



Designation: D7452 – 22

Standard Test Method for Evaluation of the Load Carrying Properties of Lubricants Used for Final Drive Axles, Under Conditions of High Speed and Shock Loading¹

This standard is issued under the fixed designation D7452; 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 – Annex A4](#)).

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.

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.

Laboratories that choose not to use the TMC services may simply disregard these portions.

1. Scope*

1.1 This test method covers the determination of the anti-scoring properties of final drive axle lubricating oils when subjected to high-speed and shock conditions. This test method is commonly referred to as the L-42 test.²

1.2 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.

1.2.1 *Exceptions*—SI units are provided for all parameters except where there is no direct equivalent such as the units for

screw threads, National Pipe Threads/diameters, tubing size, and single source equipment suppliers.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* Specific warning information is given in Sections 4 and 7.

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*³
[D235 Specification for Mineral Spirits \(Petroleum Spirits\)](#)

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.

Current edition approved Nov. 1, 2022. Published November 2022. Originally approved in 2008. Last previous edition approved in 2019 as D7452 – 19^{ε1}. DOI: 10.1520/D7452-22.

² Until the next revision of this test method, the ASTM Test Monitoring Center (TMC) will update changes in this test method by means of information letters. Information letters may be obtained from the ASTM Test Monitoring Center, 203 Armstrong Drive, Freeport, PA 16229, Attention: Director. This edition incorporates revisions in all information Letters through No. 22-1. The TMC is also a source of reference oils.

³ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

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