



## *Product One Voice*

### *Q&A*

**Product: AMSOIL Premium API CJ-4 Synthetic 5W-40 & 15W-40 Diesel Oils**

**Product Area: Motor Oil**

**Created: March 4, 2009**

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**1. Question:**

What improvements did AMSOIL make to its Premium API CJ-4 Synthetic 5W-40 Diesel Oil (DEO)?

**Answer:**

AMSOIL upgraded the technology on DEO, increased the TBN to 10.4 and created a compelling extended oil drain capability of up to three times (3X) original equipment manufacturer's (OEM) recommendations. The extended drain interval on the reformulated DEO is now defined using both miles and hours for a wide variety of on-road and off-road applications. Upgraded AMSOIL Premium API CJ-4 Synthetic 5W-40 Diesel Oil also has a documented fuel efficiency benefit of up to 3% over conventional 15W-40 diesel oils. With the upgraded technology, AMSOIL DEO can also be recommended for a longer list of worldwide specifications. See Question #19 for a full list of performance specifications.

**2. Question:**

How do AMSOIL Premium API CJ-4 Synthetic 5W-40 and 15W-40 (DME) Diesel Oils provide such good wear protection?

**Answer:**

AMSOIL researches and develops the best technology available for the diesel market. In addition to outstanding additive technology that provides exceptional anti-wear protection, AMSOIL diesel oils provide exceptional shear stability that helps protect engines from the time the oil is installed to the time it is drained from the crankcase.

**3. Question:**

Will AMSOIL Premium API CJ-4 Synthetic 15W-40 Diesel Oil offer the same wear protection in off-road equipment that AMSOIL 15W-40 Heavy Duty Diesel and Marine Motor Oil (AME) provides?

**Answer:**

Yes. AME is an outstanding product for wear protection and was the standard used to build the new Premium API CJ-4 Synthetic 15W-40 Diesel Oil (DME). AMSOIL Premium 15W-40 Diesel Oil is formulated to resist breakdown from continuous operation and high loads. Built with heavy duty detergent/dispersant additives, this high TBN (10.4) formula is naturally resistant to the detrimental effects of high soot loading. It keeps soot particles suspended independently, preventing them from attaching together to form larger, wear causing particles. AMSOIL Premium 15W-40 resists heat and breakdown better than conventional petroleum oils for long lasting performance and protection.

**4. Question:**

How do AMSOIL diesel oils provide the lowest cost of ownership for vehicle owners and operators?

**Answer:**

AMSOIL CJ-4 5W-40 and 15W-40 diesel oils provide outstanding wear protection, engine cleanliness, sustained extreme temperature performance, fuel economy benefits and significant financial benefits realized through extended drain intervals. AMSOIL diesel oils provide these extended drain interval benefits without the requirement of used oil analysis. An additional significant financial advantage is an improvement in fuel economy, which adds additional savings to an already compelling value package. As shown in the savings table below, both AMSOIL 5W-40 and 15W-40 diesel oils cost less per mile than conventional oil.

**AMSOIL Premium API CJ-4 Synthetic 5W-40 Diesel Oil**

Fleet Savings vs. Conventional 15W-40	1 Truck	50 Trucks
Fuel Economy Savings (1.6%)	\$960	\$48,000
Extended Drain Savings	\$201	\$10,050
<b>TOTAL SAVINGS WITH AMSOIL</b>	<b>\$1,161</b>	<b>\$58,050</b>

Based on 120,000 miles, 10,000 mile OEM drain intervals, 6 mpg, 32 qt. oil sump, \$3/gal fuel, \$34.36/gal AMSOIL, \$13.55/gal conventional diesel oil. Does not include labor, filter or used oil disposal costs, making AMSOIL even more cost effective.

AMSOIL CJ-4 Diesel Oils lower operating costs by extending oil drain intervals to three times (3X) OEM recommendations and cost less per mile/hour of operation compared to conventional diesel oils.

**AMSOIL Premium API CJ-4 Synthetic 15W-40 Diesel Oil**

Fleet Savings vs. Conventional 15W-40	Total Lubricant Used	Cost Per Gallon	Total Lubricant Cost x1 Truck	Total Lubricant Cost x50 Trucks
Conventional 15W-40	8 gal X 12 = 96 gal	\$13.55	\$1,301	\$65,050
AMSOIL Synthetic 15W-40	8 gal X 4 = 32 gal	\$34.36	\$1,100	\$55,000
<b>TOTAL SAVINGS WITH AMSOIL</b>			<b>\$201</b>	<b>\$10,050</b>

Based on 120,000 miles, 10,000 mile OEM drain intervals. Does not include labor, filter, or used oil disposal costs, making AMSOIL even more cost effective.

