

## AMSOIL Diesel Fuel Additives

**Diesel Cetane Boost** improves combustion efficiency and power. Increases cetane up to eight points.

**Diesel Cold Flow** depresses diesel fuel pour point and improves cold-flow filtration properties.

**Diesel Injector Clean** effectively removes all types of fuel system deposits, while improving lubricity.

**Diesel Injector Clean + Cetane Boost** combines superior detergency, improved lubricity and increased horsepower in one convenient package.

**Diesel All-In-One** combines superior detergency, improved lubricity, excellent anti-gelling properties and increased horsepower in one convenient package.

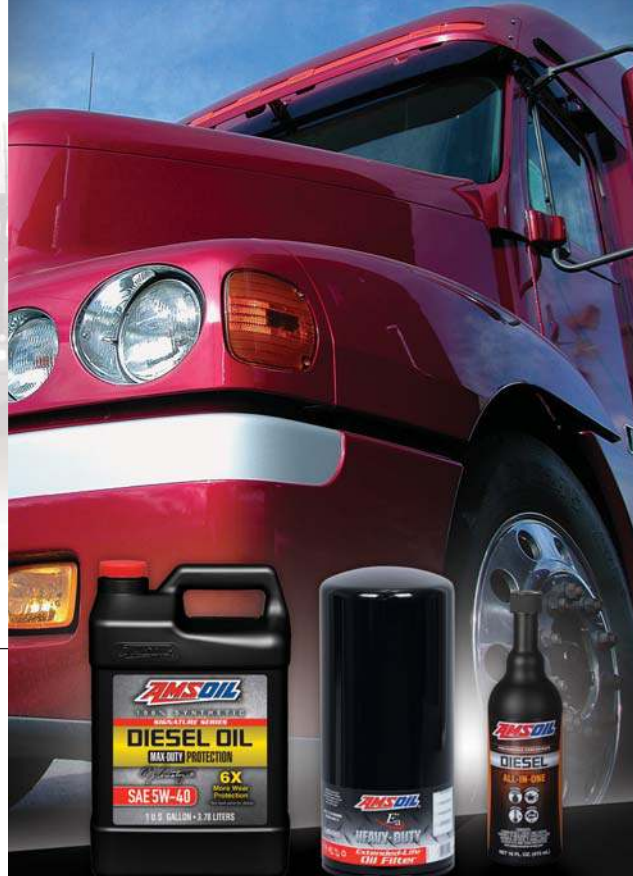
**Diesel Recovery** quickly liquefies gelled diesel fuel, thaws frozen fuel filters and reduces the need for a new filter.



Contact your local full-service AMSOIL Dealer for more information on AMSOIL products or to place an order. You may also order direct by calling AMSOIL INC. at 1-800-956-5695 and providing the referral number listed here. ▼

Referral # \_\_\_\_\_

## Over-the-Road Trucks



**SYNTHETIC  
DIESEL OILS**

**FILTRATION  
PRODUCTS**

**ACCESSORY  
PRODUCTS**



## Synthetic Diesel Oil



### AMSOIL Signature Series Max-Duty Synthetic Diesel Oil

- Our most advanced formula
- 6X more engine protection\*
- Compatible with all exhaust treatment devices
- Available in 5W-30, 10W-30, 0W-40, 5W-40 and 15W-40

\*Based on independent testing in the Detroit Diesel DD13 Scuffing Test for specification DFS 93K222 using a 5W-30 as worst-case representation



### AMSOIL Heavy-Duty Synthetic Diesel Oil

- Excellent protection and performance
- 4X more engine protection\*\*
- Compatible with all exhaust treatment devices
- Available in 10W-30, 5W-40 and 15W-40

\*\*Based on independent testing in the Detroit Diesel DD13 Scuffing Test for specification DFS 93K222 using 10W-30 as worst-case representation

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Competing Brand



**Severely Scuffed Liner**

**AMSOIL**  
Signature Series

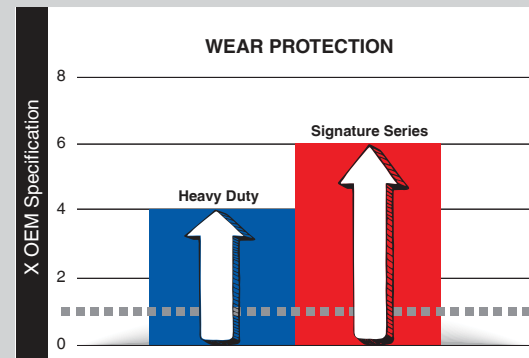


**Non-Scuffed Liner**

## More Built-in Protection

Scuffing leads to reduced power output, reduced fuel economy and increased oil consumption. AMSOIL synthetic diesel oils provide outstanding protection against scuffing, yielding the following benefits:

- **Extended** equipment life
- **Maximum** horsepower
- **Increased** fuel efficiency
- **Reduced** oil consumption and downtime



## AMSOIL Drivetrain Fluids

### Synthetic Transmissions Fluids

AMSOIL synthetic transmission fluids inhibit wear and can increase equipment life. By resisting oxidation, varnish formation and sludge build-up, they provide superior cooling and lubrication. Their synthetic chemistries maximize fuel efficiency and can provide up to 500,000-mile (804,672-km) drain intervals in OTR trucks with manual transmissions.



### Synthetic Gear Lubes

AMSOIL synthetic gear lubes are formulated to protect heavily loaded gears better than conventional lubes. They reduce friction and drag to promote increased fuel efficiency. AMSOIL 75W-90 Long Life Synthetic Gear Lube provides outstanding protection throughout drain intervals of up to 500,000 miles (804,672 km) in OTR trucks (see results below).



### AMSOIL Synthetic Greases

AMSOIL synthetic greases deliver excellent wear protection and extreme-pressure performance over extended service intervals in medium- and heavy-duty applications.

## AMSOIL Heavy-Duty Filtration

### Maximum Protection & Service Life

AMSOIL Heavy-Duty Extended-Life Oil Filters feature full-synthetic media with a filtering efficiency of 99 percent at 20 microns. They trap a larger percentage of small, wear-causing particles than less-efficient cellulose filters for maximum engine protection. They provide extended service intervals that coincide with the maximum drain intervals of AMSOIL synthetic engine oils and cost less than competitive extended-service oil filters.



### Bypass Filtration

AMSOIL Bypass Oil Filters help reduce engine wear by providing a filtering efficiency of 99 percent at two microns, nearly eliminating wear-causing particles. Paired with oil analysis, AMSOIL bypass filtration systems can extend drain intervals, increasing convenience and reducing costs.



AMSOIL also carries Donaldson® air and oil filters to complement the AMSOIL filter line.

## Excellent Wear Control



AMSOIL SAE 50 Long-Life Synthetic Transmission Oil limited wear to the mainshaft input drive gear to trace-light levels despite 512,000 miles (823,984 km) of real-world, severe-service duty. The gear earned a high wear rating of 8 out of 10 and demonstrated no scoring or pitting.



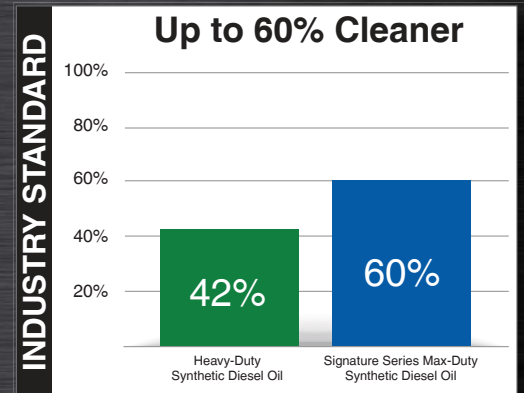
AMSOIL 75W-90 Long Life Synthetic Gear Lube prevented pitting and scoring to the front differential ring gear, which encounters extreme pressure and sliding contact, inviting accelerated wear. The gear earned a nearly perfect wear rating of 9 out of 10, indicating only trace levels.

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## Top-Grade Protection Against Deposits

Deposits caused by high turbocharger temperatures can lead to a host of problems, the most critical of which is bearing failure. Hot exhaust gases spin the turbine and expose that bearing to extreme heat. Your oil has to be up to the task of effectively removing heat from the bearing while providing proper lubrication to keep it spinning at high rpm. When your oil breaks down, excessive deposits form on the bearing and shaft that lead to a downward spiral for the longevity and effectiveness of your turbo.

AMSOIL Heavy-Duty Synthetic Diesel Oil is built to withstand the punishment turbos dish out, protecting against deposit formation in extreme temperatures. If you are looking for the best, AMSOIL Signature Series Max-Duty Synthetic Diesel Oil provides protection boosted to the max, delivering up to 60 percent better turbo cleanliness\* and withstanding the extra demands placed on that turbo when pulling heavy loads.



\*Based on specification standards of CAT C13 2nd Ring Top Land Carbon testing.





# Signature Series Max-Duty Synthetic Diesel Oil

Maximum-duty protection for your hardest-working diesel engines

Protect your investment in diesel power and confidently extend drain intervals with our top-grade synthetic diesel oil. AMSOIL Signature Series Max-Duty Synthetic Diesel Oil delivers **6X more wear protection\***, delivering the extra protection your diesel deserves. Advanced synthetic technology provides excellent viscosity control and outstanding extreme-temperature performance, while minimizing oil consumption. The result: protection that's boosted to the max.



## Maximum Engine Protection

Wear on rings and cylinder liners leads to increased oil consumption and loss of compression, resulting in reduced horsepower and fuel economy. Independent testing shows Signature Series Max-Duty delivers 6X more wear protection than required by the Detroit Diesel DD13 Scuffing Test for Specification DFS 93K222, delivering extra protection so you can push your diesel with peace of mind.

## Viscosity Control

Using top-tier synthetic base oils, Signature Series Max-Duty is naturally resistant to oxidation and the thickening effects of soot contamination. That, along with boosted detergent/dispersant additives, keeps soot particles suspended independently, helping prevent the formation of larger, wear-causing particles. Viscosity increase is minimized and soot-related wear is controlled. Lower volatility also helps Signature Series Max-Duty Diesel Oil retain its viscosity after high-temperature service for maximum engine protection and efficiency.

## Excels in Extreme Temperatures

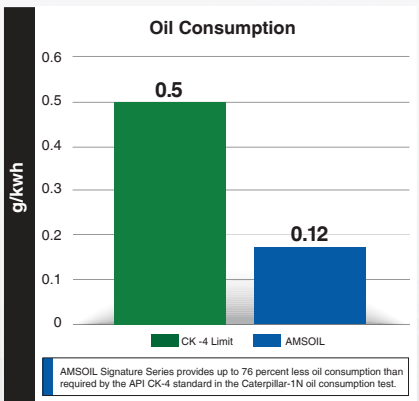
Signature Series Max-Duty Synthetic Diesel Oil resists thermal (heat) breakdown better than conventional and competing synthetic diesel oils. Unlike conventional oils, Signature Series contains no wax, staying fluid in sub-zero temperatures for easier starting, improved oil flow and reduced wear. Signature Series 0W-40 (DZF) has a broad viscosity range that offers 4X better cold-cranking ability than a 15W-40 oil in the ASTM D5293 cold-cranking viscosity test, making it excellent for use in both hot-operating engines and cold-weather starting extremes.

## Minimizes Oil Consumption

Signature Series Max-Duty has a low rate of volatility (burn-off), reducing oil consumption during operation and passing less oil vapor into the combustion chamber. It provides up to 76 percent less oil consumption than required by the API CK-4 standard in the Caterpillar-1N oil consumption test.

## Keeps Turbos Clean

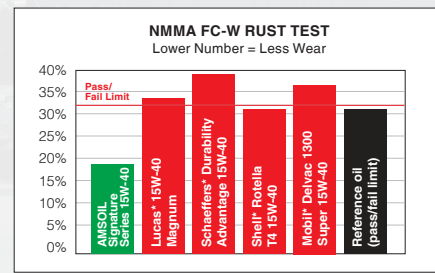
AMSOIL Signature Series Max-Duty Synthetic Diesel Oil provides protection boosted to the max, delivering up to **60% better turbo cleanliness<sup>1</sup>** and withstanding the extra demands you place on the turbo when pulling heavy loads or updating the tune for maximum horsepower.



## Protects Against Rust

Provides up to **2X better rust protection<sup>K</sup>**

Test results describe and represent properties of oils that were acquired on the dates listed in Table 1 (see [www.amsoil.com/rusttest.aspx](http://www.amsoil.com/rusttest.aspx)). Results do not apply to any subsequent reformulations of such oils or to new oils introduced after completion of testing. All oils were available to consumers at the time of purchase. Testing was completed in November 2017.



