50.000 tons cellulosic ethanol with an option to double capacity will be one of the largest second generation plants in China so far**
- **Intended project will be a major step toward fulfillment of Anhui province ethanol blending mandate**

Muttenz, January 6, 2020 – Clariant, a focused and innovative specialty chemical company, and Anhui Guozhen Group, a Chinese green energy company, and Chemtex Chemical Engineering, a multinational engineering company, today signed a license agreement on sunliquid® cellulosic ethanol technology.

The Anhui Guozhen Group and Chemtex have agreed to form a joint venture with the aim of realizing a full scale commercial plant for the production of cellulosic ethanol from agricultural residues. In this framework, Clariant has granted a license for its sunliquid® cellulosic ethanol technology to the joint venture.

The project development and plant operation will be executed by the joint venture at a greenfield site in Fuyang city in the Anhui province, in the Yangtze-Huai River region in East China, utilizing available land, owned by the Anhui Guozhen Group, and existing infrastructure network in the surrounding. The annual plant production capacity is planned to be 50.000 tons of cellulosic ethanol, with an option to double the capacity in a second phase (50.000 tons in each phase), making it one of the largest in China so far. Detailed project evaluations and preparations for the engineering phase are well underway. The project execution is pending a final agreement of certain government contracts for the project.

“For Clariant, China represents a core growth market where we want to further strengthen our position. The country is aiming to achieve a 10% bioethanol content in transportation fuels nationwide in the next few years. These regulatory commitments offer substantial growth potential for our sunliquid® technology by spurring demand for advanced biofuels.”, said Hans Bohnen,

Clariant's Chief Operating Officer. "Hence, the signing of a sunliquid® technology license with two renowned Chinese players is an important strategic milestone to seize those promising business opportunities."

"Guozhen intends to be a pioneer and invest in the first commercial cellulosic ethanol plant in China. We are looking forward to work with Clariant and Chemtex, two well experienced companies to contribute to China's environmental and ecological advance.", emphasized Li Wei, Founder and Chairman of the Board of Guozhen Group.

"As a global industrial solution provider in biofuels, chemicals, polymers, fibers and gas processing, Chemtex has extensive experience in partnering with reputed technology licensors particularly in the Chinese market. Through these partnerships Chemtex gained significant knowledge worldwide in first generation and cellulosic ethanol projects. In China, we have been active for more than 40 years and realized over 100 plants. This experience will make a major contribution to the collaboration between Anhui Guozhen, Clariant and Chemtex for the first Chinese commercial cellulosic ethanol project to succeed.", adds Sean Ma, Chairman and CEO of Chemtex.

For the Anhui region this signifies a noteworthy investment in green, sustainable technologies. The area is very much characterized by agriculture, which guarantees the abundance of feedstock for the cellulosic ethanol plant. By locally sourced feedstock, in that case wheat straw and corn stover, greenhouse gas savings can be maximized and additional business opportunities along the entire value and supply chain will arise.

The produced cellulosic ethanol will be utilized in the Chinese regional fuels market as blend into gasoline to fulfill the national blending mandate. Cellulosic ethanol produced with sunliquid® saves around 95% of greenhouse gases compared to gasoline.



In the first row from left to right: Sean Ma of ChemTex, Li Yonghua of Guozhen, Markus Rarbach; in the second row from left to right: Liu Yujian, Vice Mayor of Fuyang City, Sun Zhengdong, Mayor of Fuyang City, Li Wei, Chairman of Guozhen Group, Qu Xiujie, Deputy Director of Fuyang Economic Development Zone. (Photo: Clariant)

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SUNLIQUID® IS A TRADEMARK OF CLARIANT REGISTERED IN MANY COUNTRIES

www.clariant.com

Clariant is a focused and innovative specialty chemical company, based in Muttenz near Basel/Switzerland. On 31 December 2018 the company employed a total workforce of 17 901. In the financial year 2018, Clariant recorded sales of CHF 4.404 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

sunliquid is an innovative biotechnological method for manufacturing cellulosic ethanol from agricultural residues such as cereal straw, corn stover or sugarcane 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. The resulting cellulosic ethanol saves around 95% of CO₂ emissions when compared to fossil gasoline. Since July 2012, Clariant has been operating a precommercial plant in Straubing, which produces up to 1,000 metric tons of cellulosic ethanol every year, confirming technical and economic performance. Clariant licenses the sunliquid technology platform globally. The first license was sold in September 2017. Clariant also announced investment into a first-of-its kind commercial facility in Romania, where groundbreaking took place in September 2018.

www.chemtex.com

Chemtex is a technology oriented multinational engineering company. Coupled with expertise in providing technologies suitable for local markets, Chemtex provides state-of-the-art design packages, high quality equipment and construction management that enhance the project economics based on the local environment.

www.ahgze.com.cn

Anhui Guozhen Group Co., Ltd. is a joint-stock enterprise group incorporated in 1994 with permission of the Anhui provincial government. The company has always been adhering to the enterprise tenet of "Serving the country and the society with industrial achievements" initiated by Mr. Li Wei, the founder of the company, promoting the enterprise spirit of "Being honest, thrifty, competitive and creative", bearing in mind the development policy of "What the society needs is where we are heading for" and committed to the development of five industrial sectors, which have close relationships with the society and people's livelihood: water, clean energy, eco-utilization, environmental remediation and health management.

The Group has made continuous progress during the past 22 years and now has more than ten wholly-owned or controlling subsidiaries, such as Guozhen Environmental Protection, Guozhen Gas, Guozhen Eco-technology, Guozhen Real Estate, Guozhen Health, Guozhen Environment Remediation, etc. In 2015, the group witnessed an operating revenue of 5 billion yuan, with a total asset of 9.3 billion yuan and around 3500 outstanding management and technical personnel, all demonstrating a sustainable development. The company has been on the list of top 500 enterprises of service industry in China for three consecutive years and the list of top 100 enterprises in Anhui Province for four consecutive years.