

Media Release

Clariant's new OxyMax[®] PA 690 phthalic anhydride catalyst excels in start-up at Petrowidada plant

- **OxyMax PA 690 next-generation phthalic anhydride catalyst greatly increases yield and ensures excellent product quality**
- **Petrowidada's world-scale plant in East Java, Indonesia, achieves design capacity and benefits from enhanced performance**
- **Double-patented catalyst incorporates innovative composition and design, tailored to plant and feedstock conditions**

Munich, April 11, 2019 – Clariant, a focused and innovative specialty chemical company, today announced the successful start-up of its new high-yield OxyMax PA 690 catalyst at Petrowidada's world-scale phthalic anhydride plant in Gresik, East Java, Indonesia. After an industry-standard ramp-up time to a high ortho-xylene load of 100 grams per normal cubic meter (g/Nm³), the production facility reports significantly greater yield for the first nine months of operation. The highly favorable results demonstrated at the Petrowidada plant are due to the unique design and materials employed in the new catalyst.

OxyMax PA 690 is a shell-type catalyst which is produced using Clariant's proprietary fluid-bed coating technology. In the process, the catalytically active materials titaniumdioxide and vanadium-pentoxide along with special promoters are coated in a thin shell on ceramic rings. The thin, porous shell resolves mass and heat transport challenges during selective oxidation of ortho-xylene to phthalic anhydride (PA). Hence, over-oxidation is reduced, and unwanted by-products, such as carbon oxides and maleic anhydride, are minimized. The shell, combined with an improved catalyst composition and optimized mass transport properties, results in excellent selectivity and up to 116 wt.% reactor outlet PA yield – a performance that is unprecedented by previous catalyst generations.

Thanks to its unique composition and formulation developed in a multi-year R&D project, the new OxyMax PA 600 catalyst series has been granted two patent families. The innovative PA catalyst is the result of instrumental research and development performed by Dr. Gerhard Mestl, Head of Oxidation Catalysts R&D at Clariant, and his team. For his pioneering work in applied selective oxidation, Dr. Mestl received the prestigious Applied Catalysis Award from the European Federation of Catalysis Societies (EFCATS) in 2017.

Besides enhanced product selectivity and increased production of high-quality PA, the OxyMax PA 600 catalyst series offers great flexibility for producers as it can be tailored to individual operating and feedstock conditions.

The catalyst is designed for use as customized layers in tubular reactors, wherein the layer system ensures an early, stabilized hotspot, resulting in long catalyst lifetime. Furthermore, Clariant offers expert support for catalyst loading and start-up, as well as for performance optimization during the entire catalyst lifetime.

Petrowidada is one of the largest producers of phthalic anhydride in Southeast Asia and the sole producer in Indonesia. The company's world-class plant in East Java has successfully used previous generations of Clariant's high-ortho-xylene-load PA catalysts since 2007. With OxyMax PA 690, the facility has experienced an increase in overall plant yield of 1 wt.%, and benefits from excellent PA quality with low impurity levels at the reactor outlet. Considering the plant's annual capacity of 70,000 metric tons of phthalic anhydride, the superior productivity afforded by the new catalyst translates into considerable benefits for the producer.

Mr. Jaka Lelana, Plant Director at Petrowidada, expressed his satisfaction with the new catalyst, stating, "Given the scale of our phthalic anhydride business, efficiency is key to our continued success. That's why we are particularly enthusiastic about the performance of the new catalyst, and confident that it will open new avenues for growth."

Stefan Heuser, Senior Vice President & General Manager Business Unit Catalysts at Clariant, added, "We have successfully supported Petrowidada for more than a decade. It is close partnerships such as this that reveal valuable insights into our customers' needs and challenges, and ultimately result in true breakthroughs in catalyst development like OxyMax PA 690."



Petrowidada's 70,000 MTPA phthalic anhydride production plant in Gresik, Indonesia. (Photo: © PT. Petrowidada)

GLOBAL TRADE MEDIA RELATIONS

STEFANIE NEHLSSEN

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

CAROLINE SCHMID

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

Follow us on [Twitter](#), [Facebook](#), [Google Plus](#), [LinkedIn](#).

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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 6.623 billion for its continuing businesses. The company reports in four business areas: Care Chemicals, Catalysis, Natural Resources, and Plastics & Coatings. 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.clariant.com/catalysts

Clariant's Catalysts business unit is a leading global developer and producer of catalysts for industrial processes. It has been part of the Catalysis business area of the Clariant Group since the acquisition of Süd-Chemie in 2011. Clariant Catalysts is headquartered in Munich, Germany, and has a total of 16 production sites (incl Joint Ventures), 7 sales offices, and 11 R&D and technical centers around the world. Approximately 1 970 employees serve customers across all regional markets. Aimed at delivering sustainable value to customers, Clariant's catalysts and adsorbents are designed to increase production throughput, lower energy consumption, and reduce hazardous emissions from industrial processes. The broad portfolio also includes products that enable the use of alternative feedstock for chemical and fuel production.