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Standard Specification for Propylene Glycol and Dipropylene Glycol¹

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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 D-1 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.35 on Solvents, Plasticizers, and Chemical Intermediates.

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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 |
| Tripolyene 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

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