

INTRODUCTION

In the past, Caterpillar Inc. has recommended that customers with 3500 size and smaller engines use diesel engine oils that meet the most current API specification. Significant improvement in combustion technology has been implemented to ensure that Caterpillar engines continue to provide low emissions and reliable service. Lubricants must be available to provide improved engine protection and are critical for satisfactory life and performance.

Caterpillar Inc. has introduced new requirements, "Caterpillar Engine Crankcase Fluid-1" (ECF-1), for diesel engine lubricants that provide excellent soot dispersion, wear control, and piston deposit control. This document contains all of the performance requirements that a finished lubricant must meet before it can legitimately be marketed as meeting the Caterpillar Inc. ECF-1 requirements.

Caterpillar Inc. will not monitor or approve any fluid marketed under the ECF-1 designation. Each supplier is responsible for the performance of its own product and the associated liabilities.

OBJECTIVE:

The requirements described herein are intended to communicate the minimum performance requirements for a lubricant that is intended for use in Caterpillar engines wherever ECF-1 fluids are recommended.

DESCRIPTION:

The ECF-1 specification has been created to provide the minimum performance requirements for optimum life of Caterpillar engines. ECF-1 combines the qualifications outlined in API CH-4 or CI-4 performance categories with additional requirements for optimum performance and durability of Caterpillar engines.

The following guidelines must be followed to meet the ECF-1 specification:

1. A passing Caterpillar 1P SCOTE test (ASTM D6681) is required for all fully formulated engine oils claiming ECF-1 compliance in addition to a complete API CH-4 or CI-4 program. API Base Oil Interchange read-across guidelines must be followed.
2. Ideally the sulfated ash content of the fully formulated oil must be less than or equal to 1.30 wt% as measured by ASTM D0874. For fully formulated oils having sulfated ash content above 1.30% but below 1.50%, two passing Caterpillar 1P tests are required on the same final formulation oil at the single pass limits outlined in ASTM D4485 for the CH-4 performance level. For the Caterpillar 1P test, ACC minor modifications in the formulation are permitted only if they do not result in an increase in the Sulfated Ash level of the marketed oil relative to the tested oil. Oil formulations having ash levels above 1.50% are not acceptable.
3. API viscosity read-across (VGRA) is allowed.

Fluids Engineering
Caterpillar Inc.
AC6214
PO Box 610
Mossville, IL 61552-0610

Caterpillar reserves the right to change this document without notice.
The implementation date of this specification is June 2003.

ENGINE TESTING	DATE May 1, 2003	CHG NO 0	SECTION 1
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