5. **Question:**  
What does '3X OEM' mean?

**Answer:**  
'3X OEM' refers to the extended drain interval definition of AMSOIL 5W-40/15W-40 diesel oils. '3X OEM' means AMSOIL diesel oils extend drain intervals up to three times (3X) the original equipment manufacturer's (OEM) recommendation as stated in the owner's manual or other supporting technical documents. For example, the OEM drain interval recommendation is 15,000 miles for a Volvo with an ISX engine under severe service, thus AMSOIL CJ-4 Diesel Oils will extend the drain interval to 45,000 miles. Likewise, a Kubota M8200 Series Tractor has an OEM drain interval recommendation of 200 hours; AMSOIL CJ-4 diesel oils extend this drain interval to 600 hours.

6. **Question:**  
What does the AMSOIL drain interval cap 'Not to exceed 50,000 miles/600 hours or one year, whichever comes first' mean?

**Answer:**  
Due to the variation in engine design and OEM recommended drain intervals, AMSOIL placed an upper limit on the oil drain interval. The limit of '50,000 miles/600 hours or one year, whichever comes first' means drain intervals should not be extended over this limit unless the oil is accompanied by qualified used oil analysis.

AMSOIL realizes there are many applications that can easily go further, but these applications must be monitored by qualified used oil analysis. For example, a Sterling Acterra with a MBE900 engine has an OEM drain interval of 20,000 miles for long-haul, so the corresponding AMSOIL DEO/DME oil drain interval is 50,000 miles. Instead of a maximum level of three times (3X) the 20,000 mile OEM recommendation, which equates to 60,000 miles, the maximum drain interval allowable without used oil analysis is capped at 50,000 miles. Remember, a drain interval of three times (3X) OEM should not exceed 50,000 mile/600 hours or one year unless monitored by oil analysis.

**7. Question:**

There is no normal or severe service definition on these oils. How do you account for the service differences?

**Answer:**

AMSOIL completed extensive research on OEM service severity definitions. Due to the wide variation in OEM definitions, AMSOIL made a decision to refer to the specific OEM definition in the owner’s manual for service severity. For example, service severity is defined differently depending on the OEM, and these definitions include horsepower ratings, miles per gallon, annual mileage and operating conditions. Based on the service severity differences, AMSOIL recommends referring to the owner’s manual of the vehicle in question to define the service severity level and corresponding OEM recommended miles/hours for these conditions.

**8. Question:**

Are there examples of how to calculate the safe extended drain interval recommendation using the new AMSOIL 3X OEM drain interval?

**Answer:**

Application	OEM Recommended Drain Interval	AMSOIL 3X OEM Drain Interval
Freightliner with a Cat C15 (short-haul)	11,000 miles	33,000 miles
2008 Ford Power Stroke	7,500 miles	22,500 miles
Sterling with a Cummins ISL	20,000 miles	50,000 miles*
Kubota M8200 Tractor	200 hours	600 hours

\*Note that the drain interval is capped at 50,000 miles. Even though three times (3X) 20,000 miles is 60,000 miles, drain intervals cannot be extended past 50,000 miles without qualified used oil analysis.

**9. Question:**

Are there examples of how to calculate the correct drain interval recommendation for AMSOIL customers?

**Answer:**

**Scenario #1**

Customer: How long will AMSOIL Premium API CJ-4 Synthetic 5W-40 Diesel Oil (DEO) last in my application?

Answer: What is the stated drain interval in the owner’s manual?

C: 7,500 miles

A: The drain interval is three times (3X) the stated 7,500 miles or 22,500 miles, as long as you don’t exceed one year.

C: What happens if I exceed one year and want to go longer?

A: You may be able to go longer, but you need to test the oil through a qualified oil analysis lab to determine if you can go beyond this limit. OIL ANALYZERS INC. is recommended.

**Scenario #2**

Customer: I have an OTR Sterling truck with a Cummins ISL. How long is the drain interval if I’m using AMSOIL Premium API CJ-4 Synthetic 5W-40 Diesel Oil (DEO)?

Answer: What is the stated drain interval in the owner’s manual?

C: 20,000 miles

A: The drain interval is three times (3X) the stated 20,000 miles with a cap of 50,000 miles. So the drain interval is 50,000 miles as long as you don't exceed one year.

C: What happens if I go more than 50,000 miles in one year?

A: You may be able to go longer, but you need to test the oil through a qualified oil analysis lab to determine if you can go beyond this limit. OIL ANALYZERS INC. is recommended.

