

## Albemarle Unveils a Step Out Catalyst with Unsurpassed Diffusional Properties

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### Abstract

Refiners are continuously challenged to squeeze the last drop of valuable products from every barrel of crude processed. Omnipresent and seemingly often-changing environmental regulations and recipes, although good for the environment, can be intense tests for the refining industry. Strategies to maximize a refiner's profitability are not only complicated by stringent regulations, but also a shifting availability of the world-wide crude slate. Plans to handle these challenges are varied, and as a result, the operation of each FCCU throughout the industry presents unique challenges. While some refiners make the decision to deeply hydrotreat their FCCU feed, others go to the opposite extreme and process the most metal and coke-laden opportunity feeds available. Of course, the integration of internal refinery streams such as coker gas oils adds another level of complexity in the search to optimize FCCU operation.

FCCU catalysts have evolved to meet historical challenges and refiners' demands. Nonetheless, the operating environment of today pleads for further catalyst developments. For example, FCCU catalysts must be flexible enough to not over-crack highly hydrotreated feeds and control the regenerator temperature to meet catalyst circulation and riser outlet temperature requirements. On the other hand, the processing of heavy, difficult-to-crack feedstocks commands FCCU catalysts that deliver the highest accessibility to internal reaction sites and catalytic components designed to mitigate the effect of metals to minimize regenerator temperature and maximize catalyst circulation.

Albemarle has developed a new catalyst family UPGRADER to meet the varied and demanding needs of the refiner. Already supplying catalysts with the leading diffusional properties on the market, the accessibility of our latest catalysts has further increased, delivering even more activity and performance. The accessibility helps to not only crack the largest molecules, but also preserves primary products whereby maximizing gasoline and the olefinicity of the LPG. The latest catalysts can be formulated to be used under a wide range of FCCU conditions. Both laboratory examples and commercial applications will be presented to demonstrate new catalytic options for refiners to increase the production of their most valuable products.