



Standard Test Method for Evaluation of Corrosiveness of Diesel Engine Oil¹

This standard is issued under the fixed designation D 5968; 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 method described in this test method is based on the gas turbine lubricant corrosion and oxidation test described in Federal Test Method Standard 791, Method 5308. Because this test method relates to corrosion in diesel engines rather than in gas turbines, temperatures, metal coupons, and certain parts of the test procedure were modified to be more appropriate for heavy duty diesel engines.

The method described in this test method 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 A1). By these means, the laboratory will know whether their use of the test method gives results statistically similar to those obtained by other laboratories. Furthermore, various agencies require that a laboratory utilize the TMC services in seeking qualification of oils against specifications. For example, the U.S. Army imposes such a requirement in connection with several Army engine lubricating oil specifications.

Accordingly, this test method is written for use by laboratories that utilize the TMC services. Laboratories that choose not to use those services may simply ignore those portions of the test method that refer to the TMC.

This test method may be modified by means of Information Letters issued by the TMC. In addition, the TMC may issue supplementary memoranda related to the method (see Annex A1). For other information, refer to the research report on the Cummins Bench Corrosion Test.³

1. Scope

1.1 This test method is used to test diesel engine lubricants to determine their tendency to corrode various metals, specifically alloys of lead and copper commonly used in cam followers and bearings. Correlation with field experience has been established.⁴

1.2 The values stated in acceptable SI units are to be regarded as the standard.

1.3 *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 hazard statements are given in 5.3.1, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 7.1.1, 7.1.2, 7.1.5, and 7.4.1.

2. Referenced Documents

2.1 ASTM Standards:

D 130 Test Method for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test⁵

D 4636 Test Method for Corrosiveness and Oxidation Stability of Hydraulic Oils, Aircraft Turbine Engine Lubricants, and Other Highly Refined Oils⁶

D 5185 Determination of Additive Elements, Wear Metals, and Contaminants in Used Lubricating Oils and Determination of Selected Elements in Base Oils by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES)⁷

E 691 Practice for Conducting an Inter-Laboratory Study to Determine the Precision of a Test Method⁸

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.B0.02 on Heavy Duty Engine Oils.

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³ Available from ASTM Headquarters. Request RR:D02-1322. The research report and this test method are supplemented by Information Letters and Memoranda issued by the ASTM Test Monitoring Center. This edition incorporates revisions contained in all information letters through No. 00-1. Users of this test method shall contact the ASTM Test Monitoring Center to obtain the most recent of these.

⁴ Wang, J. C., and Cusano, C. M., "Development of A Bench Test to Detect Oils Corrosive to Engine Components," SAE Technical Paper No. 940790, 1994.

⁵ *Annual Book of ASTM Standards*, Vol 05.01.

⁶ Discontinued, Test Method D 4636 served as the basis for this test method. See 1994 *Annual Book of ASTM Standards*, Vol 05.03.

⁷ *Annual Book of ASTM Standards*, Vol 05.03.

⁸ *Annual Book of ASTM Standards*, Vol 14.02.