



Standard Specification for Propylene Glycol and Dipropylene Glycol¹

This standard is issued under the fixed designation D 5164; 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 specification covers propylene glycol and dipropylene glycol for use in the preparation of surface coatings.

1.2 For specific hazard information and guidance, see the supplier's Material Safety Data Sheets.

2. Referenced Documents

2.1 ASTM Standards:

D 4052 Test Method for Density and Relative Density of Liquids by Digital Density Meter²

E 202 Test Methods for Analysis of Ethylene Glycols and Propylene Glycols³

E 300 Practice for Sampling Industrial Chemicals³

2.2 U.S. Federal Specification:

PPP-C-2020 Chemicals, Liquid, Dry, and Paste: Packaging of⁴

3. Properties

3.1 Propylene glycol or dipropylene glycol shall conform to the respective properties shown in Table 1.

4. Sampling

4.1 The material shall be sampled in accordance with Practice E 300.

¹ This specification 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 Sept. 15, 1991. Published November 1991.

² Annual Book of ASTM Standards, Vol 05.02.

³ Annual Book of ASTM Standards, Vol 15.05.

⁴ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

TABLE 1 Requirements for Propylene Glycol and Dipropylene Glycol

Property	Propylene Glycol	Dipropylene Glycol
Apparent specific gravity		
20/20°C	1.0375 to 1.0390	1.020 to 1.025
25/25°C	1.0351 to 1.0366	1.016 to 1.021
Color, Pt-Co units, max	15	15
Distillation range, 760 mmHg		
Initial Boiling Point, °C min	185	228
Dry point, °C, max	190	236
Water, wt %, max	0.2	0.2
Acidity, as acetic acid, wt %, max	0.005	0.01
Propylene glycol, wt %, max	NA ^A	1.0
Dipropylene glycol, wt %, max	1.0	NA ^A
Tripropylene glycol, wt %, max	NA ^A	1.0
Iron, ppm, max	0.5	1.0

^A NA = not applicable.

5. Test Methods

5.1 The properties enumerated in this specification shall be determined in accordance with Test Methods E 202.

5.2 The apparent specific gravity can also be determined in accordance with Test Method D 4052.

6. Packaging and Package Marking

6.1 Package size shall be agreed upon between the purchaser and the supplier.

6.2 Packaging shall conform to applicable carrier rules and regulations or when specified shall conform to Fed. Spec. PPP-C-2020.

7. Keywords

7.1 dipropylene glycol; propylene glycol

The American Society for Testing and Materials takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.

This standard is copyrighted by ASTM, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or service@astm.org (e-mail); or through the ASTM website (www.astm.org).