

Catalytic olefins technologies

Increasing Propylene Production

SUPERFLEX™ is a commercially-proven technology for converting low-value olefinic streams to higher value propylene and ethylene. This technology can be readily integrated into any refinery or petrochemical complex to enhance profitability, operational flexibility and to meet market demand. SUPERFLEX effectively upgrades feeds from a variety of processes, including:

- Mixed C4s from refineries and conventional steam crackers
- Amylenes, TAME feed and mixed C5s
- Cracked naphtha from FCCs, steam crackers, cokers and visbreakers
- Other low-value olefinic streams.

Efficient Plant Design for Flexible Olefins Production

SUPERFLEX technology produces about 50 to 70 percent ultimate yield of propylene plus ethylene and an aromatic rich gasoline stream. This yield is achieved due to the high single pass conversion to valuable products and recycle of higher olefins to extinction.

Discovered and patented by Lyondell Chemicals and licensed exclusively by KBR, SUPERFLEX is built around the high selectivity of ZSM-5 catalysts and the optimal process conditions for high yield of propylene and ethylene.

SASOL enlisted KBR for engineering, procurement and construction management of their SUPERFLEX unit, which included additional patented improvements. Since then, several chemical companies have initiated projects to maximize yields at lower costs and fulfill the ever-increasing propylene demand worldwide.

Commercially-Proven Propylene Plus Ethylene Production

SUPERFLEX technology builds on over 50 years of experience in fluidized bed catalytic cracking (FCC) and cost-effective purification units for ethylene and propylene plants. Our unmatched expertise in efficient plant design for olefins production is leveraged by designing FCC converters to process a wide range of production capabilities. This expertise, combined with our engineering excellence, strategic procurement, premier construction and rigorous project management, provides the right processes for your petrochemical needs.



SASOL's olefins plant in Secunda, South Africa is the first commercial application of SUPERFLEX technology. The plant achieved a successful start-up in 2006.



SUPERFLEX uses KBR's Orthoflow design for robust reactor operation.



KBR's Technology Center experts continue to test and improve downstream technologies like SUPERFLEX on our pilot plants.