

Evonik improves raw material supply via FCC-C4

- Performance Intermediates produces several thousand metric tons of industrial chemicals such as MTBE, plasticizers and butadiene every day
- Performance Intermediates is the only producer worldwide who - in addition to applying Steam Cracker based “Crude C4” - can also make use of an unique raw material from refineries: Fluid Catalytic Cracking based “FCC-C4”
- Through intelligent production network optimization and a modest capital investment, the business line has increased its processing capacity of FCC-C4 by 25%
- This indicates: High investments can be avoided by making smart decisions

Every day, the Performance Intermediates business line (PI) produces several thousand metric tons of industrial chemicals such as MTBE, plasticizers, and butadiene. The plants of the C4 Verbund in Marl are closely linked in terms of materials and energies: The by-products of some processes serve as raw materials in other plants, and the waste heat from one process step provides the energy for another.

Highly complex, highly integrated, and highly effective. What might be discouraging for others is a challenge for the employees at PI: They identify potentials, investigate solutions, overcome obstacles, and get things done. Their efforts recently led to the achievement of an important milestone. Using a special purification and refinement method, Performance Intermediates is the only company worldwide capable of using not only Crude C4 but also a very special raw material from refineries: FCC-C4. This has improved the supply of the business line with C4 raw materials and made it more flexible in the long term – and, as a result, the company can better meet the need of its customers.

This successful path of optimization of the integrated production network has now been continued. By intelligently interconnecting the FCC-C4 and Crude C4 based production lines and a precise elimination of bottlenecks, the business line has managed to increase the FCC-C4 processing capacity of the Raffinate I/II plant by 25%. No debottlenecking measures were

required in the FCC-C4 production line downstream. A modest capital investment was sufficient to realize the project in the Raffinate I/II plant!

This reveals: High investments can be avoided by making smart decisions. With the courage to innovate and the power to create, the employees of PI have so far managed to make the impossible possible. For example, it took a lot of determination and persistence to install a new optimized catalyst for the SHP-S (Selective Hydrogenation Process - Sulfur Removal) reactors to convert the mercaptans contained in the FCC-C4.

Project responsible, Dr. Andreas Wolff, outlines the outcome of the project as follows: “We managed to carry out the investment project on time and on budget. Gratitude is owed to the project team for its excellent collaboration and implementation of creative process ideas with courage and enthusiasm.”

The plant was commissioned in May 2018 – operations are stable, the performance test has been conducted successfully, and the co-project to increase the FCC-C4 unloading capacity of rail tank cars in the port of Marl was completed in parallel. Now it is full speed ahead towards further optimizations in the complex world of C4 chemicals. Delivering on the Performance Intermediates promise: Chemistry4People.