NOTICE: This standard has either been superceded and replaced by a new version or discontinued.
Contact ASTM International (www.astm.org) for the latest information.

Designation: D 6593 – 02a

An American National Standard

Standard Test Method for Evaluation of Automotive Engine Oils for Inhibition of Deposit Formation in a Spark-Ignition Internal Combustion Engine Fueled with Gasoline and Operated Under Low-Temperature, Light-Duty Conditions[1]

This standard is issued under the fixed designation D 6593; 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.

1. Scope

1.1 This test method is commonly referred to as the Sequence VG test[2] and has been correlated with vehicles used in stop-and-go service prior to 1996, particularly with regard to sludge and varnish formation.[3] It is one of the test methods required to evaluate oils intended to satisfy the API SL performance category.

1.2 The values stated in SI units are to be regarded as 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 7.7, 7.10.2.2, 8.3.4.2, 8.4.4.3, 9.2.6, 9.3.4.5, 9.6.1.2, 12.1.1.7, 12.2.1.4, and Annex A1.

1.4 A Table of Contents follows:

	Section
Scope	1
Referenced Documents	2
ASTM Standards	2.1
SAE Standards	3.2.3
ANSI Standard	2.2
Terminology	3
Definitions	3.1
Definitions of Terms Specific to This Standard	3.2
Summary of Test Method	4
Significance and Use	5
Apparatus-General Description	6
Apparatus-The Test Engine	7
Sequence VG Test Engine	7.1
Required New Engine Parts	7.2
Reusable Engine Parts	7.3
Specially Fabricated Engine Parts	7.4
Special Engine Measurement and Assembly Equipment	7.5
Miscellaneous Engine Components-Preparation	7.6
Solvents and Cleaners Required	7.7
Assembling the Test Engine-Preparations	7.8
Assembling the Test Engine-Installations	7.9
Engine Installation on the Test Stand	7.10
Engine Fluids-Supply/Discharge Systems	8
Intake Air	8.1
Fuel and Fuel System	8.2
Engine Oil and Engine Oil System	8.3
Coolants	8.4
Measurement Instrumentation	9
Temperatures	9.1
Pressures	9.2
Flow Rates	9.3
Fuel Consumption	9.4
Speed and Load	9.5
Exhaust Gas	9.6
Humidity	9.7
Miscellaneous Laboratory Equipment	10
Test Stand Calibration	11
Test Procedure	12
Pre-Test Procedure	12.1
Engine Operating Procedure	12.2
Periodic Measurements and Functions	12.3
Special Maintenance Procedures	12.4
Diagnostic Data Review	12.5
End of Test Procedure	12.6
Interpretation of Test Results	13
Parts Rating Area-Environment	13.1
Sludge Ratings	13.2
Varnish Ratings	13.3
Clogging	13.4
Sticking	13.5
Used Oil Analyses	13.6
Assessment of Test Validity	14
General	14.1
Average Exhaust Gas NO_x Levels	13.1.5
Used Oil Analyses-Interpretation	14.2
Blowby Flow Rate	14.3
Manifold Absolute Pressure	14.4
Fuel Consumption Rate	14.5
Oil Consumption	14.6
Engine Parts Replacement	14.7
Quality Index and Deviation Percentage	14.8
Final Test Report	15
Report Forms	15.1
Photographs	15.2
Precision and Bias	16
Keywords	17
ANNEXES	

[1] This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricantsand is the direct responsibility of Subcommittee D02.B0.01on Passenger Car Engine Oils.

Current edition approved Nov. 10, 2002. Published February 2003. Originally approved in 2000. Last previous edition approved in 2002 as D 6593–02.

[2] Until the next revision of this test method, the ASTM Test Monitoring Center will update changes in the test method by means of information letters. Information letters may be obtained from the ASTM Test Monitoring Center, 6555 Penn Ave., Pittsburgh, PA 15206-4489. Attention: Administrator. This edition incorporates revisions in all information Letters through No. 02-3.

[3] Supporting data have been filed at ASTM International Headquarters and may be obtained by requesting Research Report RR: D02-1472.

Copyright © ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States.