



Standard Test Methods for Evaluation of Engine Oils in A High-Speed, Single-Cylinder Diesel Engine —1K Procedure (0.4 % Fuel Sulfur) and 1N Procedure (0.04 % Fuel Sulfur)¹

This standard is issued under the fixed designation D 6750; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

The test methods described in this standard can be used by any properly equipped laboratory without outside assistance. However, the ASTM Test Monitoring Center (TMC)² provides reference oils and an assessment of the test results obtained on those oils by the laboratory (see Annex A16). By this means, the laboratory will know whether its use of the test methods gives results statistically similar to those obtained by other laboratories. Furthermore, various agencies require that a laboratory utilizes the TMC services in seeking qualification of oils against specifications. For example, the U.S. Army has such a requirement in some of its engine oil specifications.

Accordingly, these test methods are written for those laboratories that use the TMC services. Laboratories that choose not to use these services may ignore those portions of the test methods that refer to the TMC.

These test methods may be modified by Information Letters issued periodically by the TMC after the publication of this edition of the standard to become part of it. These letters are obtainable from the TMC. In addition, the TMC may issue supplementary memoranda related to the test methods, also obtainable from the TMC.

1. Scope

1.1 These test methods cover the performance of engine oils intended for use in certain diesel engines. They are performed in a standardized high-speed, single-cylinder diesel engine by either the 1K (0.4 % fuel sulfur) or 1N (0.04 % fuel sulfur) procedure.³ *The only difference in the two test methods is the fuel used.* Piston and ring groove deposit-forming tendency and oil consumption are measured. Also, the piston, the rings, and the liner are examined for distress and the rings for mobility. These test methods are required to evaluate oils intended to satisfy API service categories CF-4 and CH-4 for 1K, and CG-4 for 1N of Specification D 4485.

1.2 These test methods, although based on the original Caterpillar 1K/1N procedures,³ also embody TMC information letters issued before these test methods were first published. These test methods are subject to frequent change. Until the next revision of these test methods, TMC will update changes

in these test methods by the issuance of information letters which shall be obtained from TMC (see Annex A16).

1.3 The values stated in inch-pound units or SI units are to be regarded separately as standard. When inch-pound units are standard, the SI units are shown in parenthesis. The values stated in each system are not necessarily exact equivalents. Because of this, combining values from the two systems may be incompatible. Therefore, use either system independently of the other.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* Specific precautionary statements are given within the text. Being engine tests, these test methods do have definite hazards which shall be met by safe practices (see Annex A17 on Safety).

1.5 The following is the Table of Contents:

	Section
Introduction	
Scope	1
Referenced documents	2
Terminology	3
Summary of Test Methods	4
Significance and Use	5
Apparatus	6

¹ These test methods are under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.B0.02 on Automotive Lubricants.

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³ These 1K/1N test procedures were developed by Caterpillar Inc., P.O. Box 610, Mossville, IL 61552-0610.