



Standard Test Method for Evaluating the Thermal Stability of Manual Transmission Lubricants in a Cyclic Durability Test¹

This standard is issued under the fixed designation D5579; 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

This test method is written for use by laboratories that use the portions of the test method that refer to ASTM Test Monitoring Center (TMC) services (see [Annex A1 – Annex A4](#)). Laboratories that choose not to use the TMC services may simply disregard these portions.

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 use 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.

NOTE 1—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 the thermal stability of fluids for use in heavy duty manual transmissions when operated at high temperatures.

1.2 The lubricant performance is measured by the number of shifting cycles that can be performed without failure of synchronization when the transmission is operated while continuously cycling between high and low range.

1.3 Correlation of test results with truck transmission service has not been established. However, the procedure has been shown to appropriately separate two transmission lubricants, which have shown satisfactory and unsatisfactory field performance in the trucks of one manufacturer.

1.4 Changes in this test method may be necessary due to refinements in the procedure, obsolescence of parts, or reagents, and so forth. These changes will be incorporated by

Information Letters issued by the ASTM Test Monitoring Center (TMC).² The test method will be revised to show the content of all the letters, as issued.

1.5 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.5.1 *Exception*—When materials, products, or equipment are available only in inch-pound units, SI units are omitted.

1.6 *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.*

1.7 This test method is arranged as follows:

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.B0.03 on Automotive Gear Lubricants & Fluids.

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This edition incorporates revisions in all Information Letters through No. 15–1.

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

*A Summary of Changes section appears at the end of this standard