

MEDIA RELEASE

# Clariant's MegaZonE™ technology delivers strong performance at CNOOC's methanol plant

- **MegaZonE uses optimized layering of different catalyst grades to enhance methanol synthesis performance**
- **The drop-in solution increases cumulative methanol production, improved carbon conversion efficiency while reducing by-product formation**
- **The CNOOC plant reports significant economic and operational benefits due to higher carbon efficiency, lower pressure drop, and superior methanol quality**

**MUNICH, JULY 23, 2024**

Clariant, a sustainability-focused specialty chemical company, today announced that its MegaZonE technology is delivering excellent performance on the methanol plant of CNOOC's China Blue Chemical Ltd. The innovative system uses several layers of methanol catalysts with different activity levels to optimize heat management and overall catalyst performance. MegaZonE was installed at CNOOC's methanol production plant in Hainan, China, in April 2021, and has been operating optimally for more than 36 months now. A joint venture with the KB Group, the CNOOC plant produces 600 KTA methanol from natural gas using Air Liquide's Lurgi process and Clariant's MegaMax® catalysts.

Since MegaZonE was implemented at the CNOOC plant, carbon conversion efficiency has improved considerably, with average makeup gas consumption decreased by 67 Nm<sup>3</sup> per metric ton of methanol compared with the previous charge. Pressure drop has also decreased significantly, eliminating the risk of bottlenecks on high pressure drop in the reactor. Furthermore, the plant is benefitting from a 20% reduction in by-product formation, which has greatly improved methanol quality. These factors combined have resulted in substantial economic benefits.

Georg Anfang, Vice President Syngas and Fuels at Clariant Catalysts, commented, "Clariant's efforts to continuously improve methanol production are not limited to catalyst formulation. We also focus on the overall process and how our catalysts can be optimally used in the complete reactor system. MegaZonE is a perfect example and has proven to be a major breakthrough for the methanol industry. We are honored to have CNOOC as our customer and delighted to witness the excellent performance and commercial results we promised."

China BlueChemical Ltd., a division of China National Offshore Oil Corporation (CNOOC), is a modern, large-scale enterprise engaged in deep processing of natural gas, manufacturing mineral fertilizers and chemical products. Its annual production capacity totals to 1.84M tons of urea, 1 M tons of phosphate and compound fertilizers, as well as 1.4 M tons of methanol and 270 K tons of acrylonitrile.”

Jointly developed by Clariant and Air Liquide, MegaZonE technology makes optimum use of Clariant’s high-performance MegaMax catalysts through a unique layering concept. Moderately active catalysts are loaded in hotter zones of the converter to prevent hotspots and minimize thermal stress, thereby extending catalyst lifetime (by up to 2 years). In contrast, catalysts with enhanced activity are placed in the lower section of the converter to intensify reaction rates, increase cumulative methanol production (by up to 15%), and reduce by-product formation (by up to 30%).

MegaZonE technology is a drop-in solution that is suitable for virtually any methanol production facility. Existing plants benefit from tailored refill options for optimizing processes, while new facilities can enjoy a more compact and resilient design. MegaZonE is also compatible with a variety of feed sources, including stranded gas, unused syngas, or CO<sub>2</sub>-rich gases. This can help producers considerably reduce the CO<sub>2</sub> footprint of their facilities and meet their sustainability targets.

Learn more about [MegaZonE catalyst-layering technology](#).



MegaZonE catalyst-layering technology is based on Clariant’s high-performance MegaMax methanol catalysts. © Clariant

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Clariant is a focused specialty chemical company led by the overarching purpose of “Greater chemistry – between people and planet.” By connecting customer focus, innovation, and people the company creates solutions to foster sustainability in different industries. On 31 December 2023, Clariant totaled a staff number of 10 481 and recorded sales of CHF 4.377 billion in the fiscal year for its continuing businesses. Since January 2023, the Group conducts its business through the three Business Units Care Chemicals, Catalysts, and Adsorbents & Additives. Clariant is based in Switzerland.

[www.clariant.com/catalysts](http://www.clariant.com/catalysts)

Building on a 165-year history, Clariant Catalysts is a global and independent manufacturer of energy-efficient catalyst technologies shaping a sustainable future for the chemical industry. We create greater chemistry – between people and planet – by helping to decarbonize our customers’ production processes and scaling up the transition toward zero-emission chemicals and fuels. Through our exceptional R&D and established expertise, our broad portfolio of catalysts and adsorbents provides innovative solutions that range from the oil and gas to the plastic sectors. With more than 2 000 employees at 31 locations, our high-performing teams collaborate with partners and customers across our global footprint.

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