

**INTRODUCTION**

Caterpillar Inc. is introducing a new diesel engine oil specification that ensures high performance oils for Caterpillar on-highway diesel engines that are designed to meet the U.S. EPA (Environmental Protection Agency) exhaust emissions standards being implemented starting January 1, 2007. The new specification, "Caterpillar Engine Crankcase Fluid-3" (ECF-3), defines the requirements for on-highway diesel engine lubricants that are especially effective in sustaining emission control system durability where particulate filters and/or other advanced aftertreatment systems are used.

Caterpillar Inc. has developed a new C13 multi cylinder oil test engine, which provides a significant improvement in defining the oil needs of modern Caterpillar diesel engines in order to provide low emissions and reliable service over the life of the engine. The new C13 multi cylinder oil test engine is one of the key requirements in the new ECF-3 specification. In addition, oils meeting the ECF-3 specification also provide advanced protection for control of catalyst deactivation, particulate filter blocking, engine wear, piston deposits, low and high temperature stability, soot handling properties, oxidative thickening, foaming, and viscosity loss due to shear.

Oils meeting the ECF-3 specification satisfy all the requirements of API CJ-4 oil category. When using diesel fuel with 0.0015% (15 ppm) or less sulfur, oils meeting ECF-3 specification are superior in performance to those meeting the ECF-1 specification as well as those meeting the API CI-4 (API CI-4 PLUS), CH-4, CG-4 and CF-4 categories. Oils meeting the ECF-3 specification are preferred when using diesel fuel with 0.05% (500 ppm) or less sulfur, superseding all prior oil type recommendations for Caterpillar on-highway diesel engines.

**APPLICATION**

Oils meeting the ECF-3 specification are required for Caterpillar 2007 model year on-highway diesel engines in order to protect the aftertreatment system and to meet EPA 2007 on-highway diesel engine emissions requirements. These oils are also highly recommended for other Caterpillar engines in on-highway applications. Oils meeting the ECF-3 specification are also acceptable for use in 3500 series and smaller machine and commercial diesel engines. As with lubricants meeting previous performance categories, refer to owners' manuals and service bulletins for specific oil drain practices.

**OBJECTIVE**

The requirements described herein are intended to communicate the minimum performance requirements for a lubricant that is intended for use in Caterpillar diesel engines wherever ECF-3 fluids are recommended.

**DESCRIPTION**

The ECF-3 oil specification has been created to facilitate the availability of oil at the maximum 1.0% sulfated ash, maximum 0.4 weight % sulfur, and maximum 0.12 weight % phosphorus limits of API CJ-4. ECF-3 provides the minimum oil performance and durability requirements for EPA 2007 emissions-compliant on-highway Caterpillar diesel engines fitted with aftertreatment devices.

The following guidelines must be followed to meet the ECF-3 specification:

1. The test program must be conducted according to the protocols in API publication No. 1509 (Engine Oil Licensing and Certification System)
2. Passing of a complete API CJ-4 program is required for all fully formulated engine oils claiming ECF-3 compliance. Base Oil Interchange (BOI) read-across guidelines must be followed.  
Note: API viscosity grade read-across (VGRA) is allowed.

**NOTICE**

This document contains all of the performance requirements that a finished lubricant must meet before the lubricant can legitimately be marketed as meeting the Caterpillar Inc. ECF-3 specification. Caterpillar Inc. will not monitor or verify the accuracy of claims or advertising suggesting compliance with ECF-3 specification made by other manufacturers or suppliers of fluids. Each supplier is responsible for the performance of their own product and the associated liabilities.

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Caterpillar reserves the right to change this document without notice.  
The implementation date of this specification is September 1, 2006

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