### **Scenario #3**

Customer: I have a Caterpillar grader that I use in my business. I saw your new AMSOIL Premium API CJ-4 Synthetic 15W-40 Diesel Oil extends drain intervals; does it work with off-road equipment?

Answer: Yes, what is the stated drain interval in the owner's manual?

C: I don't have my manual.

A: Let me check with AMSOIL Technical Services and see if we have this OEM drain interval. Yes, I see that CAT recommends 150 hours, so your drain interval would be 450 hours as long as you don't exceed one year.

#### **10. Question:**

Are these oils okay to use in older diesel engines where the owner's manual calls for a CI-4+ diesel oil?

#### **Answer:**

Yes. These oils are backwards compatible and safe to use in pre-2007 and post-2007 diesel engines. AMSOIL DEO and DME are suitable for use in older on-road and off-road applications, with or without diesel particulate filters, fueled by ULSD, as well as higher sulfur containing fuels.

#### **11. Question:**

Is AMSOIL 15W-40 Heavy Duty Diesel and Marine Motor Oil (AME) going to be discontinued as part of the new diesel oil launch?

#### **Answer:**

No. AMSOIL will continue selling AMSOIL 15W-40 Heavy Duty Diesel and Marine Motor Oil as long as there is significant demand for the product. There are no changes being made to AME. AMSOIL recognized the need for a synthetic 15W-40 CJ-4 diesel oil, so DME was developed to create a smooth transition for people currently using CI-4+ AME. Over time and as new emission compliant vehicles become a larger part of the population, the demand for AME may diminish.

#### **12. Question:**

Will there be any changes on oil analysis reports for those currently trending DEO?

#### **Answer:**

Yes. AMSOIL is utilizing a different technology that delivers higher performance and protection. Rest assured, there are no compatibility issues with mixing the original DEO and the reformulated DEO. However, AMSOIL does not support extended drain intervals, without qualified used oil analysis, if these oils have been mixed. AMSOIL has worked with OIL ANALYZERS INC. to incorporate the new oil baseline information. However, make sure that during the transition from the original DEO to the new formulation you work with both OIL ANALYZERS INC. and your customers to make this a seamless change.

#### **13. Question:**

Can these oils be mixed with other synthetic, petroleum or synthetic-blend oils?

#### **Answer:**

Yes, these oils can be mixed with other AMSOIL diesel oil products. However mixing AMSOIL DEO with competitive oils is not recommended by AMSOIL as this can compromise the performance and longevity of the oil. AMSOIL does not support extended drain intervals when oils have been mixed.

14. **Question:** What are the applications recommended for AMSOIL 15W-40 Diesel Oil (DME) and AMSOIL 5W-40 Diesel Oil (DEO)?

**Answer:**

Both oils are recommended in model year 2007 and newer diesel engines fitted with exhaust treatment devices. They are also backwards compatible and can be used in pre-2007 diesel engines. Applications include heavy duty on-road/off-road, over-the-road (OTR), fleet, delivery, municipal, vocational, school/charter buses and RVs/motor homes with diesel engines. Additionally, AMSOIL synthetic CJ-4 diesel oils are recommended for light/medium duty trucks, SUVs and vans, both turbo and non-turbo charged with diesel engines.

DEO and DME are ideal for heavy-duty applications, including trucks with hydraulically actuated electronically controlled unit injectors (HEUI). HEUI fuel injection systems utilize a high pressure oil pump which has a tendency to shear motor oil resulting in significant viscosity loss. AMSOIL DEO and DME are formulated to resist viscosity loss resulting from this shear in HEUI equipped engines and a wide variety of other aggressive applications.

15. **Question:**  
Can AMSOIL synthetic diesel oils be used with biodiesel?

**Answer:**

AMSOIL synthetic diesel oils can be used with biodiesel fuel. Extended drain intervals capabilities are limited to fuels containing less than 5% biodiesel oil content without used oil analysis.

16. **Question:**  
Can these diesel oils be used in gasoline applications?

**Answer:**

Yes. Both DEO and DME are formulated to meet the most current gasoline specification (API SM), which makes them ideal for mixed fleet use. When these oils are used in gasoline applications, the drain interval is two times (2X) the OEM recommended drain interval, not to exceed 15,000 miles or one year, whichever comes first.

17. **Question:**  
Do AMSOIL premium CJ-4 diesel oils, DME and DEO, support reduced emissions goals?

