

Stamina[®]

Refinery trial of BASF distillate maximization catalyst shows superior bottoms upgrading and outstanding stability in the presence of high levels of contaminant metals.

Stamina[®], BASF's Fluid Catalytic Cracking (FCC) Catalyst offering from the Prox-SMZ platform, demonstrates 45% better bottoms upgrading at commercial refinery trial.

Goal

The refiner wanted to increase bottoms conversion to Light Cycle Oil (LCO) and gasoline from the resid FCC unit to meet the growing global demand for diesel. BASF suggested using Stamina, a catalyst specially developed for distillate maximization from resid feeds. Based on our technology platform, Prox-SMZ (Proximal Stable Matrix & Zeolite) Stamina delivers the highest bottoms conversion per unit of coke production to aid in LCO maximization.

Results

Stamina performed better than promised, delivering not just high distillate yields but also exceptional tolerance to high levels of a range of contaminant metals.

A summary of the trial results includes:

- 45% better bottoms upgrading at low delta coke
- High activity maintenance, even during periods of high iron and calcium
- 40% lower sodium for minimum H-transfer
- Higher matrix stability and higher zeolite stability

Commercial trial data

	Before	After
Feed Concarbon, wt%	3.5	3.5
Feed API	28-30	28-30
Feed Rate (av), BPD	11000	11000
Reaction Temp, F°	965-970	965-970
Dry Gas	2.2	1.8
LPG, wt%	17.1	16.4
Naphta, wt%	46.9	49.3
LCO, wt%	17.3	20.4
Bottoms, wt%	9.1	4.3
Delta Coke	1.13	0.9
Equilibrium, Catalyst Metals, Ni, ppm	2981	3000
Equilibrium Catalyst Metals, V, ppm	426	969
Equilibrium Catalyst Metals, Ca, ppm	1697	2874
Equilibrium Catalyst Metals, Fe, ppm	1.19	1.28

About Us

BASF Refinery Catalysts is a global industry leader in fluid catalytic cracking (FCC) catalysts and additives, with an unparalleled commitment to delivery of cutting-edge technology and services to the refining industry. As part of BASF, BASF Refinery Catalysts is leveraging its leading development platforms, global research infrastructure and passionate pursuit of innovation to develop novel, proprietary product and digital service technologies to help customers achieve their objectives and meet the challenges of the market.

BASF Refinery Catalyst offers the highest degree of product flexibility in terms of surface area, zeolite/matrix ratio, metal traps, and particle size distribution. Its FCC catalysts offer not just a wide range of cost-effective solutions, but also the ability to deliver value through tailored products and services.

BASF Refinery Catalyst continuously commercializes new technology innovations to meet evolving customer needs and continuous product improvement. The award-winning Valor technology, Boron Based Technology (BBT) and Distributed Matrix Structure (DMS) technology are leaders in the market. Unique market solutions are achieved with the Multiple Framework Topology (MFT) technology, Improved Zeolite Y (IZY) technology, Proximal Stable Matrix & Zeolite (Prox-SMZ) technology and our Advanced Innovative Matrix (AIM) technology.

BASF - We create chemistry

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