<sup>1</sup>Based on specification standards of CAT C13 2nd Ring Top Land Carbon testing. <sup>K</sup>Based on industry standard testing using the NMMMA FC-W Rust Test. \*Based on independent testing in the Detroit Diesel DD13 Scuffing Test for specification DFS 93K222 using 5W-30 as worst-case representation

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## TYPICAL TECHNICAL PROPERTIES

### AMSOIL Signature Series Max-Duty Synthetic Diesel Oil

	5W-30 (DHD)	10W-30 (DTT)	0W-40 (DZF)	5W-40 (DEO)	15W-40 (DME)
Kinematic Viscosity @ 100°C, cSt (ASTM D445)	12.0	12.1	15.7	15.4	15.6
Kinematic Viscosity @ 40°C, cSt (ASTM D445)	72.3	78.2	92.8	94.5	112.4
Viscosity Index (ASTM D2270)	162	151	180	173	147
CCS Viscosity @ °C, cP (ASTM D5293)	5384 (-30)	4858 (-25)	5776 (-35)	5555 (-30)	4134 (-20)
Pour Point, °C (°F) (ASTM D97)	-43 (-45)	-42 (-44)	-48 (-54)	-43 (-45)	-40 (-40)
Four-Ball Wear Test (ASTM D4172), Scar, mm	0.45	0.46	0.47	0.46	0.45
NOACK Volatility, % weight loss (g/100g) (ASTM D5800)	8.6	5.4	10.9	9.2	5.1
Total Base Number (ASTM D2896)	10.1	10.1	10.1	10.1	10.1
High-Temperature/High-Shear Viscosity, cP (ASTM D5481)	3.5	3.5	4.2	4.3	4.5
Sulfated Ash Content, wt. %	0.91	0.99	0.99	0.99	1.0

## APPLICATIONS

Use in diesel engines and, where appropriate, gasoline engines requiring any of the following specifications:

	5W-30 (DHD)	10W-30 (DTT)	0W-40 (DZF)	5W-40 (DEO)	15W-40 (DME)
API CK-4/SN, CJ-4, CI-4+, CF	X	X	X	X	X
API SN+	X				
API CF-2				X	X
Volvo VDS4.5, VDS4, VDS3	X	X	X	X	X
Mack EOS-4.5, EO-O	X	X	X	X	X
Renault RLD-4, RLD-3	X	X	X	X	X
Cummins CES20086, CES20081	X	X	X	X	X
Caterpillar ECF-2, ECF-3, ECF-1-a	X	X	X	X	X
DDC 93K218, 93K215, 93K214	X	X	X	X	X
DFS 93K222	X	X		X	X
ACEA E9, E7	X	X	X	X	X
ACEA E6	X				
MB 228.31	X	X		X	X
MB 228.51	X				
MAN 3575	X	X	X	X	X
MAN 3677	X				
MTU Type 2.1, II, I	X	X	X	X	X
MTU Type 3.1	X				
JASO DH-2	X	X	X	X	X
Allison TES439				X	X
Deutz DQC III-10LA	X	X	X	X	X
Scania LA-2	X			X	X
Chrysler MS 10902	X		X	X	X
Ford WSS-M2C171-F1		X	X	X	X
Ford WSS-M2C214-B1	X				
Deutz DQC IV-10LA	X				

## COMPATIBILITY

Signature Series Max-Duty Synthetic Diesel Oil is compatible with other conventional and synthetic engine oils. Mixing AMSOIL diesel oils with other oils, however, will shorten the oil's life expectancy and reduce its performance benefits. AMSOIL does not support extended drain intervals where oils have been mixed.

Aftermarket oil additives are **not recommended** for use with AMSOIL synthetic diesel oils.

## TECHNICAL SERVICES

For immediate answers to your technical questions call (715) 399-TECH (8324) between 8 a.m. and 5 p.m. Central time or email [tech@amsoil.com](mailto:tech@amsoil.com).

## SERVICE LIFE

### Diesel Engine Service Life

**Heavy-Duty On-/Off-Road:** Three times (3X) OEM<sup>1</sup> recommendation, not to exceed 60,000 miles/600 hours or one year, whichever comes first.

**Turbodiesel Pickup:** Two times (2X) OEM<sup>1</sup> recommendation, not to exceed 25,000 miles or one year, whichever comes first.

**Competition Service Life:** Provides lasting protection for multiple events. Use oil analysis to determine appropriate drain intervals.

### Gasoline Engine Service Life

Two times (2X) OEM<sup>1</sup> recommendation, not to exceed 15,000 miles or one year, whichever comes first.

### Drain intervals may be extended further with oil analysis.

**Note:** Extended drain intervals are not recommended for performance-modified engines, when using biofuels containing more than 10 percent ethanol or 15 percent biodiesel (B15) or for 2007-2009 Caterpillar\* C13 and C15 on-highway engines. Extend drain intervals beyond OEM recommendations in these instances only with oil analysis. **Note:** 2007-2010 Dodge\*\*, Ford\*\* and GM\*\* turbodiesel pickups are also not recommended for extended drain intervals when using Signature Series Max-Duty 5W-30 Diesel Oil (DHD).

<sup>1</sup> Refer to your owner's manual for OEM drain interval recommendations and guidelines for severe and normal service.

## PRODUCT WARRANTY

Using AMSOIL synthetic lubricants or practicing extended drain intervals does not void your new vehicle or equipment manufacturer's warranty. All AMSOIL lubricants and filters are covered by the AMSOIL Limited Warranty. For complete information visit [www.amsoil.com/warranty.aspx](http://www.amsoil.com/warranty.aspx).



## HEALTH & SAFETY

This product is not expected to cause health concerns when used for the intended application and according to the recommendations in the Safety Data Sheet (SDS). An SDS is available online at [www.amsoil.com](http://www.amsoil.com) or upon request at (715) 392-7101. **Keep Out of Reach of Children.** Recycle used oil and bottle.



AMSOIL products and Dealership information are available from your local AMSOIL Dealer.



## Heavy-Duty Synthetic Diesel Oil

### Formulated for Exceptional Diesel Engine Protection

AMSOIL Heavy-Duty Synthetic Diesel Oil is formulated for hard-working equipment. It is engineered to provide 4X better wear protection<sup>1</sup>, giving you the edge to keep trucks and equipment operating at peak performance. Heavy-Duty Synthetic Diesel Oil offers outstanding value and provides excellent protection for customers seeking an upgrade over conventional, synthetic-blend or competing synthetic diesel oils.



### Heavy-Duty Engine Protection

Wear on rings and cylinder liners leads to increased oil consumption and loss of compression, resulting in reduced horsepower and fuel economy. Independent testing shows AMSOIL Heavy-Duty Synthetic Diesel Oil delivers 4X more wear protection<sup>1</sup> to help maximize equipment life and reduce maintenance costs and downtime.

### Viscosity Control

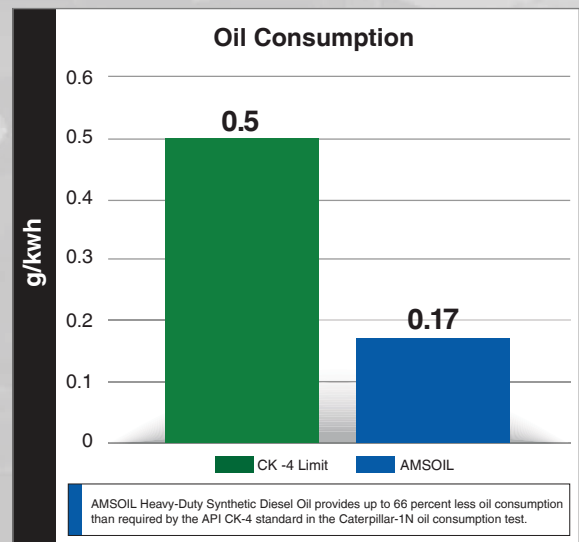
Formulated with advanced synthetic base oils and detergent/dispersant additives, AMSOIL Heavy-Duty Synthetic Diesel Oil minimizes viscosity change while keeping soot particles suspended independently, helping prevent the formation of larger, wear-causing particles. Lower volatility also helps Heavy-Duty Synthetic Diesel Oil retain its viscosity after high-temperature service for added engine protection and increased fuel economy.

### Excels in Extreme Temperatures

AMSOIL Heavy-Duty Synthetic Diesel Oil is formulated to deliver improved heat and oxidation resistance compared to conventional diesel oils. It provides clean engine operation and helps maintain power and fuel efficiency for superior engine performance. AMSOIL Heavy-Duty Synthetic Diesel Oil also flows dependably in cold temperatures for easier startup and improved engine protection.

### Minimizes Oil Consumption

AMSOIL Heavy-Duty Synthetic Diesel Oil has a low rate of volatility (burn-off), reducing oil consumption during operation and passing less oil vapor into the combustion chamber. It provides up to 66 percent less oil consumption than required by the API CK-4 standard in the Caterpillar-1N oil consumption test.



<sup>1</sup>based on independent testing in the Detroit Diesel DD13 Scuffing Test for specification DFS 93K222 using 10W-30 as worst-case representation.

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## TYPICAL TECHNICAL PROPERTIES

### AMSOIL Heavy-Duty Synthetic Diesel Oil

	10W-30 (ADN)	5W-40 (ADO)	15W-40 (ADP)
Kinematic Viscosity @ 100°C, cSt (ASTM D445)	12.0	15.2	15.5
Kinematic Viscosity @ 40°C, cSt (ASTM D445)	79.3	90.2	112.7
Viscosity Index (ASTM D2270)	147	178	144
CCS Viscosity @ °C, cP (ASTM D5293)	5591 (-25)	5581 (-30)	4932 (-20)
Pour Point, °C (°F) (ASTM D97)	-38 (-36)	-42 (-44)	-38 (-36)
Four-Ball Wear Test (ASTM D4172), Scar, mm	0.46	0.46	0.46
NOACK Volatility, % weight loss (g/100g) (ASTM D5800)	4.5	9.2	3.6
Total Base Number (ASTM D2896)	10.2	10.2	10.2
High-Temperature/High-Shear Viscosity, cP (ASTM D5481)	3.6	4.2	4.7
Sulfated Ash Content, wt. %	1.0	1.0	1.0

## APPLICATIONS

Use in diesel engines and, where appropriate, gasoline engines requiring any of the following specifications:

	10W-30 (ADN)	5W-40 (ADO)	15W-40 (ADP)
API CK-4, CJ-4, CI-4+, CF	X	X	X
Volvo VDS4.5, VDS4, VDS3	X	X	X
Mack EOS-4.5, EO-O	X	X	X
Renault RLD-4, RLD-3	X	X	X
Cummins CES20086, CES20081	X	X	X
Caterpillar ECF-2, ECF-3, ECF-1-a	X	X	X
DDC 93K218, 93K215, 93K214	X	X	X
DFS 93K222	X	X	X
ACEA E9, E7	X	X	X
MB 228.31	X	X	X
MAN 3575	X	X	X
MTU Type 2.1, II, I	X	X	X
JASO DH-2	X	X	X
Deutz DQC III-10LA	X	X	X
Chrysler MS 10902		X	X
Ford WSS-M2C171-F1	X	X	X

All viscosities capable of gasoline service API SN; consult owner's manual for proper viscosity recommendation.



## COMPATIBILITY

AMSOIL Heavy-Duty Synthetic Diesel Oil is compatible with other conventional and synthetic engine oils. Mixing AMSOIL diesel oils with other oils, however, will reduce the performance benefits.

Aftermarket oil additives are **not recommended** for use with AMSOIL synthetic diesel oils.

## SERVICE LIFE

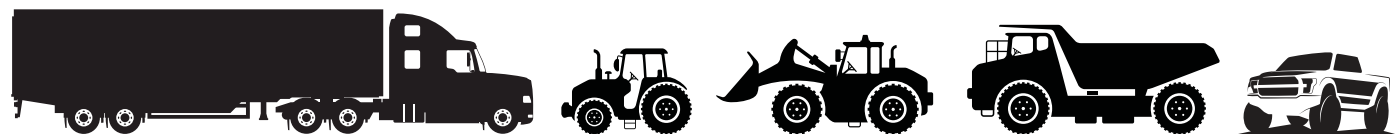
AMSOIL Heavy-Duty Synthetic Diesel Oil is recommended for the drain intervals stated by the original equipment manufacturer (OEM). Refer to the owner's manual for the specific oil change interval. Intervals may be extended beyond the OEM-recommended interval with oil analysis. Provides lasting protection for multiple events during competition. Use oil analysis to determine appropriate drain interval for competition use or when extending drain intervals beyond the OEM recommendation.

## HEALTH & SAFETY

This product is not expected to cause health concerns when used for the intended application and according to the recommendations in the Safety Data Sheet (SDS). An SDS is available online at [www.amsoil.com](http://www.amsoil.com) or upon request at (715) 392-7101. **Keep Out of Reach of Children.** Recycle used oil and bottle.

## AMSOIL PRODUCT WARRANTY

AMSOIL products are backed by a Limited Liability Warranty. For complete information visit [www.amsoil.com/warranty.aspx](http://www.amsoil.com/warranty.aspx).



AMSOIL products and Dealership information are available from your local AMSOIL Dealer.



# A Closer Look at the New AMSOIL Synthetic Diesel Oil Lineup: An Interview with Alan Amatuzio

New Signature Series Max-Duty Synthetic Diesel Oil and Heavy-Duty Synthetic Diesel Oil represent a leap forward for diesel engine protection and performance. We sat down with AMSOIL Co-President & COO Alan Amatuzio to learn what this means for Dealers and customers.

**AMSOIL Magazine:** The new Signature Series Max-Duty Synthetic Diesel Oil lineup has replaced Premium Synthetic Diesel Oil, while the new Heavy-Duty Synthetic Diesel Oil lineup has replaced OE Synthetic Diesel Oil. These new oils were developed to meet the latest API CK-4 specification, correct?

**Amatuzio:** Yes, the new API CK-4 specification represents a true upgrade in performance. We have fully embraced it, and feel strongly about its ability to protect modern diesel engines. When its predecessor, CJ-4, was introduced a decade ago, we were apprehensive. There was a takeaway in sulfated ash content (TBN) that we didn't think adequately addressed the latest engine hardware changes. The new CK-4 standard, however, represents a real improvement, and oils meeting the CK-4 standard are better-equipped to protect modern diesel engines.