**Answer:**

Yes. The combination of low oil volatility and clean operations reduce oil consumption and emissions. AMSOIL DEO and DME are thermally stable with strong resistance to high temperature volatility (burn-off) compared to conventional petroleum based diesel oils. These conventional petroleum products exhibit high volatility, which means that as temperatures increase, oil turns to a vapor and escapes through the crankcase and ends up in the atmosphere, leading to increased air pollution.

18. **Question:**  
What package sizes will be available?

**Answer:**

5W-40 Package Sizes	15W-40 Package Sizes
Quarts	Quarts
Case of Quarts	Case of Quarts
Gallons	Gallons
Case of Gallons	Case of Gallons
Twin Packs	Twin Packs

30-Gallon Drums	30-Gallon Drums
55-Gallon Drums	55-Gallon Drums
275-Gallon Totes	275-Gallon Totes

**19. Question:**

What specifications do AMSOIL API CJ-4 Synthetic 5W-40 and 15W-40 Diesel Oils carry?

**Answer:**

<b>5W-40 (DEO) Specifications</b>	<b>15W-40 (DME) Specifications</b>
SAE 5W-40	SAE 15W-40
API CJ-4, CI-4+, CF, SM	API CJ-4, CI-4+, CF, SM
ACEA E7, E9	ACEA E7, E9
Mack EO-O Premium Plus	Mack EO-O Premium Plus
DDC Power Guard 93K218	DDC Power Guard 93K218
Caterpillar ECF-3, ECF-2	Caterpillar ECF-3, ECF-2
Cummins 20081	Cummins 20081
Volvo VDS-4	Volvo VDS-4
MB 228.31	MB 228.31
MTU Type I & II	MTU Type I & II
MAN 3275	MAN 3275
JASO DH-2	JASO DH-2
Global DHD-1	Global DHD-1
Renault RLD-3	Renault RLD-3

**20. Question:**

What benefits of AMSOIL diesel oil should customers be made aware of?

**Answer:**

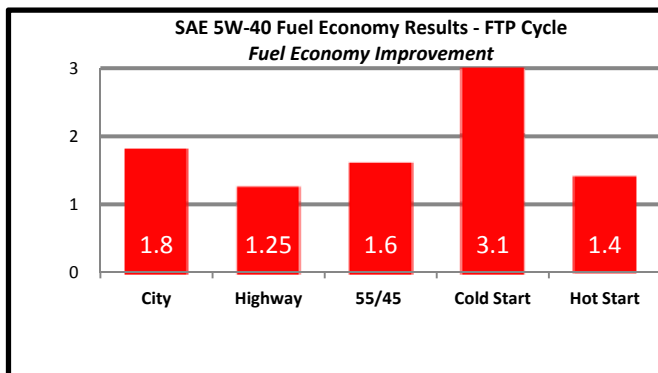
AMSOIL diesel oils offer many benefits to enhance the user experience, including superior engine protection, lower operating costs, lower environmental impact, outstanding cold weather performance and longer lasting oil.

AMSOIL diesel oils offer superior engine protection by providing shear stable performance over the life of the oil. They resist heat and thermal breakdown to provide maximum protection through severe service conditions and over extended drain intervals. AMSOIL diesel oils ensure engine protection in cold temperatures and protect against unnecessary engine wear associated with cold starts. The heavy duty detergent/dispersant additives control soot thickening from EGR and blow-by to protect against corrosion, cylinder bore polishing (wear) and varnish/sludge deposits.

Through greatly extended oil drain intervals and low volatility (burn-off), AMSOIL synthetic CJ-4 diesel oils help lower environmental impact. AMSOIL DEO and DME are thermally stable with a strong resistance to high temperature volatility, which reduces the amount of oil vapor, thereby reducing oil consumption. AMSOIL premium API CJ-4 synthetic diesel oils also reduce environmental impact by extending oil drain intervals and significantly reducing waste oil generation.

AMSOIL Premium 5W-40 Diesel Oil (DEO) delivers improved fuel economy and extended oil drain intervals. The following fuel economy graph and savings table show the amount of savings for one truck, as well as a fleet of 50 trucks.

The EPA's Federal Test Procedure (FTP) confirms that when compared to conventional 15W-40 diesel oil, AMSOIL 5W-40 Diesel Oil improves fuel economy up to 3%. At a mix of 55% city/45% highway driving the average improvement is 1.6%, and at straight highway driving the average improvement is 1.25%.



**21. Question:**

Where can additional information on these oils be found?

**Answer:**

Additional product information can be found on the product data sheets. For MSDS and warranty information, please visit the AMSOIL website at [www.amsoil.com](http://www.amsoil.com).

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[www.SyntheticOils.us](http://www.SyntheticOils.us)