



# Better diesel yield.

High performance dewaxing with MIDW™ catalyst technology and services.

Energy lives here™

ExxonMobil's MIDW™ catalyst technology and services provide high yields of low cloud point diesel. The process uses a proprietary catalyst that converts waxy paraffins to higher performance molecules, as compared with older technologies that rely on cracking. This results in a much higher diesel yield, particularly for deep reductions in cloud point.

### Growing commercial deployment

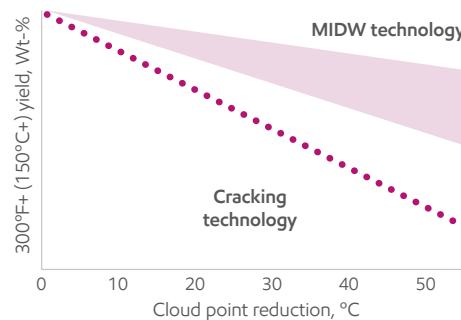
Currently, over 10 MIDW units are operating around the world, with more than five under design. While many MIDW units are located in colder climates (Russia, North America, Northern Europe), where there is a clear need for winter diesel, there are units in the Middle East, India, and Singapore that produce Euro V diesel for export. The ability to retrofit an existing unit with MIDW technology to capture significant value makes this one of the most attractive fuels technologies in the world today.

### Flexible, adaptable applications

- Various grades of MIDW catalyst exist to suit unique refinery needs: catalysts for sweet or sour drop-in applications, as well as catalysts for standalone dewaxing reactors.

- MIDW catalyst grades are tailored to meeting refineries' specific cold flow specifications.
- Integration with complementary technologies to make clean, high quality diesel.
- Combined with ExxonMobil's process technology, MIDW catalyst can provide refiners with powerful dewaxing in winter mode while dialing back performance in summer mode, reducing giveaway.

Typical yield and cloud point reduction tradeoff



### Key benefits



#### Higher performance

- Better low temperature properties
- Increased unit flexibility



#### Higher yields

- Paraffins are isomerized instead of cracked



#### Lower operating costs

- Higher capacities
- Flexible process configurations
- Lower reactor temperatures

## Continuous innovation

The success of MIDW™ technology is based on continuous innovation at ExxonMobil. New materials and processes generated by ExxonMobil catalyst and process technology groups are then further refined and rigorously tested for commercial applicability by process engineering experts, who also provide the technical support for unit commissioning. The most recent improvement featured the introduction of a base metal MIDW catalyst designed specifically for sour environments.

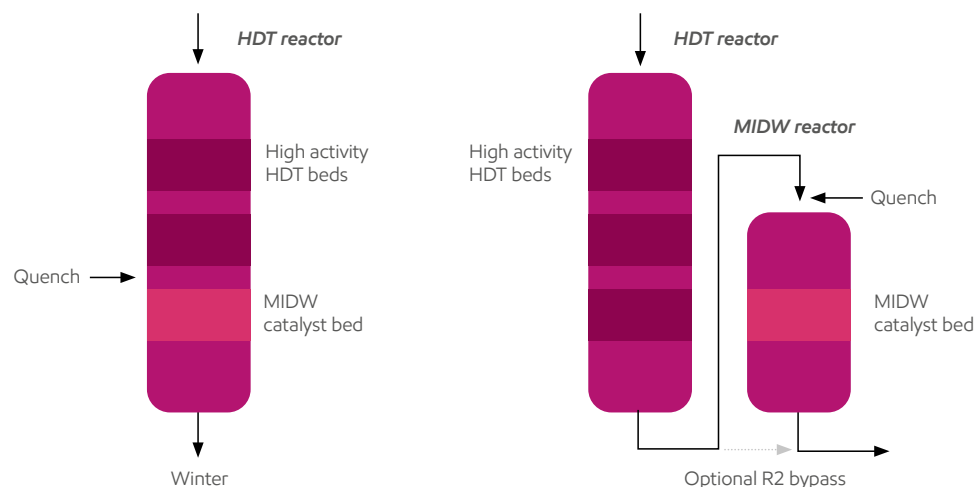
## MIDW catalyst technology services include:

- Initial non-confidential consultations
- Development of proposal
- Basic engineering package, including basic design specification and operating guide
- Engineering support during front-end engineering design and engineering, procurement and construction stages
- Technology transfer, training, catalyst loading and start-up support
- Unit monitoring support

## 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.

## Example processing schemes



MIDW technology is backed by forty years of ExxonMobil innovation in diesel dewaxing.

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