



Standard Test Method for Purity of Propylene Glycol Monomethyl Ether, Dipropylene Glycol Monomethyl Ether, and Propylene Glycol Monomethyl Ether Acetate¹

This standard is issued under the fixed designation D4773; 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 covers the determination by gas chromatography of propylene glycol monomethyl ether (PM), dipropylene glycol monomethyl ether (DPM), and propylene glycol monomethyl ether acetate (PMA).

NOTE 1—Propylene glycol monomethyl ether (PM) is a mixture of two isomers: 1-methoxy-2-propanol and 2-methoxy-1-propanol.

Dipropylene glycol monomethyl ether (DPM) is a mixture of four isomers: 1-(2-methoxy-1-methylethoxy)-2-propanol is one of the major isomers.

Propylene glycol monomethyl ether acetate (PMA) is a mixture of two isomers: 1-methoxy-2-acetoxyp propane and 2-methoxy-1-acetoxyp propane.

1.1.1 This test method covers the determination of PM in the range from 98 to 100 %, and DPM in the range from 0.08 to 0.6 %.

1.1.2 This test method covers the determination of DPM in the range from 98 to 100 %, PM in the range from 0.05 to 0.3 %, and tripropylene glycol monomethyl ether (TPM) in the range from 0.06 to 0.3 %.

1.1.3 This test method covers the determination of PMA in the range from 99 to 100 %, and PM in the range from 0.03 to 1.0 %.

1.2 Water and acid cannot be determined by this test method and must be measured in accordance with Test Methods [D1364](#) and [D1613](#), and the results used to normalize the chromatographic data.

1.3 The following applies to all specified limits in this standard; for purposes of determining conformance with this standard, an observed value or a calculated value shall be rounded off “to the nearest unit” in the last right-hand digit used in expressing the specification limit, in accordance with the rounding-off method of Practice [E29](#).

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

¹ This test method is under the jurisdiction of ASTM Committee [D01](#) on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee [D01.35](#) on Solvents, Plasticizers, and Chemical Intermediates.

Current edition approved July 1, 2012. Published September 2012. Originally approved in 1988. Last previous edition approved in 2007 as D4773 – 02 (2007). DOI: 10.1520/D4773-02R12.

1.5 For hazard information and guidance, see the supplier’s Material Safety Data Sheet.

1.6 *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:²

[D1364](#) Test Method for Water in Volatile Solvents (Karl Fischer Reagent Titration Method)

[D1613](#) Test Method for Acidity in Volatile Solvents and Chemical Intermediates Used in Paint, Varnish, Lacquer, and Related Products

[E29](#) Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

3. Summary of Test Method

3.1 A representative sample of PM, DPM, or PMA containing the appropriate internal standard is injected into a capillary gas chromatograph and the components are detected with a flame ionization detector. Quantification is made by peak area measurement using internal standardization and a computing integrator.

4. Significance and Use

4.1 This test method is used to determine the purity of PM, DPM, and PMA by subtracting calculated total impurities from 100 %.

4.2 This test method is used to determine the quantity of residual glycol ether present in PMA.

4.3 This test method is used for identifying various impurities in PM, DPM, and PMA.

² 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.