**AMSOIL Magazine:** Why did AMSOIL introduce two different diesel oils: Signature Series and Heavy-Duty?

**Amatuzio:** We did a lot of market research and put a lot of work into understanding our customers and what they want. With that knowledge, we developed two distinct lines to fulfill the variety of customer needs and wants. We developed Signature Series for customers who want nothing but the very best protection for their vehicles and equipment, and we developed Heavy-Duty for price-conscious customers and customers who

are not interested in the benefits of extended drain intervals, but still want outstanding protection for their vehicles and equipment.

**AMSOIL Magazine:** Is this why both diesel oil lineups include a 5W-40 viscosity – to provide options within the same market?

**Amatuzio:** Absolutely, 5W-40 is the primary recommendation for turbodiesel trucks, and it's important for Dealers to have products for this market. Different customers have different buying motivations, and offering both Signature Series 5W-40 and Heavy-Duty 5W-40 presents options. Signature Series also has wider applicability, appealing to over-the-road truckers who want a great combination of wear protection and fuel economy, as well as the convenience and cost savings of extended drain intervals.

**AMSOIL Magazine:** Why was the Signature Series brand carried over into the diesel world?

**Amatuzio:** Oil chemistry and additives have come a long way since the introduction of the API CJ-4 specification, and the advanced technology we used to formulate Signature Series is worthy of the Signature Series name. We don't use this name with every product. To be worthy of our founder's signature, the product must represent the pinnacle of technology. The new Signature Series Max-Duty Synthetic Diesel Oil does just that. It's an unapologetic, top-tier product geared for those who want the absolute best. It incorporates the top-of-the-line technology our competitors won't touch because it's too costly.

Some might say Signature Series is too good or it's overkill, but we say overkill is underrated. Our customers rely on their vehicles and equipment to make a living; turbodiesel enthusiasts are passionate about their vehicles and invest a lot of money into them. They want the best protection money can buy. Signature Series provides it.

It's a special product that we're very proud of. It provides 6X more protection against cylinder wear than required by a leading industry standard\*. Cylinder wear leads to oil consumption. Wear protection and reduced oil consumption are the top benefits our customers told us they want in a diesel oil. Signature Series hits it out of the park when it comes to addressing these issues.

**AMSOIL Magazine:** How does Heavy-Duty Synthetic Diesel Oil stack up?

It's an unapologetic, **top-tier product** geared for those who want **the absolute best.**

**Alan Amatuzio**  
Co-President & COO

\*than required by the Detroit Diesel DD13 Scuffing Test for Specification DFS 93K222.

**Amatuzio:** Heavy-Duty Synthetic Diesel Oil is geared for price-conscious customers, but when it comes to protection, it's an outstanding option. It presents a serious upgrade over conventional and competing synthetic diesel oils, providing 4X more engine protection than required by a leading industry standard\*, which, again, reduces oil consumption.

While Signature Series may be used for extended drain intervals, Heavy-Duty Synthetic Diesel Oil is recommended for OEM-specified drain intervals. Not everyone wants to extend their drain intervals, and that's fine. Here's a cost-competitive product that provides wear protection well beyond what can be found elsewhere.

**AMSOIL Magazine:** While the old OE Synthetic Diesel Oil was API-licensed, Heavy-Duty Synthetic Diesel Oil is not. What led to this decision?

**Amatuzio:** The API licensing system is a voluntary certification that only sets minimum quality standards. We examined the licensable API CK-4 technology on the market, and it did not meet our standards. Tying ourselves to an API license also limits the flexibility we need to quickly adopt new technologies that can further improve protection.

Before making the important decision on whether to seek the API license or not, we performed an extensive survey of our customers to determine which was more important to them: the API license or better protection and performance. The message was clear: Our customers look to us to provide outstanding protection and performance, and this is what is most important to them.

When formulating our new diesel oils, we used the API CK-4 specification as the minimum and engineered protection that surpasses it. We want to give customers the most protection we can, and sometimes that requires opting out of a licensing program. Diesel customers can rest assured their equipment is protected, and we back them up with our warranty.

**AMSOIL Magazine:** Why doesn't Signature Series 0W-40 carry the 6X more wear protection claim that's common to the other Signature Series viscosities?

**Amatuzio:** Although Signature Series 0W-40 uses the same advanced synthetic chemistry as the rest of our Signature Series line, the 6X more wear protection claim is based on the Detroit Diesel DFS 93K222 specification,

which doesn't recognize the 0W-40 viscosity. However, because cold-temperature performance is the primary attribute in which customers buying 0W-40 are interested, we're marketing this oil with a very impressive claim: Signature Series 0W-40 offers 4X better cold-temperature performance\*\*. That means engines turn over faster in cold weather, while start-up wear and unnecessary idle times are dramatically reduced, helping extend equipment life.

**AMSOIL Magazine:** I've heard Signature Series incorporates new additive technology. What are the benefits?

**Amatuzio:** Yes, we formulated Signature Series with a highly advanced mixed detergent system. Its magnesium and calcium content provides strong TBN retention, which makes it better at fighting acids and keeping engines clean. While other diesel oils may start with a high TBN number out of the bottle, the key is how well the oil retains alkalinity throughout its service life. This relates to what is known in the industry as hard TBN and soft TBN. Hard TBN effectively neutralizes acids and is achieved with the proper balance of calcium and magnesium additives. Soft TBN helps fresh oil achieve a high TBN number, but it depletes rapidly and is ineffective at neutralizing acids. AMSOIL Signature Series Max-Duty Synthetic Diesel Oil boasts 10 points of hard TBN, acid-neutralizing power that effectively protects engines for the long haul.

**AMSOIL Magazine:** In which markets should Dealers pursue sales of the new diesel oils?

**Amatuzio:** Turbodiesel pickup enthusiasts, contractors, small fleets, owner-operators and independent auto parts stores are all great markets. The turbodiesel truck market, in particular, is ripe for AMSOIL Dealers. Turbodiesel enthusiasts invest heavily in their trucks to increase power and make them stand out, and they seek the best protection they can find. We've also invested heavily in pursuing brand recognition and credibility in this market. We sponsor and participate in well-known and highly publicized diesel competitions like the

Some might say Signature Series is **too good** or it's **overkill**, but we say **overkill is underrated.**

**Alan Amatuzio**  
Co-President & COO

Diesel Power Challenge and Ultimate Callout Challenge. The coverage for these events in diesel enthusiast publications is outstanding, opening doors for Dealers to pursue sales in this market.

**AMSOIL Magazine:** How do prices and commissions compare to the old synthetic diesel oil lineup?

**Amatuzio:** Pricing for both the Signature Series and Heavy-Duty lines is consistent with the previous Premium and OE lines, and I am happy to say that Heavy-Duty Synthetic Diesel Oil provides Dealers higher commissions than the old OE product. We wanted Dealers to make more money with this product, and were able to achieve this while keeping it cost-competitive to help Dealers break into new markets and build their businesses. You're getting new, better technology, a cost-competitive product and higher commissions. That's a big win for everyone.

**AMSOIL Magazine:** Diesel engines are an expensive investment. While our new diesel oils provide second-to-none protection and performance, is there anything else diesel owners can do to protect and extend the life of their equipment?

**Amatuzio:** Yes, pairing an AMSOIL Ea® Bypass Filtration System with our top-tier diesel oil presents a serious 1-2 punch against wear. No matter how good the oil, particles present a serious challenge to equipment life. It is up to the oil to protect against metal-to-metal contact, deposits and acids, but it can't protect against invasive particles. It is the filter's job to remove particles from the system, but most full-flow filters are only effective removing particles down to 20 microns in size. AMSOIL Ea Bypass Filters efficiently remove contaminants down to 2 microns, dramatically reducing long-term wear. Not only that, but adding an Ea Bypass Filter allows the user to increase oil capacity. The more oil in the system, the more protection against wear.



# Signature Series Max-Duty Diesel Oil Proven Best at Protecting Engines from Rust

Intermittent use, prolonged storage, humidity and short drives can lead to the development of rust and corrosion, causing major damage to diesel engines. Examples of applications affected include: • **RVs** • **Off-Road Equipment** • **Marine**

## NMMA FC-W Rust Test

Developed to evaluate corrosion protection in the extreme operating environments of marine engines, the National Marine Manufacturers Association (NMMA) FC-W Rust Test represents a stringent, difficult-to-pass test for any engine oil. Metal coupons cut from actual Mercury\* cylinder liners are submerged in the test oil, placed in a salt humidity cabinet for 24 hours and rated.

## Superior Marine-Grade Rust Protection

We subjected Signature Series Max-Duty Synthetic Diesel Oil and four competitors to two rounds of testing. In order to pass the test, the average rating must be lower or equal to the reference oil average. As seen in the graph, Signature Series Max-Duty Synthetic Diesel Oil delivered a strong pass, while three competing oils failed and one was a borderline pass.

Signature Series Max-Duty Synthetic Diesel Oil provides up to **2X better** rust protection<sup>1</sup>, outperforming competing diesel oils.

<sup>1</sup>Based on industry standard testing using the NMMA FC-W Rust Test



## WHY SHOULD YOUR CUSTOMERS BUY AMSOIL SIGNATURE SERIES MAX DUTY SYNTHETIC DIESEL OIL?

- **6X more** engine protection<sup>2</sup>
- Highly optimized detergent package provides the **ultimate engine cleanliness** and **efficiency**
- **Extraordinary** marine-grade rust protection
- **Significantly exceeds** industry requirements
- **Full OEM** specification coverage
- High TBN provides outstanding acid neutralization for **long-term engine protection**
- **Reduces** oil consumption
- Exceptional **cold-temperature performance**
- **Top-grade protection** for extended drain intervals
- Available in **5W-30, 0W-40, 5W-40** and **15W-40** viscosities

<sup>2</sup>than required by the Detroit Diesel DD13 Scuffing Test for Specification DFS 93K222 using 5W-30 as worst-case representation

## NMMA FC-W Rust Test



Test results describe and represent properties of oils that were acquired on the dates listed in Table 1 (see [www.amsoil.com/rusttest.aspx](http://www.amsoil.com/rusttest.aspx)). Results do not apply to any subsequent reformulations of such oils or to new oils introduced after completion of testing. All oils were available to consumers at the time of purchase. Testing was completed in November 2017.



# Extraordinary Marine Grade Rust Protection

As seen in the graph below, AMSOIL Max-Duty Synthetic Diesel Oil delivered a strong pass, while three competing oils failed and one was a borderline pass.

## NMMA FC-W Rust Test



Test results describe and represent properties of oils that were acquired on the dates listed in Table 1 (see [www.amsoil.com/rusttest.aspx](http://www.amsoil.com/rusttest.aspx)). Results do not apply to any subsequent reformulations of such oils or to new oils introduced after completion of testing. All oils were available to consumers at the time of purchase. Testing was completed in November 2017.



## Ea<sup>®</sup> Heavy-Duty Extended-Life Oil Filters

Excellent Efficiency and Capacity throughout Extended-Service Intervals.

AMSOIL Ea Heavy-Duty Extended-Life Oil Filters (EaHD) provide excellent filtering efficiency and high contaminant capacity for heavy-duty on- and off-road diesel and gasoline applications. They provide extended service intervals that coincide with the maximum drain interval recommendations of AMSOIL synthetic engine oils (not to exceed one year), increasing convenience and reducing maintenance costs. Ea Heavy-Duty Filters offer AMSOIL quality at competitive prices.

### Absolute Efficiency

Efficiency refers to a filter's ability to trap wear-causing contaminants and prevent them from circulating throughout the engine. Ea Heavy-Duty Extended-Life Oil Filters are engineered using full-synthetic media that provides a filtering efficiency of 98.7 percent at 20 microns in accordance with industry standard ISO 4548-12, ranking them among the most efficient available for heavy-duty applications. Increased efficiency helps reduce wear for long engine life. Reference AMSOIL Heavy-Duty Bypass Systems for even more contaminant-removing power.

### Less Restriction

Ea Heavy-Duty Oil Filters have lower restriction than conventional cellulose media filters. Their small synthetic fibers trap smaller particles and hold more contaminants, while providing better flow than cellulose media. During cold-temperature warm-up periods, an Ea Heavy-Duty Oil Filter allows the oil to flow through the filter more easily than a typical cellulose filter. Lower restriction helps circulate oil more quickly, promoting long engine life.

