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Nortriptyline Hydrochloride Oral Solution

DEFINITION

Nortriptyline Hydrochloride Oral Solution contains nortriptyline hydrochloride equivalent to NLT 90.0% and NMT 110.0% of the labeled amount of nortriptyline ($C_{19}H_{21}N$).

IDENTIFICATION

Change to read:

- **A.** [▲SPECTROSCOPIC IDENTIFICATION TESTS \(197\), Infrared Spectroscopy](#): 197S▲ (USP 1-May-2021)

Standard solution: Dissolve 50 mg of [USP Nortriptyline Hydrochloride RS](#) in 25 mL of water and transfer to a suitable separatory funnel.

Adjust by the dropwise addition of [1 N sodium hydroxide](#) to a pH of NLT 11. The pH can be checked with pH indicator paper. Extract with 15 mL of [chloroform](#), and filter the chloroform extract through about 2 g of [anhydrous sodium sulfate](#) that has been previously washed with [chloroform](#). Evaporate the chloroform extract with the aid of heat and a current of air to dryness. Dissolve the residue in 0.5 mL of [chloroform](#).

Sample solution: Transfer a suitable volume of Oral Solution containing about 50 mg of nortriptyline hydrochloride to a suitable separatory funnel. Adjust by the dropwise addition of [1 N sodium hydroxide](#) to a pH of NLT 11. The pH can be checked with pH indicator paper. Extract with 15 mL of [chloroform](#), and filter the chloroform extract through about 2 g of [anhydrous sodium sulfate](#) that has been previously washed with [chloroform](#). Evaporate the chloroform extract with the aid of heat and a current of air to dryness. Dissolve the residue in 0.5 mL of [chloroform](#).

Acceptance criteria: The IR absorption spectrum of the *Sample solution* exhibits maxima only at the same wavelengths as those of the *Standard solution*.

Change to read:

- **B.** [IDENTIFICATION TESTS—GENERAL \(191\), Chemical Identification Tests, Chloride](#): Meets the requirements ▲ of the test for amine hydrochlorides ▲ (USP 1-May-2021)

ASSAY

Change to read:

• PROCEDURE

Standard solution: 11.4 µg/mL of [USP Nortriptyline Hydrochloride RS](#) in water

Sample solution: Nominally 10 µg/mL of nortriptyline prepared as follows. Transfer a measured volume of Oral Solution equivalent to 10 mg of nortriptyline to a suitable separatory funnel. Add 20 mL of water and mix. Adjust by the dropwise addition of [50% sodium hydroxide TS](#) to a pH of NLT 11. The pH can be checked with pH indicator paper. Extract the nortriptyline with four 25-mL portions of [chloroform](#), filtering each extract into a suitable beaker through 12 g of [anhydrous sodium sulfate](#) previously washed with 25 mL of [chloroform](#). Rinse the sodium sulfate with four 5-mL portions of [chloroform](#), and collect the rinsings in the beaker. Evaporate the combined [chloroform](#) solution with the aid of heat and a current of air to about 10 mL. Transfer the contents of the beaker with the aid of [chloroform](#) to a 200-mL volumetric flask. Evaporate the [chloroform](#) with the aid of air alone to dryness. [CAUTION—Do not use heat.] Dissolve the residue in 1.7 mL of [hydrochloric acid](#), and dilute with [water](#) to volume. Transfer 10.0 mL of the solution to a 50-mL volumetric flask, and dilute with [water](#) to volume.

Instrumental conditions

▲ (See [Ultraviolet-Visible Spectroscopy \(857\)](#).)▲ (USP 1-May-2021)

Mode: UV

Analytical wavelength: About 239 nm

Cell: 1 cm

Blank: [Water](#)

Analysis

Samples: *Standard solution, Sample solution, and Blank*

Calculate the percentage of the labeled amount of nortriptyline ($C_{19}H_{21}N$) in the portion of Oral Solution taken:

$$\text{Result} = (A_U/A_S) \times (C_S/C_U) \times (M_{r1}/M_{r2}) \times 100$$

A_U = absorbance of the *Sample solution*

A_S = absorbance of the *Standard solution*

C_S = concentration of [USP Nortriptyline Hydrochloride RS](#) in the *Standard solution* ($\mu\text{g/mL}$)

C_U = nominal concentration of nortriptyline in the *Sample solution* ($\mu\text{g/mL}$)

M_{r1} = molecular weight of nortriptyline, 263.38

M_{r2} = molecular weight of nortriptyline hydrochloride, 299.84

Acceptance criteria: 90.0%–110.0%

OTHER COMPONENTS

- [ALCOHOL DETERMINATION \(611\), Procedures, Method II](#): 3.0%–5.0% of ethanol (C_2H_5OH)

PERFORMANCE TESTS

- [UNIFORMITY OF DOSAGE UNITS \(905\)](#)

For Oral Solution packaged in single-unit containers: Meets the requirements

- [DELIVERABLE VOLUME \(698\)](#)

For Oral Solution packaged in multiple-unit containers: Meets the requirements

SPECIFIC TESTS

- [pH \(791\)](#): 2.5–4.0

ADDITIONAL REQUIREMENTS

Change to read:

- **PACKAGING AND STORAGE:** Preserve in tight, light-resistant containers. ▲Store at controlled room temperature.▲ (USP 1-May-2021)
- [USP REFERENCE STANDARDS \(11\)](#)
[USP Nortriptyline Hydrochloride RS](#)

Auxiliary Information - Please [check for your question in the FAQs](#) before contacting USP.

Topic/Question	Contact	Expert Committee
NORTRIPTYLINE HYDROCHLORIDE ORAL SOLUTION	Documentary Standards Support	SM42020 Small Molecules 4
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM42020 Small Molecules 4

Chromatographic Database Information: [Chromatographic Database](#)

Most Recently Appeared In:

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