



Designation: D 5191 – 03⁴

An American National Standard

Standard Test Method for Vapor Pressure of Petroleum Products (Mini Method)¹

This standard is issued under the fixed designation D 5191; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope*

1.1 This test method covers the use of automated vapor pressure instruments to determine the total vapor pressure exerted in vacuum by air-containing, volatile, liquid petroleum products. This test method is suitable for testing samples with boiling points above 0°C (32°F) that exert a vapor pressure between 7 and 130 kPa (1.0 and 18.6 psi) at 37.8°C (100°F) at a vapor-to-liquid ratio of 4:1. Measurements are made on liquid sample sizes in the range from 1 to 10 mL. No account is made for dissolved water in the sample.

NOTE 1—Samples can also be tested at other vapor-to-liquid ratios, temperatures, and pressures, but the precision and bias statements need not apply.

NOTE 2—The interlaboratory studies conducted in 1988 and 1991 to determine the precision statements in Test Method D 5191 did not include any crude oil in the sample sets. Test Method D 6377, as well as IP 481, have been shown to be suitable for vapor pressure measurements of crude oils.

1.1.1 Some gasoline-oxygenate blends may show a haze when cooled to 0 to 1°C. If a haze is observed in 8.5, it shall be indicated in the reporting of results. The precision and bias statements for hazy samples have not been determined (see Note 10¹).

1.2 This test method is suitable for calculation of the dry vapor pressure equivalent (DVPE) of gasoline and gasoline-oxygenate blends by means of a correlation equation (see 13.2). The calculated DVPE very closely approximates the dry vapor pressure that would be obtained on the same material when tested by Test Method D 4953.

1.3 The values stated in SI units are regarded as standard. The inch-pound units given in parentheses are provided for information only.

1.4 *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.* For specific warning statements, see 7.2 through 7.7.

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.08 on Volatility.

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