



Designation: D8111 – 17

Standard Test Method for Evaluation of Automotive Engine Oils in the Sequence IIH, Spark-Ignition Engine¹

This standard is issued under the fixed designation D8111; 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

Portions of this test method are written for use by laboratories that make use of ASTM Test Monitoring Center (TMC)² services (see [Annex A1](#)).

The TMC provides reference oils, and engineering and statistical services to laboratories that desire to produce test results that are statistically similar to those produced by laboratories previously calibrated by the TMC.

In general, the test purchaser decides if a calibrated test stand is to be used. Organizations such as the American Chemistry Council require that a laboratory utilize the TMC services as part of their test registration process. In addition, the American Petroleum Institute and the Gear Lubricant Review Committee of the Lubricant Review Institute (SAE International) require that a laboratory use the TMC services in seeking qualification of oils against their specifications.

The advantage of using the TMC services to calibrate test stands is that the test laboratory (and hence the test purchaser) has an assurance that the test stand was operating at the proper level of test severity. It should also be borne in mind that results obtained in a non-calibrated test stand may not be the same as those obtained in a test stand participating in the ASTM TMC services process.

1. Scope

1.1 This test method covers an engine test procedure for evaluating automotive engine oils for certain high-temperature performance characteristics, including oil thickening (as measured by kinematic viscosity increase), piston deposits, ring sticking, oil consumption, and phosphorus retention. Such oils include both single-viscosity and multiviscosity grade oils that are used in both spark-ignition, gasoline-fueled engines, as well as in diesel engines.

1.1.1 Additionally, with nonmandatory supplemental requirements, a Sequence IIIHA Test (Mini Rotary Viscometer and Cold Cranking Simulator measurements), or a Sequence IIHB Test (phosphorus retention measurement) can be conducted. These supplemental test procedures are contained in [Appendix X1](#) and [Appendix X2](#), respectively.

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee D02.B0 on Automotive Lubricants.

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² ASTM Test Monitoring Center, 6555 Penn Avenue, Pittsburgh, PA 15206-4489.

NOTE 1—Companion test methods used to evaluate engine oil performance for specification requirements are discussed in SAE J304.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.2.1 Exceptions:

1.2.1.1 Where there is no direct SI equivalent such as screw threads, national pipe threads/diameters, tubing sizes, and valve sizes and springs.

1.2.1.2 The ring end gaps in [Table A8.7](#), the dimensions for the blowby ventilation support bracket in [Fig. A3.2](#), and the torque wrenches in [Table A8.1](#) are in inch-pound units.

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 warning statements are provided in 6.11.6, 7.1, 7.2.1, and 7.3.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the*