### Contaminant Capacity

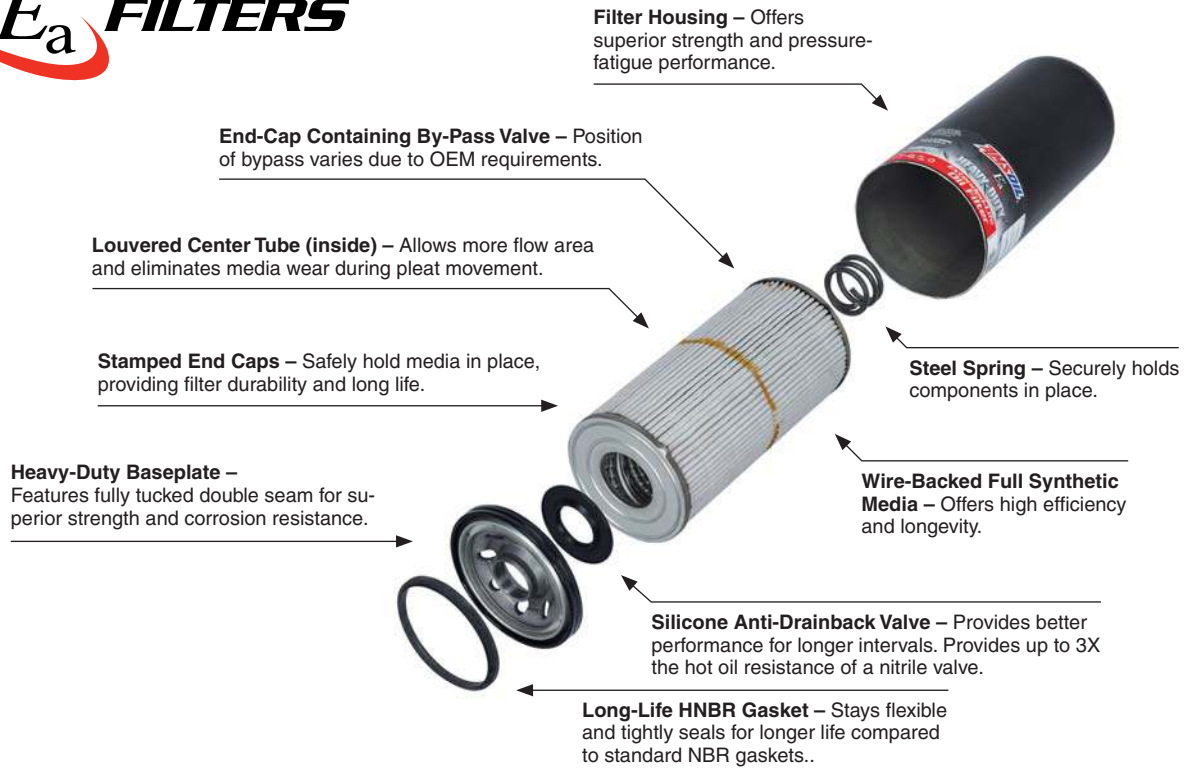
A filter's capacity refers to the amount of contaminants it can hold and still remain operational. AMSOIL Ea Heavy-Duty Oil Filters have a high holding capacity for wear-causing contaminants.



- Increased efficiency compared to cellulose filters for maximum wear protection
- Extended service intervals increase convenience and reduce maintenance
- Full-synthetic media

Make	Model	Filter Type	AMSOIL	Make	Model	Filter Type	AMSOIL
Caterpillar	3126	Spin-on	EaHD3191	Detroit	Series 60 (11.1L, 12.7L, 14.0L)	Spin-on (2)	EaHD2160
	C7 (7.2L)	Spin-on	EaHD3191	Mack	E7 ASET (300-465 HP) / E9 ASET (450 HP)	Spin-on (2)	EaHD3191
	C9 (8.8L)	Spin-on	EaHD4005		MP7, MP8, MP10	Spin-on (2)	EaHD3191
	C10 (10.3L)	Spin-on	EaHD4005	Navistar / Internat	DT570 (9.3L)	Spin-on	EaHD9025
	C11 (11.1L)	Spin-on	EaHD4005		Maxx Force 7	Cartridge	Ea15K88
	C12 (12.0L)	Spin-on	EaHD4005		Maxx Force 9 / 10 / DT	Spin-on	EaHD9025
	C15 (14.6L) / C16 (15.8L)	Spin-on	EaHD4005	Paccar	PX8	Spin-on	EaHD3000
	C18 (18.1L)	Spin-on	EaHD4005	Volvo	D11, D13, D16	Spin-on (2)	EaHD3191
Cummins	ISC / ISL	Spin-on	EaHD3000				
	ISM	Spin-on	EaHD9000				
	ISX	Spin-on	EaHD9000				





### Superior Construction

Ea® Heavy-Duty Oil Filters are made with premium-grade full-synthetic media. The strictly controlled processing of this media ensures accurate filter construction.

Over the service life of a conventional cellulose filter, hot oil can degrade the resins that bind the media. Ea Heavy-Duty Oil Filters' full-synthetic media technology is resin-free. It uses a wire screen backing that is pleated with the media for superior strength.

Ea Heavy-Duty Oil Filters are constructed with HNBR gaskets that are fully tested over long durations in numerous severe environments. The filters also feature fully tucked seams, a molded element seal, roll-formed threads and a long-lasting, premium-grade silicone anti-drain valve.

### APPLICATIONS

Ea Heavy-Duty Oil Filters are recommended for heavy-duty on- and off-road gasoline and diesel applications including, but not limited to, over-the-road trucks; dump trucks; refuse haulers; school buses; farm tractors; mining, construction and industrial equipment; and more. Popular manufacturers include Caterpillar, Peterbilt, Mack, Kenworth, John Deere, Ford and several others. Consult the online filter cross-reference guide at [www.amsoil.com](http://www.amsoil.com) for specific product recommendations.

### SERVICE LIFE

Ea Heavy-Duty Extended-Life Oil Filters should be changed at time of oil change, not to exceed one year.



AMSOIL products and Dealership information are available from your local AMSOIL Dealer.

## Heavy-Duty Bypass System

Heavy-Duty Remote Filtration System and Bypass Filter combine to provide outstanding oil filtration efficiency

The AMSOIL Heavy-Duty Bypass System (BMK30) provides superior filtration performance for heavy-duty on- and off-road applications. It is designed specifically for the AMSOIL Heavy-Duty Bypass Filter (EABP120), bringing AMSOIL synthetic technology to the heavy-duty market.

### Bypass Basics

Bypass oil filtration introduces a secondary filter with the purpose of eliminating nearly all contaminants from engine oil. Bypass filters have high capacities and eliminate much smaller particles than full-flow filters, including soot. Bypass filters reduce engine wear through high filtering efficiency, which means they have higher restriction and must be used in conjunction with a full-flow filter.

Bypass filters operate by filtering oil on a “partial-flow” basis. They draw approximately 10 percent of the oil pump’s capacity at any one time and trap the extremely small, wear-causing contaminants that full-flow filters can’t remove. Bypass filters have a high pressure differential, causing the oil to flow through them very slowly and allowing for the removal of smaller contaminants. It is called bypass filtration because the oil flows from the bypass filter back to the sump and bypasses the engine. This continual process eventually cleans all the oil in the system, reduces long-term wear and can dramatically extend the life of the engine.

### AMSOIL Heavy-Duty Bypass System

The Heavy-Duty Bypass System includes the mount, mounting hardware, 15 feet of hose, hose fittings, installation instructions and Bypass Filter (EABP120). Fitting suggestions and fitting locations can be found on the Heavy-Duty Bypass webpage ([https://www.amsoil.com/bypassfilters/instructions/BMK30\\_Fittings.pdf](https://www.amsoil.com/bypassfilters/instructions/BMK30_Fittings.pdf)). Available separately, the oil sample valve (BK30) eases the process of collecting oil samples. The system provides most of the necessary fittings, except the fitting required to pull pressurized oil from the engine and the return fitting to return oil to the sump. Other parts and fittings can be purchased from any hydraulics or heavy-duty equipment outlet.

### High-Quality, Durable Construction

The Heavy-Duty Bypass Filtration System is constructed of high-quality cast aluminum with a steel filter spud that has been thoroughly tested in on-road and severe off-road service. The mount is finished with a thick layer of powder-coated paint to provide maximum resistance to the degrading effects of road salt, debris and engine-compartment chemicals.



## General Installation Guidelines

Determine the location of a pressurized oil port on the engine. Pressure ports are usually found on the main oil galley or in close proximity to the full-flow filter head assembly. The oil flow from this source should be plumbed into the inlet side of the filter mount. The outlet will be directed to a low-pressure point on the engine, typically a port located at or near the oil pan. Detailed instructions are included with the Heavy-Duty Bypass Filtration System.

## AMSOIL Heavy-Duty Bypass Filter

The AMSOIL Heavy-Duty Bypass Filter (EABP120) features a proprietary media that removes 99% of all contaminants two microns and larger (ISO 4548-12), and provides superior soot-removal efficiency. It comes complete with a marine powder-coated finish for long filter life, even in extreme conditions.

### Increased Oil Capacity

The Heavy-Duty Bypass Filter increases the fluid system capacity by approximately one gallon, depending on length of hose and distance the filter is mounted from the engine. The additional oil and extended filtration life provide improved oil cooling and ensure equipment constantly runs on highly filtered oil. Engine efficiency is increased, providing extended engine life.

### Extended Service Life

The Heavy-Duty Bypass Filter offers long service life. Do not exceed the limits listed in the chart below. Extended oil drain intervals should always be accompanied by an oil analysis program.

EABP120	
Mileage	120,000
Hours	1,800
Time	1 year



## Heavy-Duty Filtration

The Heavy-Duty Bypass Filter was designed for heavy-duty applications. Its robust construction and superior filtration performance provide maximum protection over extended drain intervals, reducing downtime, increasing equipment life and saving money.

- Significantly extended engine life
- Efficient removal of small particles and soot
- Removal of particles two microns and larger
- Increased engine efficiency
- Improved oil cooling
- Helps maintain oil viscosity
- Reduces unscheduled downtime
- Reduces operational costs
- Increased fluid system capacity
- Increased filtration capacity and life
- Environmentally friendly
- Extended drain intervals

## APPLICATIONS

The Heavy-Duty Bypass System and Heavy-Duty Bypass Filter provide maximum filtration performance for virtually all heavy-duty gas and diesel applications, including Class 6, 7 and 8 heavy-duty trucks, off-road equipment, buses, generators, marine engines, logging and agricultural equipment. This bypass filtration system can be plumbed in series for larger applications with large sumps. For more information about the installation of one or more heavy-duty bypass systems on your application, contact AMSOIL Technical Services at (715) 399-TECH.

## PRODUCT WARRANTY

AMSOIL products are backed by a Limited Liability Warranty. For complete information visit [www.amsoil.com/warranty.aspx](http://www.amsoil.com/warranty.aspx).



AMSOIL products and Dealership information are available from your local full-service AMSOIL Dealer.

# Oil Analyzers Fluid Analysis

The Oil Analyzers Fluid Analysis Program protects valuable equipment by providing solutions for lubrication concerns through accurate and easy-to-understand fluid analysis, timely reporting, and an unparalleled commitment to personal, friendly customer service. Oil Analyzers works with fully equipped laboratories staffed by highly trained analysts and offers a complete line of oil analysis services to help you get the most from your lubricants and extend the life of your equipment.

**Personalized Service.** Oil Analyzers provides personalized customer service. Reports are easy to understand and recommendations are included so you know exactly what you should do to provide the best care for your equipment. In addition, Oil Analyzers customer service representatives are available by phone and email to answer questions.

**High-Quality Testing.** Oil Analyzers Fluid Analysis is performed at independent ISO 17025 A2LA accredited testing laboratories. This is the highest level of quality attainable by a testing laboratory backed by the most stringent accrediting body in the industry. You can be confident that the results you receive are accurate, repeatable and traceable to a standard.

**Innovative Information Technology Solutions.** Oil Analyzers online reporting software, HORIZON®, delivers your results almost immediately after sample processing is complete. The software's management reports take your fluid-analysis program to the next level by helping you manage your data and your program efficiently and effectively.

## Fluid Analysis Helps You Save Money

Because fluid analysis provides a comprehensive look at the condition of lubricants and internal component wear, tracking sample results over time can help save money.

**Maximize oil drain intervals.** Monitoring the condition of the oil allows you to optimize drain intervals so that you capitalize on the fluid's full service life. Performing fewer oil changes minimizes maintenance costs and maximizes uptime.

**Extend equipment life.** Monitoring system cleanliness and filtration efficiency can help you keep your equipment longer and significantly reduce replacement costs.

**Prevent major problems.** State-of-the-art fluid analysis identifies dirt, wear particles, fuel dilution, coolant and other contaminants that can cause catastrophic failure or significantly shorten equipment life.

**Maximize asset reliability.** Testing and analysis ensure that equipment is up, running and making money.

**Increase resale value.** Analysis results provide valuable sampling history documentation that justifies higher equipment resale values.

Not only will oil analysis help you determine the proper oil drain interval for your equipment, **but more important**, it is an early warning system. Oil analysis can alert you to abnormal wear, a bad fuel injector, a faulty air induction system, an

excessive amount of water accumulating in your oil, or perhaps the worst ...anti-freeze leaking into your oil. It allows you to spot and correct these problems before major damage occurs.

## **Oil Analysers Fluid Analysis Program Brochure**

<https://www.vaughninc.com/wp-content/uploads/2020/10/G2047-Oil-Analysis-Brochure-1.pdf>

## **BMK30 Bypass Filter Installation Instructions**

<https://www.vaughninc.com/wp-content/uploads/2020/10/BMK30.pdf>

## **BK30 - Sample Valve Kit for BMK30**



## **BK30 - Sample Valve Kit for BMK30**

**Designed for use with the AMSOIL Heavy-Duty By-Pass Filtration System (BMK30). Installs directly onto the BMK30 mount and includes the Deluxe Oil Sampling Valve (G1570), providing samples at the push of a button. Fluid analysis is most effective when samples are taken while systems are operating.**

**Product Code: BK30-EA**

**Wholesale Cost \$33.35**



## BK30 Assembly Instructions

Enclosed in this package is the BK30 Heavy-Duty Oil Sampling Valve requiring some final assembly to you BMK30 Heavy-Duty Bypass System. Please read these assembly instructions completely before beginning.



**Note:** BP190 included in BMK30 kit.



### Attaching the Sampling Valve:

1. Using the provided thread sealant, install the hex nipple portion of the BK30 kit into the outlet of the BK305 mount. Tighten 2-3 turns beyond finger tight. Note: To avoid damage to the BK305 head, do not overtighten.
2. Ensure the position of the sampling valve is easily accessible to allow for convenient sampling.
3. Using the thread sealant, install the BP190 fitting adapter into the outlet of the BK30 and tighten as described above. Once tight, the hose connector can be attached and secured.
4. Start and check for leaks.

