

## Tech Talk – The Story on Cetane



### What is cetane?

The cetane number (CN) of a diesel fuel is a measure of the ignition quality of the fuel based on the ignition delay in an engine. Ignition delay measures the time between the start of injection and the start of combustion. In order for a diesel fuel to ignite, it must go through the following steps:

1. Diesel injection into the engine
2. Atomization
3. Vaporization
4. Fuel - air mixing
5. Ignition & combustion processes

The higher the cetane number of a diesel fuel, the shorter time it takes for the fuel-air mixture to ignite.

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### Limited Benefits in Today's Engines

Having a diesel fuel with higher cetane comes with some limited benefits:

- Better cold start in cold weather
- Reduced noise from engine

The benefits of higher cetane fuels are limited in modern diesel engines for many reasons.

- Diesel engines in the U.S. are calibrated and optimized for ASTM D975 diesel fuel ( $\geq 40$  CN)
- Modern diesel engines with high pressure common rail systems have multiple injection capability, which minimizes the impact of shorter ignition delay
- Heavy duty diesel engines run at lower engine speeds and are less sensitive to ignition delay
- No performance or fuel efficiency impact after warm-up

# Cetane

## Proven Benefits of Mobil Diesel Efficient

Today's diesel engines have sophisticated fuel systems that rely heavily on clean injectors. Deposit-laden injectors will have a negative impact on the efficiency and emissions of an engine throughout its whole operating cycle – not just at start-up on a cold winter day!

While it does not contain a cetane improver, the patented technology in Mobil Diesel Efficient™ fuel is engineered to clean up existing deposits and prevent deposit formation that may adversely impact engine performance. By restoring injector function, your engine is able to operate more efficiently, burn less fuel, protect the critical fuel system components, and reduce unplanned maintenance.

## Mobil Diesel Efficient Features

Features <sup>1</sup>	Advantages and Potential Benefits
Improved Injector cleanliness	Improved engine power & responsiveness and helps avoid premature injector failures
Improved fuel economy	Lower fuel costs and reduced greenhouse gases (CO <sub>2</sub> ) emissions
Corrosion protection	Enhanced corrosion protection of critical fuel system components
Improved fuel filterability	Helps reduce premature fuel filter plugging
ASTM D975	Meets or exceeds specifications
Winterized *	Improved cold weather operability

<sup>1</sup> Applies to Mobil Diesel Efficient™ diesel fuel compared to diesel fuel without detergent additive

\* In applicable markets

*By restoring injector function, your engine is able to operate more efficiently.*

## Recommended Content

### [1: Mobil diesel efficient™](#)

Getting greater fuel efficiency from your fleet is crucial to your business' financial success. That's why we developed Mobil Diesel Efficient fuel, which has been demonstrated to bring fuel efficiency savings to your fleet.

### [2: Ease of doing business](#)

Whether it's terminal wait times, customer communication or product availability, we are dedicated to making your experience faster, easier and more efficient.

### [3: Supply reliability](#)

We strive to bring you the product you need, when you need it and where you need it. Learn about how we maintain product integrity and find your closest terminal in our extensive network.