



IV-IZOMax^{CAT} Light Naphtha Isomerization Catalyst

Award-winning refinery catalyst technology |
Commercially implemented | Made in India

Applicable for operation with or without hydrogen recycle (once-through and recycle)

What it delivers

- High yield and high RON output with refiner-friendly operation and low energy consumption.
- **No chloride injection.** No in-situ acid generation - avoids special materials of construction (MOC) and minimizes maintenance headaches.
- High Isomerization degree with low temperature and flexible pressure operation
- 100% Benzene saturation
- Flexible feed handling with minimal pretreatment requirements (within stated tolerances).
- Long life: typical catalyst life 8-10 years; regenerable catalyst with minimum service life of 2 years per cycle.

Upset tolerance & recovery

- Fully recovers performance after temporary upsets such as hydrogen dryer failure, short-duration loss of hydrogen, or higher X-factor excursions (including > 60).
- No additional pretreatment required before restarting production after upset recovery.

Process configuration options for pentane-hexane fraction isomerization

Configuration	Mixed product RON	Yield, %
Once-through	81-84	98+
DIH	86-88	98+
DIP + DIH	88-90	98+
DIP + DP + DIH	90-92	98+

Typical operating window

Pressure	20-35 bar
Temperature	130-190 °C
LHSV	1.0-3.0 h ⁻¹
H ₂ /HC	0.5 - 2
H ₂ purity	>=72% (min)
Design	With or without H ₂ recycle With or without feed recycle

Feed & impurity tolerance (typical)

Sulfur	5 ppmw
Nitrogen	1 ppmw
Moisture	25 ppmw
Benzene	7 wt%
X-factor	Up to 50
C ₇ +	Up to 12 wt%

Notes : Robust to off-spec events; performance recovers after drying / normalization.

Commercially proven

- Commercial reference: Implemented at Indian Oil refinery (2024).
- Successful operation for nearly 2 years (ongoing).
- Regenerable catalyst with long lifecycle and high on-stream availability.

Award-winning indigenous technology

- Recognized by the Ministry of Petroleum and Natural Gas (MoPNG) as Best Indigenous Technology.
- Detailed process support for refiners| Neural network (NN) based models for the complete unit to simulate performance and maximize performance.