

**Blank:** Water

**Analysis:** Transfer a sufficient portion of *Sample solution A* and *Sample solution B* to separate test tubes of colorless, transparent, neutral glass with a flat base and an internal diameter of 15–25 mm to obtain a depth of 40 mm. Similarly transfer portions of *Standard suspension A*, *Standard suspension B*, and *Blank* to separate matching test tubes. Compare *Sample solution A*, *Sample solution B*, *Standard suspension A*, *Standard suspension B*, and *Blank* in diffused daylight, viewing vertically against a black background (see *Nephelometry, Turbidimetry, and Visual Comparison* (855), *Visual Comparison*). The diffusion of light must be such that *Standard suspension A* can readily be distinguished from water, and *Standard suspension B* can readily be distinguished from *Standard suspension A*.

**Acceptance criteria:** *Sample solution A* and *Sample solution B* show the same clarity as that of water or their opalescence is not more pronounced than that of *Standard suspension A*.

• **ACIDITY OR ALKALINITY**

**Phenolphthalein solution:** Dissolve 0.1 g of phenolphthalein in 80 mL of alcohol, and dilute with water to 100 mL.

**Sample:** 20 mL of Alcohol

**Analysis:** To the *Sample* add 20 mL of freshly boiled and cooled water and 0.1 mL of *Phenolphthalein solution*. The solution is colorless. Add 1.0 mL of 0.01 N sodium hydroxide.

**Acceptance criteria:** The solution is pink (30 µL/L, expressed as acetic acid).

• **COLOR OF SOLUTION**

**Standard stock solution:** Combine 3.0 mL of ferric chloride CS, 3.0 mL of cobaltous chloride CS, 2.4 mL of cupric sulfate CS, and 1.6 mL of dilute hydrochloric acid (10 g/L).

**Standard solution:** Transfer 1.0 mL of *Standard stock solution* to a 100-mL volumetric flask, and dilute with dilute hydrochloric acid (10 g/L). Prepare the *Standard solution* immediately before use.

**Sample solution:** Substance to be examined

**Blank:** Water

**Analysis:** Transfer a sufficient portion of the *Sample solution* to a test tube of colorless, transparent, neutral glass with a flat base and an internal diameter of 15–25 mm to obtain a depth of 40 mm. Similarly transfer portions of the *Standard solution* and *Blank* to separate, matching test tubes. Compare the *Sample solution*, *Standard solution*, and *Blank* in diffused daylight, viewing vertically against a white background (see *Nephelometry, Turbidimetry, and Visual Comparison* (855), *Visual Comparison*).

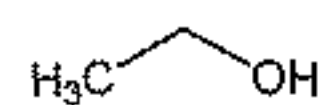
**Acceptance criteria:** The *Sample solution* has the appearance of water or is not more intensely colored than the *Standard solution*.

**ADDITIONAL REQUIREMENTS**

- **PACKAGING AND STORAGE:** Preserve in tight containers, protected from light.
- **USP REFERENCE STANDARDS (11)**  
USP Alcohol RS

**Dehydrated Alcohol**

Portions of this monograph that are national *USP* text, and are not part of the harmonized text, are marked with symbols (♦) to specify this fact.



C<sub>2</sub>H<sub>6</sub>O

46.07

Ethanol;

Ethyl alcohol [64-17-5].

**DEFINITION**

♦Dehydrated Alcohol contains NLT 99.2% by weight, corresponding to NLT 99.5% by volume, at 15.56°, of C<sub>2</sub>H<sub>5</sub>OH.♦

**IDENTIFICATION**

- **A.** It meets the requirements of the test for *Specific Gravity* (841).
- **B. INFRARED ABSORPTION (197S) or (197F):** Neat

**IMPURITIES**

• **LIMIT OF NONVOLATILE RESIDUE**

**Sample:** 100 mL of Dehydrated Alcohol

**Analysis:** Evaporate the *Sample* in a tared dish on a water bath, and dry at 100°–105° for 1 h.

**Acceptance criteria:** The weight of the residue is NMT 2.5 mg.

• **ORGANIC IMPURITIES**

**Sample solution A:** Substance to be examined

**Sample solution B:** 300 µL/L of 4-methylpentan-2-ol in *Sample solution A*

**Standard solution A:** 200 µL/L of methanol in *Sample solution A*

**Standard solution B:** 10 µL/L of methanol and 10 µL/L of acetaldehyde in *Sample solution A*

**Standard solution C:** 30 µL/L of acetal in *Sample solution A*

**Standard solution D:** 2 µL/L of benzene in *Sample solution A*

**Chromatographic system**

(See *Chromatography* (621), *System Suitability*.)

**Mode:** GC

**Detector:** Flame ionization

**Column:** 0.32-mm × 30-m fused-silica capillary; bonded with a 1.8-µm layer of phase G43

**Split ratio:** 20:1

**Temperatures**

**Injection port:** 200°

**Detector:** 280°

**Column:** See Table 1.

Table 1

Initial Temperature (°)	Temperature Ramp (°/min)	Final Temperature (°)	Hold Time at Final Temperature (min)
40	0	40	12
40	10	240	10

**Flow rate:** 35 cm/s

**Carrier gas:** Helium

**Injection volume:** 1.0 µL

**System suitability**

**Sample:** *Standard solution B*

**Suitability requirements**

**Resolution:** NLT 1.5 between the first major peak (acetaldehyde) and the second major peak (methanol)

**Analysis**

**Samples:** *Sample solution A*, *Sample solution B*, *Standard solution A*, *Standard solution B*, *Standard solution C*, and *Standard solution D*

**Methanol calculation**

$$\text{Result} = r_U/r_S$$

$r_U$  = peak area of methanol from *Sample solution A*  
 $r_S$  = peak area of methanol from *Standard solution A*

USP Monographs