## BMK30 Bypass Oil Filter and Mount



### BMK30 Bypass Filter Installation Instructions

<https://www.vaughninc.com/wp-content/uploads/2020/10/BMK30.pdf>



## Long Life Synthetic Gear Lube

Specifically Engineered for 500,000-Mile Service Life  
in Over-the-Road Trucks

AMSOIL Long Life Synthetic Gear Lube is an extended-drain gear lube engineered to last several times longer and protect gears better than conventional gear oils. This exclusive AMSOIL formulation of premium synthetic base oils and high-performance additives resists acid, carbon and varnish formation from oxidative breakdown. Components run cleaner and last longer. AMSOIL Long Life Synthetic Gear Lube is shear-stable and reduces friction. It maintains its viscosity during extended service for maximum wear control and is fuel-efficient. The superior cold-temperature fluidity and high-temperature stability properties of AMSOIL Long Life Synthetic Gear Lube make it excellent for all-season use. AMSOIL Long Life Synthetic Gear Lube helps extend equipment life and reduce maintenance costs.

### APPLICATIONS

AMSOIL Long Life Synthetic Gear Lube, in the correct viscosity grade, is recommended for domestic and foreign applications, including over-the-road trucks, light-, medium- and heavy-duty trucks, off-road equipment, commercial vehicles, motor homes, autos, SUVs, emergency vehicles, buses, delivery/utility vehicles and tractors.

Use AMSOIL Long Life Synthetic Gear Lube in differentials, manual transmissions or other gear applications where one or more of the following standards are specified: API GL-5 & MT-1, MIL-PRF-2105E, Dana\* SHAES\* 234 (Formerly Eaton\* PS-037) for 250,000 miles, Dana SHAES 256 (Formerly Eaton PS-163) for 500,000 miles, Dana SHAES 429A, Mack\* GO-J & GO-J+, Meritor\* 0-76N (75W-90) & 0-80 (80W-140) plus hypoid gear oil specifications from ZF TE-ML 07A and 08 foreign and domestic manufacturers such as GM\*, Ford\* and Daimler\* Chrysler\*. It can also be used in rear axles where API Service GL-4 lubricant is recommended.



**75W-90 (FGR)  
& 80W-140 (FGO)**

- **High-Load** gear and bearing protection
- **Protection** from rust and corrosion
- **Better** cold-weather shifting
- **Improved** efficiency
- **Improved** seal life



## TYPICAL TECHNICAL PROPERTIES

### AMSOIL Long Life Synthetic Gear Lube 75W-90 & 80W-140

	SAE 75W-90 (FGR)	SAE 80W-140 (FGO)
Kinematic Viscosity @ 100°C, cSt (ASTM D445)	15.7	26.3
Kinematic Viscosity @ 40°C, cSt (ASTM D445)	115.8	244.8
Viscosity Index (ASTM D2270)	143	138
Brookfield Viscosity, cP (ASTM D2983)	109,000 @ -40°C	63,706 @ -26°C
Flash Point, °C (°F) (ASTM D92)	208 (406)	216 (421)
Pour Point, °C (°F) (ASTM D97)	-48 (-54)	-43 (-45)
Copper Strip Corrosion Test (ASTM D130)	1B	1B
@ 121°C (250°F) / 3hr		
Foam Stability (ASTM D892)	0/0, 0/0, 0/0	0/0, 0/0, 0/0

For product service life in differentials, consult your owner's manual or the original equipment manufacturer (OEM) to establish the application, NORMAL or SEVERE.

Product/Classification	Normal Service	Severe Service
<b>Cars, SUVs &amp; Light Trucks</b>	Drain at 100,000 miles of service or according to the owner's manual, whichever is longer.	Drain at 50,000 miles of service or according to the owner's manual, whichever is longer.
<b>Heavy-Duty Class 8 Line Haul</b>	Follow the OEM drain interval (miles or hours) up to 500,000 miles or five years, whichever comes first.	
<b>Vocational/Delivery</b>	Follow the OEM drain interval (miles or hours) for synthetic oil up to 120,000 miles or three years, whichever comes first.	
<b>Heavy-Duty Off-Road</b>	Follow the OEM drain interval (miles or hours) for synthetic oil up to 100,000 miles or two years, whichever comes first.	

For product service life in non-differential applications, consult owner's manual or the OEM for either normal or severe synthetic oil service intervals. Where service intervals are unavailable, drain at twice the interval for conventional oil.

**Note:** AMSOIL does not support extended drain intervals where water contamination occurs. Check and service the gear oil frequently when water contamination is possible.

Gear oils should be changed more frequently when operating vehicles or equipment in dusty or dirty conditions unless the gear system is properly sealed and equipped with membrane-type breathers.

## COMPATIBILITY

AMSOIL Long Life Synthetic Gear Lube is compatible with other synthetic and conventional gear oils. Mixing AMSOIL gear oils with other oils, however, will shorten the oil's life expectancy and reduce its performance benefits. AMSOIL does not support extended drain intervals where oils have been mixed.

AMSOIL Long Life Synthetic Gear Lube is compatible with most limited-slip differentials. If limited-slip differential chatter occurs, add AMSOIL Slip-Lock® friction modifier additive.

AMSOIL Long Life Synthetic Gear Lube 75W-90 replaces competitors' 75W-90 and 80W-90 viscosity grades.

AMSOIL Long Life Synthetic Gear Lube 80W-140 replaces competitors' 80W-140 and 85W-140 viscosity grades.

## AMSOIL PRODUCT WARRANTY

AMSOIL products are backed by a Limited Liability Warranty. For complete information visit [www.amsoil.com/warranty.aspx](http://www.amsoil.com/warranty.aspx).

## HEALTH AND SAFETY STATEMENT

This product is not expected to cause health concerns when used for the intended applications and according to the recommendations in the Safety Data Sheet (SDS). An SDS is available online at [www.amsoil.com](http://www.amsoil.com) or upon request at (715) 392-7101.

**Keep Out of Reach of Children.** Recycle used oil and bottle.



AMSOIL products and Dealership information are available from your local full-service AMSOIL Dealer.



## SAE 50 Long-Life Synthetic Transmission Oil

### Specifically Engineered for 500,000-Mile Service Life in Over-The-Road Trucks.

AMSOIL SAE 50 Long-Life Synthetic Transmission Oil is specially formulated to meet the demanding requirements of manual transmissions found in high-torque, heavy-duty line-haul trucks and other commercial applications. Its synthetic base stocks and premium additives help reduce gear and bearing wear (see photos), improve shifting and extend transmission life throughout drain intervals of up to 500,000 miles/five years. Compared to conventional fluids, Long-Life Synthetic Transmission Oil can help operators reduce maintenance costs and increase productivity.



#### Year-Round Performance

AMSOIL Long-Life Synthetic Transmission Oil's high viscosity index translates into better high- and low-temperature performance compared to conventional fluids. In cold weather, it provides easier shifts and reduced fluid drag for increased fuel economy. Its exceptional thermal stability inhibits chemical breakdown and sludge formation at high operating temperatures to help transmissions run cleaner.

#### Resists Wear

AMSOIL Long-Life Synthetic Transmission Oil's synthetic base oils withstand the pressures of high-load, high-torque applications. As a result, it resists viscosity loss due to mechanical shear to provide a durable lubricating fluid film for increased wear resistance and longer transmission life.

To prove its effectiveness, AMSOIL installed SAE 50 Long-Life Synthetic Transmission Oil in line-haul trucks and placed them into real-world service.

After 500,000 miles, a transmission was disassembled and inspected by a calibrated ASTM rater. Results reveal Long-Life Synthetic Transmission Oil provided outstanding wear protection in all critical components. Examples include the mainshaft input drive gear and output shaft bearing, which both earned high merit scores of 8 out of a possible 10 for wear. In addition, both components showed no scoring, spalling or corrosion, scoring perfect 10s in all areas.

#### Inhibits Foam

Churning gears introduce air into the fluid, causing foam. When bubbles between gear surfaces collapse, metal-to-metal contact and increased wear result. Long-Life Synthetic Transmission Oil contains foam inhibitors to ensure formation of a strong lubricating film and excellent wear protection.

#### Seal Friendly

Long-Life Synthetic Transmission Oil is compatible with seals to help prevent leaks and extend seal life.



After 500,000 miles of real-world service, the transmission mainshaft input drive gear lubricated with AMSOIL Long-Life Synthetic Transmission Oil showed minimal wear and is suitable for continued use.



The transmission output shaft bearing showed no scoring, spalling or corrosion following 500,000 miles with AMSOIL Long-Life Synthetic Transmission Oil.

## TYPICAL TECHNICAL PROPERTIES

### SAE 50 Long-Life Synthetic Transmission Oil (FTF)

Viscosity 100°C, cSt (ASTM D-445).....	17.6
Viscosity 40°C, cSt (ASTM D-445).....	126.1
Viscosity Index (ASTM D-2270).....	154
Specific Gravity (g/ml) .....	0.8540
Density, (lb/gal) .....	7.111
Color.....	L4.0 (Red)
Flash Point, °C (°F) (ASTM D-92).....	254 (489)
Fire Point, °C (°F) (ASTM D-92) .....	270 (518)
Pour Point, °C (°F) (ASTM D-97).....	-46 (-51)
Four-Ball Wear Test (ASTM D-4172)	
Para 1 (75°C, 1200 rpm, 40 kg, 1 hr) .....	0.35
Brookfield Viscosity -40°C (cP) (ASTM D-2983) .....	108,000
Foam Tendency (ASTM D-892) .....	0/0, 0/0, 0/0
Copper Corrosion, 121°C, 3 hr (ASTM D-130).....	1B
60-Hour KRL (% V <sub>k100</sub> loss) (CEC L-45-A-99).....	-2.28

## APPLICATIONS

AMSOIL SAE 50 Long-Life Synthetic Transmission Oil is excellent for use in manual transmissions requiring an SAE 50 lubricant found in heavy-duty equipment. It is recommended for applications specifying any of the following:

- Eaton PS-164 Rev. 7
- API GL-1 and MT-1
- Navistar/International TMS 6816
- Mack TO-A Plus
- Volvo I-Shift
- ZF Freedomline
- Meritor 0-81
- Rockwell/Eaton/Fuller CD-50 (PS-081)

## SERVICE LIFE

Follow the OEM drain interval for synthetic oil up to 500,000 miles or five years, whichever comes first.

## HEALTH & SAFETY

This product is not expected to cause health concerns when used for the intended application and according to the recommendations in the Material Safety Data Sheet (MSDS). An MSDS is available via the Internet at [www.amsoil.com](http://www.amsoil.com) or upon request at (715) 392-7101. **Keep Out of Reach of Children.** Don't pollute. Return used oil to collection centers.

For AMSOIL warranty information, visit [www.amsoil.com/warranty.aspx](http://www.amsoil.com/warranty.aspx).



AMSOIL products and Dealership information are available from your local AMSOIL Dealer.



## AMSOIL Synthetic Polymeric Truck, Chassis and Equipment Grease

Synthetic Polymeric Truck, Chassis and Equipment Grease delivers excellent wear protection and extreme-pressure performance over extended service intervals in medium- and heavy-duty applications. It combines synthetic base oils, proprietary polymeric chemistry, an advanced additive package and a lithium-complex thickener for excellent impact resistance, reliable contaminant control and maximum longevity.

### Impact Resistant

Greasable components on heavy-duty trucks and equipment regularly operate in severe-service, extreme-pressure environments. Frequent high-load operation can push grease out of the application, which can leave components vulnerable to increased wear and corrosion. Synthetic Polymeric Truck, Chassis and Equipment Grease is formulated to deliver maximum impact resistance. Its exceptional adhesion and cohesion properties help keep the grease in place to seal out water and contaminants and provide a protective barrier between metal components.

### Long Service Life

Most trucking companies work to maximize the amount of time trucks are on the road, and inferior greases are not engineered to perform over the intended service intervals. The long intervals truckers demand can result in components being left unprotected because the grease has squeezed out of place. Synthetic Polymeric Truck, Chassis and Equipment Grease is engineered to remain intact for maximum protection over extended service intervals. Owners/operators can be assured their equipment is protected when the job demands additional time on the road between maintenance checks.

### Superior Rust and Corrosion Protection

Over-the-road trucks and commercial equipment operate in all types of weather. Water, snow and ice are encountered regularly, and they combine with salt and other road-deicing chemicals to promote accelerated corrosion on chassis and fifth-wheel components. Synthetic Polymeric Truck, Chassis and Equipment Grease clings tenaciously to metal surfaces, helping keep rain, snow and other corrosive contaminants from penetrating greasable components. It is formulated with an advanced additive package designed to combat the harmful effects of roadway contaminants, helping components last longer and saving fleets money.

### Maximum Extreme-Pressure Protection

Synthetic Polymeric Truck, Chassis and Equipment Grease is engineered for maximum protection in extreme-pressure applications. It features a sophisticated additive package and exclusive synthetic polymeric technology designed to provide long-term protection for heavily loaded components. Synthetic Polymeric Truck, Chassis and Equipment Grease's high Timken OK Load and excellent Four-Ball Weld Test results prove its superior performance in extreme-pressure environments.



