

Luminate®

Fluid Catalytic Cracking catalyst for lower delta coke

Based on BASF's new Improved Zeolite Y (IZY) technology, Luminate® offers refiners improved coke selectivity and higher liquid yields

A constrained Vacuum Gasoil unit in North America desired to improve coke selectivity to maximize valuable liquid products. BASF recommended **Luminate** from the new Improved Zeolite-Y (IZY) technology. IZY features tailored pore architecture for better feed diffusion, liquid yields, and coke selectivity.

Results

Compared to the incumbent BASF catalyst based on DMS technology, **Luminate** significantly reduced delta coke at constant Nickel and increased or maintained activity at constant Vanadium. In this case, the refinery sought increased butylene yields and **Luminate** delivered these at constant gasoline.

Luminate met the refiner's objectives with:

- Decreased delta coke by 6%
- Maintained gasoline make
- Improved bottoms upgrading by 14%
- Increased C3= as well as C4= by 11%

Prior to the trial, the unit was limited to a lower riser outlet temperature (ROT) and a lower charge rate due to its regenerator superficial velocity constraint. Introducing **Luminate** provided large operational benefits including:

- 15°F / 7°C higher ROT
- Improved catalyst activity
- Maximum feed rate

The improved delta coke enabled the unit to operate beyond its previous constraints, resulting in **\$0.81/bbl** increase in profitability based on FCC-SIM modelling to normalize for operating conditions.

Luminate Refinery Trial Results

	Before	After	Delta
FACT, wt%	73.9	74.0	0.1
C3=, wt%	4.6	5.1	0.5
Total C4=, wt%	5.8	6.5	0.7
Total LPG + Gasoline, wt%	64.2	67.3	3.1
LCO/BOT, wt/wt	1.56	1.78	0.22
Coke, wt%	3.95	3.71	(0.24)

About Us

BASF's Catalysts division is the world's leading supplier of environmental and process catalysts. The group offers exceptional expertise in the development of technologies that protect the air we breathe, produce the fuels that power our world and ensure efficient production of a wide variety of chemicals, plastics and other products, including advanced battery materials. By leveraging our industry-leading R&D platforms, passion for innovation and deep knowledge of precious and base metals, BASF's Catalysts division develops unique, proprietary solutions that drive customer success.

BASF - We create chemistry

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