



Designation: D 5133 – 9901

An American National Standard

Standard Test Method for Low Temperature, Low Shear Rate, Viscosity/Temperature Dependence of Lubricating Oils Using a Temperature- Scanning Technique¹

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1. Scope

1.1 This test method was developed to measure the apparent viscosity of engine oil at low temperatures.

1.2 A shear rate of approximately 0.2 s^{-1} is produced at shear stresses below 100 Pa. Apparent viscosity is measured continuously as the sample is cooled at a rate of 1°C/h over the range -5 to -40°C , or to the temperature at which the viscosity exceeds $40\,000 \text{ mPa}\cdot\text{s}$ (cP).

1.3 The measurements resulting from this test method are viscosity, the maximum rate of viscosity increase (Gelation Index) and the temperature at which the Gelation Index occurs.

1.4 Applicability to petroleum products other than engine oils has not been determined in preparing this test method.

1.5 *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.*

1.6 All terms in this test method are in SI units.

2. Referenced Documents

2.1 *ASTM Standards:*

D 341 Test Method for Viscosity-Temperature Charts for Liquid Petroleum Products²

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.070C on Low-Temperature Rheology of Non-Newtonian Fluids.

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