NLGI #1

NLGI #2

- **Stays** in place for excellent severe-service protection
- **Delivers** peace of mind when maintenance is delayed
- **Protects** against extreme impact and pressure
- **Helps** seal out water, dirt and other contaminants

## TYPICAL TECHNICAL PROPERTIES

### AMSOIL Synthetic Polymeric Truck, Chassis and Equipment Grease

	GPTR1	GPTR2
NLGI Grade	1	2
Penetration, worked 60 strokes (ASTM D217)	310-340	265-295
Base Oil Viscosity @ 40°C (104°F), cSt (ASTM D445)	68	220
Timken OK Load Test, lbs. (ASTM D2509)	70	60
Four-Ball Weld Point, kgf (ASTM D2596)	620	620
Dropping Point, °C (°F) (ASTM D2265)	260 (500)	260 (500)
Water Washout, % (ASTM D1264)	7	3
Ambient Operating Temperature Range, °C (°F)	-40 to 163 (-40 to 325)	-29 to 177 (-20 to 350)
Thickener	Lithium Complex	Lithium Complex
Corrosion Test (ASTM D1743)	Pass	Pass

## APPLICATIONS

AMSOIL Synthetic Polymeric Truck, Chassis and Equipment Grease is ideal for mixed fleets that operate in severe service. It is recommended for heavy-duty over-the-road trucks and trailers, delivery fleets, dump trucks, refuse haulers, utility fleets, emergency service vehicles, sewer and septic trucks, snow-removal vehicles, wreckers, municipal service vehicles, equipment haulers, cement mixer trucks, airport support vehicles and more. It provides exceptional performance in heavily loaded chassis grease points, wheel bearings, axle assemblies, universal joints, pivot pins, fifth-wheel hitch plates, steering linkages, spring pins, king pins, ball joints, water pump bearings and other greased heavy-duty components.

## COMPATIBILITY

Synthetic Polymeric Truck, Chassis and Equipment Grease is compatible with many other types of grease. However, it is recommended that when changing greases, the equipment be cleaned of the old grease or flushed with a liberal amount of Synthetic Polymeric Grease while the mechanism is in operation. Closely monitor the system for any inconsistencies. Grease compatibility questions should be referred to your AMSOIL Dealer or AMSOIL Technical Services at (715) 399-TECH).

## APPLICATION MAINTENANCE

Maintaining a clean work environment is important when equipment greasing is performed. Wipe grease fittings clean prior to injecting grease to prevent contaminant ingestion. Maintain bearing housings one-third to one-half full of grease. Do not over-grease, as excessive heat buildup can result. Supplement standard grease maintenance by periodically cleaning and packing housings with fresh grease on an established maintenance schedule.

## PRODUCT AVAILABILITY

Synthetic Polymeric Truck, Chassis and Equipment Grease is available in 14-oz. cartridges, 35-lb. lugs, 120-lb. kegs and 400-lb. drums.

## PRODUCT WARRANTY

AMSOIL products are backed by a Limited Liability Warranty. For complete information visit [www.amsoil.com/warranty.aspx](http://www.amsoil.com/warranty.aspx).

## HEALTH & SAFETY

This product is not expected to cause health concerns when used for the intended applications and according to the recommendations in the Safety Data Sheet (SDS). An SDS is available online at [www.amsoil.com](http://www.amsoil.com) or upon request at (715) 392-7101. **Keep Out of Reach of Children.**

*\* Note: Synthetic Polymeric Truck, Chassis and Equipment Grease is designed to remain in place for long service intervals. The same properties that provide its enhanced tenacity can also make it harder to pump. GPTR2 pumps best in temperatures above 40°F, while GPTR1 pumps best in temperatures above 0°F. A heavy follower plate may be necessary when pumping grease from larger package sizes. Synthetic Polymeric Truck, Chassis and Equipment Grease is not recommended for automatic or centralized lubrication systems on heavy equipment unless the system is designed to successfully pump a tackier grease.*



AMSOIL products and Dealership information are available from your local AMSOIL Dealer.



## Diesel Injector Clean

### Cleans and Protects

AMSOIL Diesel Injector Clean (ADF/ADFP) removes performance-robbing deposits from diesel fuel injectors to help restore horsepower and improve fuel economy. It is formulated for all types of diesel engines, including high-pressure common-rail designs. Diesel Injector Clean is formulated to clean both the tough-to-remove internal diesel injector deposits surfacing in modern high-pressure common-rail diesel engines and traditional carbonaceous deposits. Diesel Injector Clean delivers confidence in your diesel's performance. Its concentrated formula uses unique chemistry to target and eliminate specific performance issues, maximizing diesel power.

### Helps Restore Horsepower & Improve Fuel Economy

Fuel injector deposits interrupt spray patterns, causing poor fuel atomization, incomplete combustion, excessive emissions and smoke. High-pressure common-rail fuel systems are becoming commonplace as vehicle manufacturers attempt to produce more power while still meeting tightening emissions standards. In high-pressure common-rail systems, injection pressures can be 30,000 psi and higher to atomize the fuel into a fine mist for more efficient combustion, yielding increased power and fuel economy while reducing emissions. To maintain these high pressures, injector assemblies are highly engineered, with clearances as tight as 1-3 microns (a human hair is typically 70-100 microns thick). Even minimal internal diesel injector deposits on the injector pintal or other components can lead to sticking and even seizure, reducing power, fuel economy and operability. Traditional additive chemistry is not designed to address these tough-to-remove deposits.

Diesel Injector Clean features advanced chemistry that delivers concentrated strength to target internal diesel injector deposits and traditional carbonaceous deposits, helping to restore horsepower and operability to like-new condition. Acceleration is improved and, with regular use, Diesel Injector Clean continues to enhance performance by keeping injectors clean. The net savings on fuel can result in no additional cost of ownership.

### Lubricates Pumps & Injectors to Reduce Wear

Ultra-low-sulfur diesel fuel (ULSD) provides significantly reduced lubricity – a critical property in controlling wear in fuel pumps and injectors. Diesel Injector Clean adds back the lubricity the fuel pump and injectors need, reducing wear, improving service life and saving time and money on maintenance costs.

### Minimizes Soot-Loading

Diesel Injector Clean's powerful formula cleans fuel injectors and piston rings for improved combustion and better sealing. It minimizes soot generated from incomplete combustion and helps keep soot out of the crankcase, reducing soot-related wear and engine oil viscosity increase.

### Separates Fuel and Water

Diesel Injector Clean is an alcohol-free product that protects fuel systems against water contamination. It helps prevent fuel/water emulsions so that separating filters can safely remove water before it reaches the injectors, where it can cause corrosion. Water can be drained easier, ensuring drivability.



- **Cleans** dirty injectors
- **Lubricates** pumps and injectors to reduce wear
- **Extends** fuel-filter life
- **Improves** fuel economy up to 8%
- **Restores** power and torque
- **Reduces** smoke and emissions
- **Helps** prolong time between EGR and DPF regenerations
- **Combats** fuel-system corrosion
- **Reduces** downtime and maintenance costs
- **Safe for use** in all diesel fuels, including biodiesel
- **Alcohol-free**



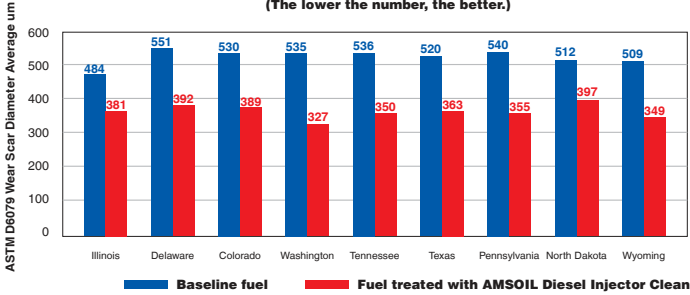
## Extends Filter Life

Modern diesel engines run hot, raising the temperature of the fuel returned to the tank and causing carbonaceous deposits that collect in the fuel filter (see picture), plugging it and causing premature failure issues. AMSOIL Diesel Injector Clean effectively protects against deposits, extending fuel filter life.



## Lubricity Improvement

(The lower the number, the better.)



The ASTM D975 diesel fuel standard specifies a wear scar below 520  $\mu\text{m}$  in ASTM D6079 testing, while the Engine Manufacturers Association (EMA) specifies a wear scar below 460  $\mu\text{m}$ . Testing reveals AMSOIL Diesel Injector Clean provides significant lubricity improvement in diesel fuels found across the U.S., delivering improved wear protection.

## RECOMMENDATIONS

Diesel Injector Clean is recommended for use with all types of heavy- and light-duty, on- or off-road and marine diesel engines. For initial use, follow the Clean-Up recommendation; use Maintenance dose for regular treatment. Use with every tank of fuel for best performance and protection against fuel-pump wear, injector wear and injector deposits. Compatible with all types of exhaust emission systems, including diesel particulate filters (DPFs). Add to fuel before storage. Excellent for use with AMSOIL Diesel Cetane Boost and AMSOIL Diesel Cold Flow.

AMSOIL Diesel Injector Clean

Use this treat rate chart for the 16-oz., 64-oz. and larger package sizes of AMSOIL Diesel Injector Clean.

CLEAN-UP	MAINTENANCE	FUEL VOLUME
2 oz.	1 oz.	5 Gal.
4 oz.	2 oz.	10 Gal.
12 oz.	6 oz.	30 Gal.
32 oz.	16 oz.	80 Gal.

Use this treat rate chart for the 8-oz. size of AMSOIL Diesel Injector Clean.

CLEAN-UP	MAINTENANCE	FUEL VOLUME
2 Bottles	1 Bottle	Up to 20 Gal.

## AMSOIL PRODUCT WARRANTY

AMSOIL products are backed by a Limited Liability Warranty. For complete information visit [www.amsoil.com/warranty.aspx](http://www.amsoil.com/warranty.aspx).

## High-Pressure Common-Rail Fuel Injector Pintal



Fuel injectors in high-pressure common-rail diesel engines use smaller, highly engineered components to produce the higher fuel pressures needed for improved combustion. The tighter clearances invite internal diesel injector deposits that interfere with injector needle actuation, reducing performance. External deposits can also form on the injector

## Traditional Fuel Injector Pintal



nozzle (the typical trouble spot for traditional injectors). While many other fuel additives have yet to catch up to the internal diesel injector deposit problem, AMSOIL Diesel Injector Clean targets deposits wherever they form, maximizing power, fuel economy and performance in high-pressure common-rail and traditional diesel engines.



AMSOIL products and Dealership information are available from your local full-service AMSOIL Dealer.



The First in Synthetics®

## Diesel Cetane Boost Serious Performance Boost

AMSOIL Diesel Cetane Boost (ACB) raises the cetane number of diesel fuel up to eight points for maximum horsepower, increased fuel economy and easier starts in all diesel engines. Diesel engines operate best on fuel with cetane values of 50 or higher. Most diesel fuel sold in North America has a cetane value of 40-45. Diesel Cetane Boost delivers confidence in your diesel's performance. Its concentrated formula uses unique chemistry to target and eliminate specific performance issues, maximizing diesel power.

### Improves Fuel Quality for Peak Performance

Fuel with a higher cetane number provides for a more complete burn, resulting in improved performance. By increasing cetane, Diesel Cetane Boost improves the ignition quality of diesel fuel, maximizing available power and improving starting. It also smooths idle and reduces smoke and emissions.

### Recommendations

Diesel Cetane Boost is recommended for use in all types of heavy- and light-duty, on- and off-road and marine diesel engines. Best performance is achieved when used with every tank of fuel. Excellent for use with ultra-low-sulfur diesel fuel (ULSD). Compatible with biodiesel and all types of exhaust emission systems, including diesel particulate filters (DPFs). Follow the chart below. Add before filling tank. Excellent for use with AMSOIL Diesel Injector Clean and AMSOIL Diesel Cold Flow.

	4-POINT INCREASE	8-POINT INCREASE	FUEL VOLUME
ADDITIVE	—	1 oz.	5 gal.
	1 oz.	2 oz.	10 gal.
	3 oz.	6 oz.	30 gal.
	8 oz.	16 oz.	80 gal.

### Technical Services

For immediate answers to your technical questions call (715) 399-TECH (8324) between 8 a.m. and 5 p.m. Central time or email [tech@amsoil.com](mailto:tech@amsoil.com).

### HEALTH & SAFETY

This product is not expected to cause health concerns when used for the intended application and according to the recommendations in the Safety Data Sheet (SDS). An SDS is available at [www.amsoil.com](http://www.amsoil.com) or upon request at (715) 392-7101.

**Keep Out of Reach of Children.**

### PRODUCT WARRANTY

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- **Increases** cetane up to 8 points
- **Delivers** maximum horsepower
- **Increases** fuel economy
- **Improves** startability
- **Smooths** idle
- **Reduces** smoke & emissions
- **Safe for use** in all diesel fuels, including biodiesel
- **Alcohol-free**



The First in Synthetics®

AMSOIL products and Dealership information are available from your local full-service AMSOIL Dealer.



## Diesel Injector Clean + Cetane Boost

### Defend your diesel

AMSOIL Diesel Injector Clean + Cetane Boost (ADS) combines the superior detergency and improved lubricity of AMSOIL Diesel Injector Clean and the increased horsepower and cetane of AMSOIL Cetane Boost in one convenient package. Diesel Injector Clean + Cetane Boost is specially engineered to defend your engine and fuel system against performance-robbing wear and deposits. Its concentrated formula provides dependable protection in warm weather. One dose delivers outstanding detergency, improved lubricity and higher cetane. It is safe for use in all diesel fuels, including biodiesel.

