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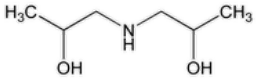
Diisopropanolamine



$C_6H_{15}NO_2$ 133.19

2-Propanol, 1,1'-iminobis-;

1,1'-Iminodi-2-propanol CAS RN®: 110-97-4.

DEFINITION

Diisopropanolamine is a mixture of isopropanolamines, consisting largely of diisopropanolamine. It contains NLT 98.0% and NMT 102.0% of isopropanolamines, calculated as $NH(C_3H_6OH)_2$ on the anhydrous basis.

IDENTIFICATION

• **A.** The IR absorption spectrum of a thin film exhibits regions of absorption between 2.8 and 4.0 µm, between 6.7 and 7.1 µm, and between 8.5 and 9.4 µm; and several characteristic peaks, the most pronounced being at about 7.3, 7.5, 8.3, 9.6, 10.4, and 10.7 µm.

ASSAY

• **Procedure**

Sample: 2 g

Blank: 50 mL of water

Titrimetric system

(See *Titrimetry* ⟨541⟩.)

Mode: Direct titration

Titrant: 0.5 N hydrochloric acid VS

Endpoint detection: Visual

Analysis: Transfer the *Sample* to a 250-mL conical flask. Add 50 mL of water and bromocresol green TS. Titrate with *Titrant*. Perform a blank determination, and make any necessary correction.

Calculate the percentage of isopropanolamines, expressed as $NH(C_3H_6OH)_2$, in the portion of Diisopropanolamine taken:

$$\text{Result} = \{[(V_S - V_B) \times N \times F]/W\} \times 100$$

V_S = *Titrant* volume consumed by the *Sample* (mL)

V_B = *Titrant* volume consumed by the *Blank* (mL)

N = actual normality of the *Titrant* (mEq/mL)

F = equivalency factor, 0.1332 g/mEq

W = *Sample* weight (g)

Acceptance criteria: 98.0%–102.0% on the anhydrous basis

IMPURITIES

• **Limit of Triisopropanolamine**

Indicator solution: 1.5 mg/mL of methyl orange and 0.8 mg/mL of xylene cyanole FF

Sample: 20 g

Blank: 100 mL of methanol

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Titrimetric system

(See *Titrimetry ⟨541⟩*.)

Mode: Direct titration

Titrant: 0.5 N alcoholic sulfuric acid VS

Endpoint detection: Visual

Analysis: To a glass-stoppered, 500-mL conical flask add 100 mL of methanol and 6–8 drops of *Indicator solution*, and neutralize with 0.1 N alcoholic sulfuric acid or 0.1 N alcoholic potassium hydroxide. The neutral solution is amber when viewed by transmitted light and is red-brown when viewed by reflected light. Add the *Sample*, cautiously add 75 mL of acetic anhydride, and swirl to dissolve. Allow to stand at room temperature for 30 min. Cool to room temperature, if necessary. Titrate with *Titrant*. Perform a blank determination, and make any necessary correction.

Calculate the percentage of triisopropanolamine in the portion of Diisopropanolamine taken:

$$\text{Result} = \{[(V_S - V_B) \times N \times F]/W\} \times 100$$

V_S = *Titrant* volume consumed by the *Sample* (mL)

V_B = *Titrant* volume consumed by the *Blank* (mL)

N = actual normality of the *Titrant* (mEq/mL)

F = equivalency factor, 0.1914 g/mEq

W = *Sample* weight (g)

Acceptance criteria: NMT 1.0% by weight

SPECIFIC TESTS

• **Water Determination,** *Method I⟨921⟩*

Solvent: A mixture of 5.0 mL of glacial acetic acid and 25 mL of methanol

Acceptance criteria: NMT 0.50%

ADDITIONAL REQUIREMENTS

• **Packaging and Storage:** Preserve in tight, light-resistant containers. No specific storage conditions are required.

Auxiliary Information - Please check for your question in the FAQs before contacting USP.

Topic/Question	Contact	Expert Committee
DIISOPROPANOLAMINE	Documentary Standards Support	SE2020 Simple Excipients

Chromatographic Database Information: Chromatographic Database

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