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Evonik advances pyrolysis oil capability with launch of Purocel™ series

Evonik has announced a comprehensive suite of Purocel™ products and catalysts technologies that improve the quality of pyrolysis oil, driving greater circularity for plastics.

- **Innovative series of adsorbents, hydrotreating catalysts and polishing unit for the purification of pyrolysis product streams**
- **Proven to effectively reduce chlorides and remove other contaminants from pyrolysis oil**
- **Allows pyrolysis oil to meet feedstock specifications for steam crackers and refineries**

Essen, Germany. Evonik has announced a comprehensive suite of Purocel™ products and catalysts technologies that improve the quality of pyrolysis oil, driving greater circularity for plastics.

The series consists of innovative Purocel™ adsorbents, including 505, 510 and 515, amongst other adsorbents, rejuvenated hydrotreating catalysts and a modular polishing skid (named as Rocket) – expanding the company’s pyrolysis oil capability.

Derived from plastic waste, pyrolysis oil requires upgrading and purification before it can be used as a feedstock in steam crackers or refineries. Evonik’s latest offering allows for the reduction of chlorides, silicon, TAN and other matters.

“The removal of organic chlorides from plastic pyrolysis oil has historically presented a challenging problem for the circular plastic industry. We’re committed to constant innovation at Evonik, which we know is vital to bringing a shared solution closer,” said

Nirav Shah, Evonik Catalysts Global Director (EPC/Licensing, Re-refining/Recycling).

Max Preisenberger, Head of Catalysts at Evonik, said: "We're excited to bring this development to market, improving circularity for the plastics industry and offering greater sustainability benefits to refineries and petrochemical companies. Our latest generation of adsorbents and catalysts means that pyrolysis oil can meet purification specifications for even the most stringent of complexes – opening up new applications."

Purocel™ 505 has demonstrated three times higher chloride removal than conventional organic chloride sorbents and can be used across a variety of pyrolysis oil fractions. Purocel™ 510 is regenerable, contributing to greater circularity; Purocel™ 515 assists with the polishing of pyrolysis oil and gas.

Evonik's wider pyrolysis oil portfolio includes Purocel™ hydrotreating catalysts for the main catalytic bed: Purocel™ H100, H200, H300 and H400. These catalysts remove metals and organic chlorides and reduce olefins and aromatics, boasting comparable performance to fresh catalysts. They can be regenerated and reused to support sustainability efforts, while offering cost-saving benefits.

Polishing units for pretreating pyrolysis oil feedstock are also a part of the solution. Skid-mounted, this "Rocket" technology combines a tailored adsorbent with optimized fluid dynamics to improve purification performance. Complete modular skids can be modified to suit customers' requirements.

Evonik's expanding portfolio of Purocel™ adsorbents and catalysts, and accompanying pyrolysis oil technology, advance chemical recycling, helping convert plastic waste into a usable product. Diverting potential landfill waste, it also allows an alternative feedstock to replace fossil-based ones – for even greater sustainability benefits.

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About Evonik

Evonik is one of the world leaders in specialty chemicals. The company is active in more than 100 countries around the world and generated sales of €15.3 billion and an operating profit (adjusted EBITDA) of €1.66 billion in 2023. Evonik goes far beyond chemistry to create innovative, profitable, and sustainable solutions for customers. About 32,000 employees work together for a common purpose: We want to improve life today and tomorrow.

About Smart Materials

The Smart Materials division includes businesses with innovative materials that enable resource-saving solutions and replace conventional materials. They are the smart answer to the major challenges of our time: environment, energy efficiency, urbanization, mobility and health. The Smart Materials division generated sales of €4.46 billion in 2023 with more than 8,100 employees.

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