#### Restores Horsepower & Improves Fuel Economy

Fuel injector deposits interrupt spray patterns, causing poor fuel atomization, incomplete combustion, excessive emissions and smoke. High-pressure common-rail fuel systems are becoming commonplace as vehicle manufacturers attempt to produce more power while still meeting tightening emissions standards. In high-pressure common-rail systems, injection pressures can be 30,000 psi and higher to atomize the fuel into a fine mist for more efficient combustion, yielding increased power and fuel economy while reducing emissions. To maintain these high pressures, injector assemblies are highly engineered, with clearances as tight as 1-3 microns (a human hair is typically 70-100 microns thick). Even minimal internal diesel injector deposits on the injector pintal or other components can lead to sticking and even seizure, reducing power, fuel economy and operability. Traditional additive chemistry is not designed to address these tough-to-remove deposits.

Diesel Injector Clean + Cetane Boost features advanced chemistry that delivers concentrated strength to target internal diesel injector deposits and traditional carbonaceous deposits, helping to restore horsepower and operability to like-new condition. Acceleration is improved and, with regular use, Diesel Injector Clean + Cetane Boost continues to enhance performance by keeping injectors clean. The net savings on fuel can result in no additional cost of ownership.

#### Lubricates Pumps & Injectors to Reduce Wear

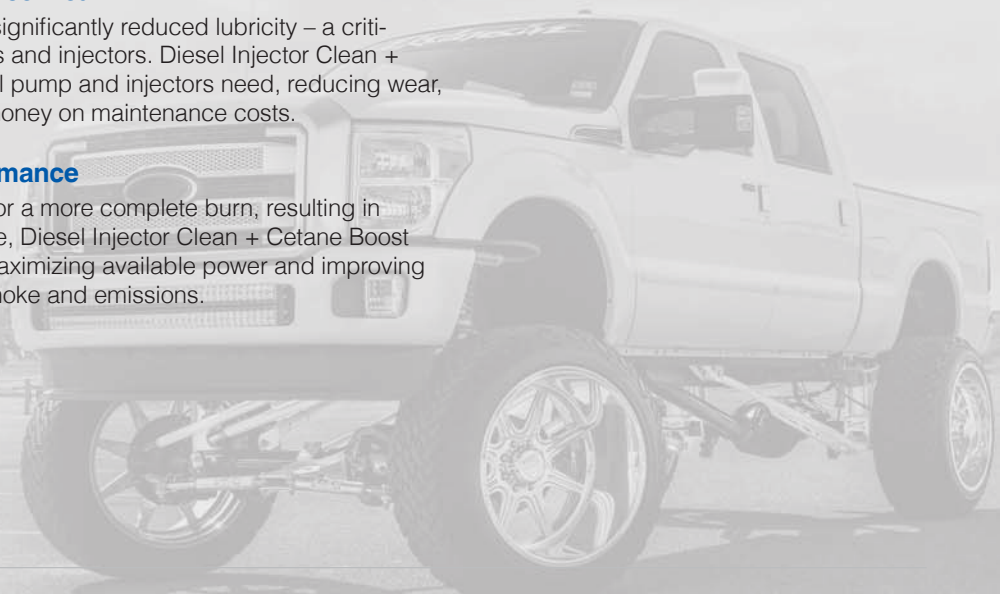
Ultra-low-sulfur diesel fuel (ULSD) provides significantly reduced lubricity – a critical property in controlling wear in fuel pumps and injectors. Diesel Injector Clean + Cetane Boost adds back the lubricity the fuel pump and injectors need, reducing wear, improving service life and saving time and money on maintenance costs.

#### Improves Fuel Quality for Peak Performance

Fuel with a higher cetane number provides for a more complete burn, resulting in improved performance. By increasing cetane, Diesel Injector Clean + Cetane Boost improves the ignition quality of diesel fuel, maximizing available power and improving starting. It also smooths idle and reduces smoke and emissions.

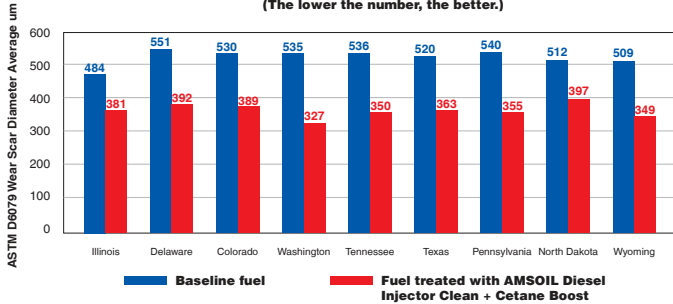


- **Cleans** dirty injectors
- **Lubricates** pumps and injectors to reduce wear
- **Increases** cetane up to 8 points
- **Extends** fuel-filter life
- **Improves** fuel economy up to 8%
- **Combats** fuel-system corrosion
- **Delivers** maximum horsepower
- **Safe for use** in all diesel fuels, including biodiesel
- **Alcohol-free**



## Lubricity Improvement

(The lower the number, the better.)



The ASTM D975 diesel fuel standard specifies a wear scar below 520 µm in ASTM D6079 testing, while the Engine Manufacturers Association (EMA) specifies a wear scar below 460 µm. Testing reveals AMSOIL Diesel Injector Clean + Cetane Boost provides significant lubricity improvement in diesel fuels found across the U.S., delivering improved wear protection.

### Extends Filter Life

Modern diesel engines run hot, raising the temperature of the fuel returned to the tank and causing carbonaceous deposits that collect in the fuel filter (see picture), plugging it and causing premature failure issues. Diesel Injector Clean + Cetane Boost effectively protects against deposits, extending fuel filter life.



## RECOMMENDATIONS

Diesel Injector Clean + Cetane Boost is recommended for use with all types of heavy- and light-duty, on- or off-road and marine diesel engines. Add before filling tank. **Initial use:** follow clean-up recommendation. **Subsequent uses/regular treatment:** follow maintenance recommendation. To prevent cold-weather fuel issues, add AMSOIL Diesel Cold Flow or switch to AMSOIL Diesel All-In-One.

Use this treat rate chart for the 16-oz., 64-oz. and larger package sizes of AMSOIL Diesel Injector Clean + Cetane Boost

CLEAN-UP	MAINTENANCE	FUEL VOLUME
<b>2 oz. of additive</b> 8-point cetane increase	<b>1 oz. of additive</b> 4-point cetane increase	5 gal.

Use this treat rate chart for the 8-oz. size of AMSOIL Diesel Injector Clean + Cetane Boost

CLEAN-UP	MAINTENANCE	FUEL VOLUME
<b>2 Bottles</b> 8-point cetane increase	<b>1 Bottle</b> 4-point cetane increase	Up to 20 gal.

## PRODUCT WARRANTY

AMSOIL products are backed by a Limited Liability Warranty. For complete information visit [www.amsoil.com/warranty.aspx](http://www.amsoil.com/warranty.aspx).

## High-Pressure Common-Rail Fuel Injector Pintal



## Traditional Fuel Injector Pintal



Fuel injectors in high-pressure common-rail diesel engines use smaller, highly engineered components to produce the higher fuel pressures needed for improved combustion. The tighter clearances invite internal diesel injector deposits that interfere with injector needle actuation, reducing performance. External deposits can also form on the injector nozzle (the typical trouble spot for traditional injectors). While many other fuel additives have yet to catch up to the internal diesel injector deposit problem, AMSOIL Diesel Injector Clean + Cetane Boost targets deposits wherever they form, maximizing power, fuel economy and performance in high-pressure common-rail and traditional diesel engines.



AMSOIL products and Dealership information are available from your local full-service AMSOIL Dealer.

## Diesel Cold Flow

### Combats fuel gelling in cold weather

AMSOIL Diesel Cold Flow (ADD) combats diesel fuel gelling by improving diesel cold-flow ability. It is formulated with an advanced deicer to enhance fuel flow and help prevent fuel filter plugging in cold temperatures. Diesel Cold Flow is formulated for a broad range of diesel fuels, including biodiesel and #1 and #2 ultra-low-sulfur diesel (ULSD). Diesel Cold Flow delivers confidence in your diesel's performance. Its concentrated formula uses unique chemistry to target and eliminate specific performance issues, maximizing diesel power.

#### Reduces Need for #1 Diesel Fuel

Using #1 diesel fuel is one traditional solution to cold-weather diesel fuel problems. While #1 diesel fuel has an advantage in low-temperature operability, the energy content of #1 diesel fuel is about 95 percent that of #2 diesel fuel, resulting in reduced fuel economy and less horsepower, and it costs more at the pump. Diesel Cold Flow minimizes the need for blending standard #2 diesel fuel with #1 diesel fuel, helping to maintain fuel economy and keep engines functioning normally.

#### Helps Prevent Gelling

As the temperature drops, the wax naturally found in diesel fuel begins to crystallize. The point at which wax crystals form is known as the cloud point. These wax crystals eventually clog the fuel filter and starve the engine of fuel, preventing it from starting. While low-quality fuels may form wax crystals in temperatures as warm as 40°F (4°C), most fuels have a cloud point near 32°F (0°C). The point at which the crystals clog the fuel filter is known as the cold filter-plugging point (CFPP). Diesel Cold Flow lowers the CFPP by up to 40°F (22°C) in ULSD.

#### Prevents Wax Settling

Wax crystals can settle and clog fuel filters (see picture). AMSOIL Diesel Cold Flow is formulated with wax anti-settling additives that drastically reduce the size of wax crystals, preventing them from settling and allowing them to more effectively pass through the filter, improving low-temperature operability.



- **Lowers** cold filter-plugging point (CFPP) by up to 40°F
- **Enhances** engine reliability in cold temperatures
- **Fights** gelling in cold weather
- **Improves** low-temperature startability
- **Prevents** wax settling during storage
- **Inhibits** fuel-filter icing
- **Safe for use** in all diesel fuels, including biodiesel
- **Reduces** downtime and maintenance costs
- **Alcohol-free**



## AMSOIL Diesel Cold Flow

lowers the cold filter-plugging point (CFPP) by up to 40°F (22°C) in ULSD.



Wax formation in untreated diesel fuel resists pouring.



Wax formation in untreated diesel fuel plugs a coffee filter.



Wax crystals in untreated diesel fuel. The wax crystals will eventually fall out of solution and plug the fuel filter.

## APPLICATIONS

Diesel Cold Flow is specially formulated for improving the flow of diesel fuel, helping to maintain the integrity of fuel and prevent the clogging of filters and injectors. It is excellent for use with diesel fuels, heating oils and kerosene.

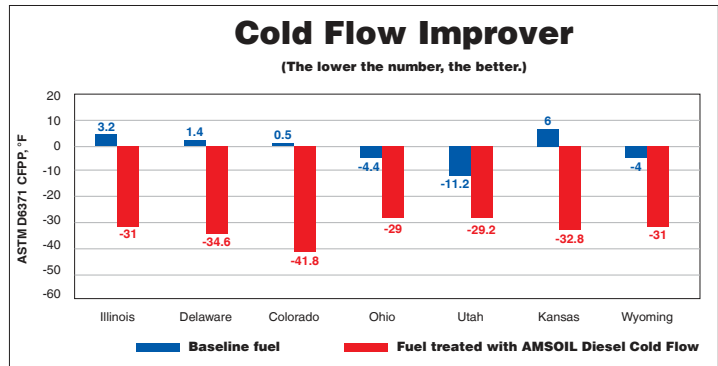
## RECOMMENDATIONS

Add before filling tank. Diesel Cold Flow must be added at temperatures above the diesel fuel cloud point (the temperature at which wax begins to crystallize). It will not reverse gel or wax crystals once formed. Do not store at temperatures below 0°F (-18°C). Excellent for use with AMSOIL Cetane Boost and AMSOIL Diesel Injector Clean.

ADDITIVE	MAINTENANCE	FUEL VOLUME
	1 oz.	5 gal.
	2 oz.	10 gal.
	6 oz.	30 gal.
16 oz.	80 gal.	

## AMSOIL PRODUCT WARRANTY

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Testing reveals AMSOIL Diesel Cold Flow provides significant cold-flow improvement in diesel fuels found across the U.S., delivering improved cold-weather performance.



AMSOIL products and Dealership information are available from your local full-service AMSOIL Dealer.



## Diesel All-In-One

### All-season protection and performance

AMSOIL Diesel All-In-One (ADB) combines the superior detergency and improved lubricity of AMSOIL Diesel Injector Clean, the excellent cold-flow and anti-gelling properties of AMSOIL Diesel Cold Flow and the increased horsepower and cetane of AMSOIL Cetane Boost in one convenient package. It is safe for use in all diesel fuels, including biodiesel. Diesel All-In-One is specially engineered to provide exceptional all-season protection for a serious performance boost. One dose delivers outstanding detergency, improved lubricity, better cold flow and higher cetane.

#### Restores Horsepower & Improves Fuel Economy

Fuel injector deposits interrupt spray patterns, causing poor fuel atomization, incomplete combustion, excessive emissions and smoke. High-pressure common-rail fuel systems are becoming commonplace as vehicle manufacturers attempt to produce more power while still meeting tightening emissions standards. In high-pressure common-rail systems, injection pressures can be 30,000 psi and higher to atomize the fuel into a fine mist for more efficient combustion, yielding increased power and fuel economy while reducing emissions. To maintain these high pressures, injector assemblies are highly engineered, with clearances as tight as 1-3 microns (a human hair is typically 70-100 microns thick). Even minimal internal diesel injector deposits on the injector pintal or other components can lead to sticking and even seizure, reducing power, fuel economy and operability. Traditional additive chemistry is not designed to address these tough-to-remove deposits.

Diesel All-In-One features advanced chemistry that delivers concentrated strength to target internal diesel injector deposits and traditional carbonaceous deposits, helping to restore horsepower and operability to like-new condition. Acceleration is improved and, with regular use, Diesel All-In-One continues to enhance performance by keeping injectors clean. The net savings on fuel can result in no additional cost of ownership.

