



Fluids

July 2003

CAT® DEO™ (DIESEL ENGINE OIL) CI-4 MULTIGRADE

This IRM announces the introduction of Cat DEO CI-4 Multigrade. Cat DEO is the preferred oil for Cat diesel engines.* Cat DEO is the factory fill oil for all Cat diesel engines* including the new low emission engines. Cat DEO meets all Caterpillar® engine requirements, including the new Engine Crankcase Fluid specification – 1 (ECF-1). API CI-4 and other industry performance standards have been met and included for the convenience of our customers.

Cat DEO provides superior performance in Cat engines because it is designed and tested by Caterpillar to specifically meet the performance needs of Cat products. It has been validated in Caterpillar internal multi-cylinder engine tests to provide optimum piston deposit control, soot control, wear control, and thermal stability. Cat DEO is the best oil to help the customer achieve the full design life and performance of their Cat diesel engine.

This change to Caterpillar DEO is consistent with oil performance requirements that help lower diesel engine owning and operating costs and meets the needs of lower emission engines. When properly managed with the S•O•SSM Services program, DEO provides optimized oil drain capability.

* These recommendations do not apply to Caterpillar 3600 Series, 3116/3126 MUI Marine, or MaK diesel engines. The 3116 and 3126 MUI Marine diesel engines with closed crankcase ventilation systems should use Cat SAEOTM (Special Application Engine Oil) or commercial mono-grade diesel engine oil that meets the performance requirements for API CF-4.

Performance Requirements	Test	Commercial CG-4	Commercial CH-4	Commercial CI-4	CAT DEO CI-4
Cat 3406 Endurance Test	Cat Special				
Cat C-12 Endurance Test	Cat Special				
Cat 3500 Series Test	Cat Special				
Cat 3406 Series Wheel Loader Test	Cat Special				
Sulfated Ash Limit (1.50 %wt Max)					
High Temperature Shear					
Elastomer Compatibility					
Piston ring & Cylinder liner wear	T-9 , T-10 EGR		T-9	T-10 EGR	T-10 EGR
Valve train wear, sludge, oil filter plugging	M-11 HST EGR		M-11HST	M-11 EGR	M-11 EGR
Aeration control	EOAT				
Bearing Corrosion	L-38				
Cam roller follower pin wear	RFWT				
Copper, lead and tin erosion	CBT				
Foaming Control	ASTM Foam				
Viscosity Shear loss	Bosch				
Viscosity increase from soot	T-8, T-8E				
Oxidation	Seq. 3E, 3F				
Piston deposits and oil control	1N or 1K, 1P, 1R				

Cat DEO must pass four multi-cylinder proprietary endurance tests and a variety of quality assurance tests before receiving approval by Caterpillar. These proprietary tests are run in high output Cat diesel engines. These tests must be passed in addition to the tests required by the API classifications and ACEA (Association des Constructeurs Européens d'Automobiles) sequences as shown in the table above.

Cat DEO CI-4 is recommended for:

- Cat 3000 Series through 3500 Series diesel engines including low emissions engine designs used in Cat off-highway machines, commercial, marine and on-highway truck applications. Cat DEO is also the best choice for older non-emission controlled Cat diesel engines.
- Heavy-duty diesel engines that recommend an API CI-4, CH-4 or CG-4 classification oil.
- Heavy-duty diesel engines that recommend an ACEA E5-02 sequence oil, and for Light-duty diesel engines that require an ACEA B3-98 or B4-98 sequence oil.
- Gasoline engines that require an API SL or SJ classification oil, or engines that require an ACEA A2-96 sequence oil.
- Allison transmission C-4.

Cat DEO provides protection for Cat engines operating at or below the sulfur levels listed below.

Fuel Injection Method	% Fuel Sulfur
Direct Injection (DI)	Up to 1.00%
Precombustion (PC)	Up to 0.50%

Cat DEO can also be used at higher fuel sulfur levels. At higher fuel sulfur levels, the oil drain interval should be determined through the S•O•S Oil Services program.

The ACEA defines oil performance for European designed diesel engines, and Cat DEO provides a high level of performance within these ACEA Sequences and meets the specific requirements of many European OEM diesel engine builders.

This new formulation can be used where the following specifications are recommended:

Vis Grade	15W-40		10W-30
Region Availability	North America	AP, AME, EU, AS	NA, AP, AME, EU, AS
Industry Body/OEM			
API Diesel Licensable	CI-4/CH-4/CG-4/ CF-4/CF	CI-4/CH-4/CG-4/ CF-4/CF	CI-4/CH-4/CG-4/ CF-4/CF
API Gasoline Licensable	SL/SJ	SL/SJ	SL/SJ
ACEA "E" Quality	--	E5	--
ACEA "B" Quality	--	B4/B3	--
ACEA "A" Quality	--	A2	--
Cummins Quality	20071/76/78	20071/72/76/77/78	20071/76/78
DaimlerChrysler Quality	--	228.3	--
Mack Quality	EO-M Plus	EO-M Plus	EO-M Plus
MAN Quality	--	3275	--
RVI Quality	--	RLD	--
Volvo Quality	VDS-3	VDS-3	VDS-2
Allison Quality	C4	C4	--

Common OEM oil specifications will be listed on the Cat DEO label. For a complete and updated list, please refer to the latest data sheet named at the bottom of this page. These references are provided as additional information to help with mixed fleet sales.

Cat DEO is available in bulk or pre-packaged quantities. Cat DEO CI-4 will be offered as a 15W-40 multigrade. An API CI-4 version is also available in 10W-30 multi-grade for cooler climate operation. The 10W-30 version of Cat DEO utilizes the identical high performance additive system found in the 15W-40 version. All package sizes listed on the table are not available in every country.

Please refer to the following Caterpillar documents for further information:

- PEHJ0021 — Cat DEO CI-4 Multigrade Data Sheet
- SEBU6250 — Caterpillar Machine Fluids Recommendations


US Fluids:

DEO	15W-40	10W-30
Bulk Gallon	155-6199	155-6198
55 Gallon	3E9712	3E9708
5 Gallon	3E9713	3E9709
1 Gallon	3E9714	-----
1 Quart	3E9715	3E9710

Metric (Rest of World) Fluids:

DEO	15W-40	10W-30
Bulk L	8T9548	5P2586
15 000 L	119-5130	-----
10 000 L	119-5131	-----
2000 L	120-5285	-----
1200 L	8C9811	8C9910
1040 L	201-0775	-----
1000 L	3E9838	148-3539
209 L	3E9839	-----
208 L	3E9840	3E9707
205 L	3E9841	3E9711
200 L	3E9842	130-7055
60 L	121-4038	-----
50 L	8C6733	-----
25 L	3E9847	3E9843
20 L	3E9848	3E9844
19 L	3E9849	-----
18 L	3E9900	-----
5 L	3E9901	3E9845
4 L	3E9902	3E9846
1 L	123-4077	155-9013

Cat DEO is the best possible performance choice for Cat engines. It is the only oil optimized for Cat engines.



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