



Designation: D 3245 – 9603

An American National Standard

Standard Test Method for Pumpability of Industrial Fuel Oils¹

This standard is issued under the fixed designation D 3245; 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 This test method is under the jurisdiction of ASTM Committee D-2 D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.07 on Flow Properties.

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This test method is based on IP 230 but contains a precision statement based on an ASTM/IP round robin using waxy and non-waxy fuel oils typical of those marketed in North America.

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1. Scope *

1.1 This test method is intended for use on petroleum fuel oils, such as those covered in Specification D 396 Grade No 4(Light), 4, 5(Light), 5, and 6, or similar fuels.

1.2 The values stated in SI units are to be regarded as standard. The values in parentheses are for information only.

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.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 396 Specification for Fuel Oils²

D 445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)²

E 1 Specification for ASTM Thermometers³

3. Terminology

3.1 *Definitions:*

3.1.1 *handling point*—an indication of the minimum temperature to which an oil should be heated in any part of the suction or delivery line of an oil-handling installation when the installation is operating. If the storage tank does not contain an outflow heater, this temperature is necessarily the minimum oil storage temperature.

3.1.2 It is defined as that temperature at which the oil has an apparent viscosity of 0.6 Pa·s (6 P), at a rate of shear of 9.7 s⁻¹, when cooled and tested under prescribed conditions.

3.1.3 *storage point*—an indication of the minimum temperature to which an oil should be heated in any part of an oil-handling installation when starting up after a shutdown. It is also an indication of the minimum temperature at which the oil should be stored in a tank fitted with an outflow heater.

3.1.4 It is defined as that temperature at which the oil has an apparent viscosity of 2.5 Pa·s (25 P), at a rate of shear of 9.7 s⁻¹, when cooled and tested under prescribed conditions.

4. Summary of Test Method

4.1 A sample of the oil, preheated if necessary to a specified temperature to make it fluid, is poured into the cup of the portable viscometer. This is immersed in a bath at a predetermined temperature. After 15 min, the viscometer is started at a rate of shear of 9.7 s⁻¹. After a further 5 min, the bath is cooled at 0.5°C/min (1°F/min). The temperatures at which apparent viscosities of 0.6 Pa·s (6 P) and 2.5 Pa·s (25 P) are obtained are determined.

² Annual Book of ASTM Standards, Vol 05.01.

³ The sole source

³ Annual Book of supply of the apparatus known to the committee at this time is Ravenfield Designs, Ltd., Russell St., Heywood, Lancs., OL10 1NX, England. If you are aware of alternative suppliers, please provide this information to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. Standards, Vol 14.03.

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