#### Lubricates Pumps & Injectors to Reduce Wear

Ultra-low-sulfur diesel fuel (ULSD) provides significantly reduced lubricity – a critical property in controlling wear in fuel pumps and injectors. Diesel All-In-One adds back the lubricity the fuel pump and injectors need, reducing wear, improving service life and saving time and money on maintenance costs.

#### Improves Fuel Quality for Peak Performance

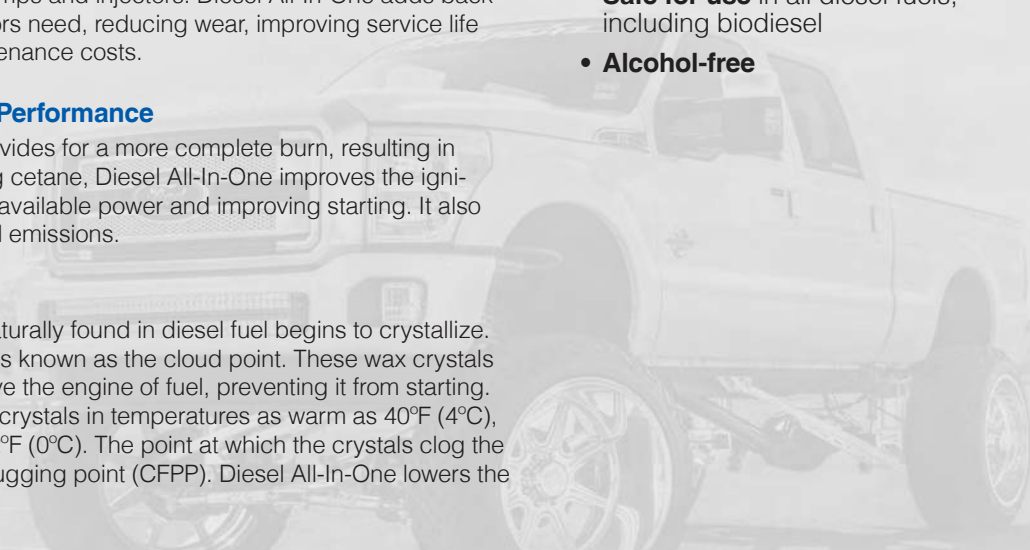
Fuel with a higher cetane number provides for a more complete burn, resulting in improved performance. By increasing cetane, Diesel All-In-One improves the ignition quality of diesel fuel, maximizing available power and improving starting. It also smooths idle and reduces smoke and emissions.

#### Helps Prevent Gelling

As the temperature drops, the wax naturally found in diesel fuel begins to crystallize. The point at which wax crystals form is known as the cloud point. These wax crystals eventually clog the fuel filter and starve the engine of fuel, preventing it from starting. While low-quality fuels may form wax crystals in temperatures as warm as 40°F (4°C), most fuels have a cloud point near 32°F (0°C). The point at which the crystals clog the fuel filter is known as the cold filter-plugging point (CFPP). Diesel All-In-One lowers the CFPP by up to 40°F (22°C) in ULSD.

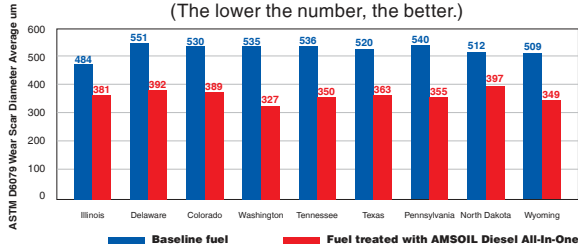


- **Cleans** dirty injectors
- **Lubricates** pumps and injectors to reduce wear
- **Extends** fuel-filter life
- **Improves** fuel economy up to 8%
- **Combats** fuel-system corrosion
- **Prevents** wax settling during storage
- **Lowers** cold filter-plugging point (CFPP) by up to 40°F
- **Delivers** maximum horsepower
- **Increases** cetane up to 4 points
- **Safe for use** in all diesel fuels, including biodiesel
- **Alcohol-free**



## Lubricity Improvement

(The lower the number, the better.)

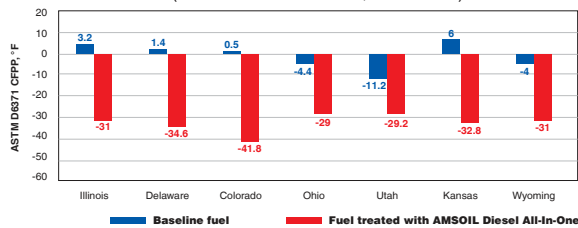


Note: D975 industry diesel fuel standard requires fuel to be 520 or less EMA and Canada would like that to be 460 or less

The ASTM D975 diesel fuel standard specifies a wear scar below 520 µm in ASTM D6079 testing, while the Engine Manufacturers Association (EMA) specifies a wear scar below 460 µm. Testing reveals AMSOIL Diesel All-In-One provides significant lubricity improvement in diesel fuels found across the U.S., delivering improved wear protection.

## Cold Flow Improver

(The lower the number, the better.)



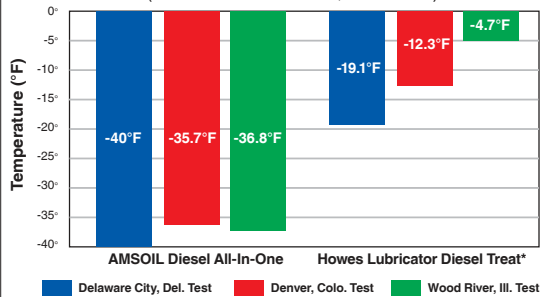
Testing reveals AMSOIL Diesel All-In-One provides significant cold-flow improvement in diesel fuels found across the U.S., delivering improved cold-weather performance.

## SUPERIOR COLD-TEMPERATURE PROTECTION

Provides as much as **32°F better protection** against cold-temperature gelling than Howes Lubricator Diesel Treat.<sup>M</sup> Plus raises cetane up to 4 points.

### Cold Filter-Plugging Point (CFPP)

(The lower the number, the better.)



<sup>M</sup>Based on independent testing in July 2017 of AMSOIL Diesel All-In-One and Howes Lubricator Diesel Treat using diesel fuel representative of the U.S. marketplace and Howes' recommended treat ratio for above 0°F.

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## Extends Filter Life

Modern diesel engines run hot, raising the temperature of the fuel returned to the tank and causing carbonaceous deposits that collect in the fuel filter (see picture), plugging it and causing premature failure issues. AMSOIL Diesel All-In-One effectively protects against deposits, extending fuel filter life.



## RECOMMENDATIONS

Diesel All-In-One is recommended for use with all types of heavy- and light-duty, on- or off-road and marine diesel engines. Initial use: follow clean-up recommendation. Subsequent uses/regular treatment: follow maintenance recommendation. Add before filling tank. Diesel All-In-One must be added at temperatures above the diesel fuel cloud point (the temperature at which wax begins to crystallize). It will not reverse gel or wax crystals once formed.

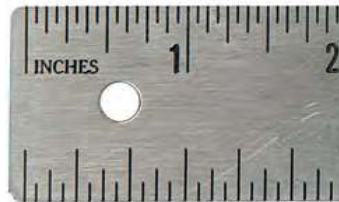
	CLEAN-UP	MAINTENANCE	FUEL VOLUME
ADDITIVE	4 oz.	2 oz.	5 gal.
	8 oz.	4 oz.	10 gal.
	16 oz.	8 oz.	20 gal.
	24 oz.	12 oz.	30 gal.
	32 oz.	16 oz.	40 gal.
	128 oz.	64 oz.	160 gal.

## AMSOIL PRODUCT WARRANTY

AMSOIL products are backed by a Limited Liability Warranty. For complete information visit [www.amsoil.com/warranty.aspx](http://www.amsoil.com/warranty.aspx).



◀ High-Pressure Common-Rail Fuel Injector Pintal



◀ Traditional Fuel Injector Pintal

Fuel injectors in high-pressure common-rail diesel engines use smaller, highly engineered components to produce the higher fuel pressures needed for improved combustion. The tighter clearances invite internal diesel injector deposits that interfere with injector needle actuation, reducing performance. External deposits can also form on the injector nozzle (the typical trouble spot for traditional injectors). While many other fuel additives have yet to catch up to the internal diesel injector deposit problem, AMSOIL Diesel All-In-One targets deposits wherever they form, maximizing power, fuel economy and performance in high-pressure common-rail and traditional diesel engines.



AMSOIL products and Dealership information are available from your local full-service AMSOIL Dealer.





## Diesel Recovery

### Emergency Fuel Treatment for Gelled Diesel Fuel

AMSOIL Diesel Recovery (DRC) is an emergency diesel fuel treatment that dissolves the wax crystals that form when diesel fuel has surpassed its cloud point. Diesel Recovery liquefies gelled diesel fuel and thaws frozen fuel filters, avoiding costly towing charges and getting diesels back on the road.

For preventative maintenance, use Diesel Cold Flow (ADD) or Diesel All-In-One (ADB).

#### Fast Fuel Recovery

Diesel applications operating in extremely cold environments face some unique challenges. As the temperature drops, wax naturally found in diesel fuel begins to form crystals. The point at which wax crystals form is known as the cloud point. These wax crystals can eventually clog the fuel filter and starve the engine of fuel, preventing it from starting or even stalling out a running engine.

Diesel Recovery quickly dissolves gelled fuel to allow the operator to continue driving with minimal downtime. Diesel Recovery separates the molecular bonds of wax crystals that have agglomerated in diesel fuel. It thaws frozen fuel filters and reduces the need for a new filter, saving money and preventing an inconvenient trip to an auto parts store.

#### Works Well in Many Diesel Blends

The marketplace offers many different diesel fuels, all with varying quality. Diesel Recovery performs well in all diesel fuels, including ULSD, off-road and biodiesel.

#### Non-Corrosive, Alcohol-Free Formulation

Over extended use, alcohol has a tendency to degrade components of some fuel delivery systems. Diesel Recovery contains no alcohol, making it safe for repeated treatments. In addition, Diesel Recovery is non-corrosive and contains no chemicals that interact with fuel system components. Corrosion can damage fuel system components and lead to prematurely-clogged fuel filters.

#### Safety in a Bottle

Diesel fuel quality varies from one filling station to the next, and low-quality fuel can have a cloud point as high as 40°F. Keeping a bottle of Diesel Recovery on-board is cheap insurance against being towed to a service station or getting stranded somewhere in subzero temperatures.

#### PRODUCT WARRANTY

AMSOIL products are backed by a Limited Liability Warranty. For complete information visit [www.amsoil.com/warranty.aspx](http://www.amsoil.com/warranty.aspx).



- Quickly Dissolves Gelled Fuel
- Thaws Frozen Fuel Filters
- Performs Well in ULSD, Off-Road & Biodiesel
- Alcohol-Free
- Non-Corrosive

#### RECOMMENDATIONS

One 30 oz. bottle of Diesel Recovery treats up to 30 gallons of fuel. When encountering a gelled fuel system, follow these steps for maximum effectiveness:

1. Remove existing fuel filter.
2. Fill fuel filter with Diesel Recovery.
3. Reinstall fuel filter.
4. Add remaining Diesel Recovery to fuel tank. If necessary, add more as required by treat rate recommendations.
5. Start engine and allow fuel system to circulate until full power has been restored. Note: For even quicker restoration of power, install new fuel filter instead of using existing filter.



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## Miracle Wash® Waterless Wash & Wax

### A Showroom Shine Without the Mess of Soap and Water

AMSOIL Miracle Wash® Waterless Wash & Wax (AMW) provides vehicles with a fantastic shine and super-tough protective finish in just two easy steps – spray and wipe. Specialized surfactants lift the dirt off the surface of the vehicle and hold it in suspension while the vehicle is wiped clean. Miracle Wash acts as a protective barrier between the dirt particles and the surface, protecting the finish from abrasion. Specialized anti-static agents repel dust and light dirt, maintaining the vehicle's brilliant shine long after washing is finished. Miracle Wash also protects against the damaging effects of the sun's ultraviolet rays.

#### Applications

Miracle Wash is highly effective on virtually all non-porous and painted surfaces:

- Cars • Trucks • RVs • Motorcycles • Boats • Countertops • Windows • Mirrors • Kitchen Appliances • Many More

Test in a small area before using on matte or other porous finishes.

#### Directions

1. Remove thick, coated dirt on surface.
2. Shake well.
3. Apply in dry, shaded location onto a 3 sq. ft. area.
4. Wipe immediately with a clean, lint-free cloth.

#### Disposal

Aerosols may have different disposal requirements than other wastes in your area. Dispose of contents and container in accordance with all federal, state/provincial and local regulations.

#### TECHNICAL SERVICES

For immediate answers to your technical questions call (715) 399-TECH (8324) between 8 a.m. and 5 p.m. Central time or email [tech@amsoil.com](mailto:tech@amsoil.com).

#### PRODUCT AVAILABILITY

Miracle Wash is available in 13-ounce spray cans. Not available in Canada.

#### PRODUCT WARRANTY

AMSOIL products are backed by a Limited Liability Warranty. For complete information visit [www.amsoil.com/warranty.aspx](http://www.amsoil.com/warranty.aspx).

#### HEALTH & SAFETY

This product is not expected to cause health concerns when used for the intended application and according to the recommendations in the Safety Data Sheet (SDS). An SDS is available online at [www.amsoil.com](http://www.amsoil.com) or upon request at (715) 392-7101. **Keep Out of Reach of Children.**



AMSOIL products and Dealership information are available from your local full-service AMSOIL Dealer.