



# High activity hydroprocessing catalyst

Improve margins with Nebula® catalyst technology

Energy lives here

Nebula® bulk metal hydroprocessing catalyst delivers up to two times the activity of traditional hydroprocessing catalysts. Jointly developed by ExxonMobil and Albemarle Corporation, pioneering Nebula catalyst technology provides exceptional hydrogenation power, increasing hydrodesulfurization (HDS), hydrodenitrogenation (HDN) and aromatic saturation activity.

### Hydroprocessing value

Refiners use Nebula catalyst technology to upgrade difficult feeds to diesel and other high-value products, as well as to increase production volumes of on-spec distillate products.

### Ultra-low sulfur diesel (ULSD)

- Small capital investment to meet regulatory requirements



Up to 2 times more active than conventional catalysts



Short payback period – 2 to 3 months



Market-leading bulk metal catalyst for over 15 years

### LCO hydrocracking

- Increased throughput and LCO to diesel

### VGO hydrocracking

- Improved yield and product quality

## Key benefits



### Higher performance

- High activity hydroprocessing catalyst
- Stacked-bed maximizes total system performance



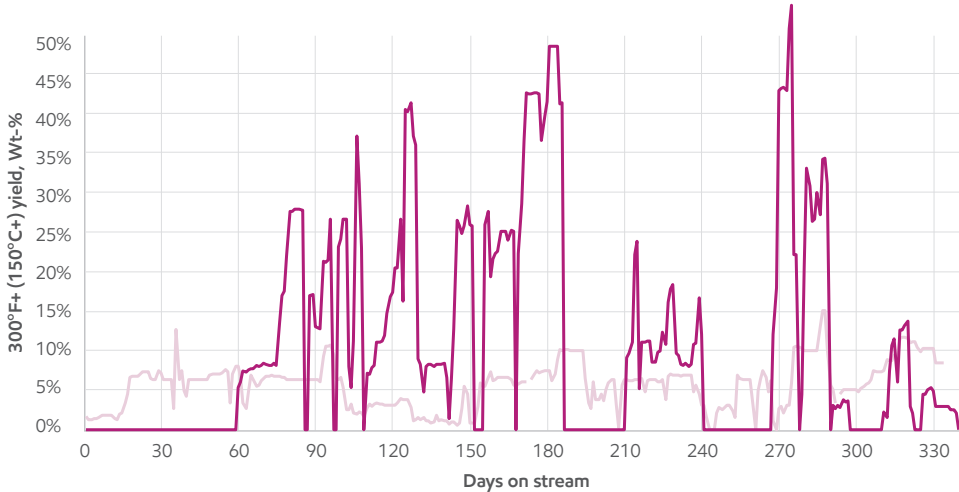
### Low operating cost

- Improved margins after short payback period
- Low investment to meet regulatory requirements

## Ultra-high activity

Nebula® bulk metal catalysts have proven to be up to two times more active than conventional supported catalysts. Due to its high activity, and pairing with Albemarle's STAX® technology, Nebula catalyst can be a drop-in solution for existing units. Nebula has more active sites per unit catalyst volume, and usually accounts for 15–35 percent of the reactor load.

### LCO + CGO (%wt) - cycles comparison



— Previous cycle  
— Nebula/STAX cycle

A refiner using Nebula® technology to maximize HDN processed twice the amount of LCO, CGO and aromatic extract over the run without impacting the targeted cycle length.

## Proven performance

The quality of the Nebula catalyst's performance has already attracted more than 60 individual users with over 5,000 MT sold. This outstanding market acceptance has been followed by exceptional customer loyalty, with 85 to 90 percent repeat customers and more than one new customer every two months. Nebula is recognized for its extraordinary hydroprocessing technology.

## About us

ExxonMobil helps refiners and petrochemical manufacturers increase capacity, lower costs, improve margins, reduce emissions and operate safe, reliable and efficient facilities. Along with a commitment to helping to implement best practices and to achieve better results, we provide cutting-edge proprietary catalysts and license advantaged process technologies for refining, gas and chemical needs.

Exceptional customer loyalty:  
85–90 percent repeat customers

Collaborate with us today.  
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