

Status: Currently Official on 16-Feb-2025
 Official Date: Official as of 01-May-2024
 Document Type: USP Monographs
 DocId: GUID-67412B85-258F-412B-B632-CF128C80D670_6_en-US
 DOI: https://doi.org/10.31003/USPNF_M57810_06_01
 DOI Ref: pbt5h

© 2025 USPC
 Do not distribute

Nortriptyline Hydrochloride Capsules

Change to read:

DEFINITION

Nortriptyline Hydrochloride Capsules contain ▲Nortriptyline Hydrochloride▲ (USP 1-May-2024) equivalent to NLT 90.0% and NMT 110.0% of the labeled amount of nortriptyline ($C_{19}H_{21}N$).

IDENTIFICATION

Delete the following:

▲• **A. INFRARED ABSORPTION**▲ (USP 1-MAY-2024)

Add the following:

▲• **A.** The retention time of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the Assay.▲ (USP 1-May-2024)

Delete the following:

▲• **B. [IDENTIFICATION TESTS—GENERAL \(191\)](#), [Chemical Identification Tests, Chloride](#)**▲ (USP 1-MAY-2024)

Add the following:

▲• **B.** The UV spectrum of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the Assay.▲ (USP 1-May-2024)

ASSAY

Change to read:

• PROCEDURE

▲**Solution A:** Combine 10 mL of [phosphoric acid](#) with 100 mL of [water](#).

Buffer: 1.4 g/L of [sodium phosphate, dibasic, anhydrous](#) in [water](#). Adjust with *Solution A* to a pH of 7.7.

Mobile phase: [Methanol](#) and *Buffer* (70:30)

Diluent: [Methanol](#) and [water](#) (70:30)

System suitability solution: 0.11 mg/mL of [USP Nortriptyline Hydrochloride RS](#) (equivalent to 0.1 mg/mL of nortriptyline) and 1 µg/mL of [USP Cyclobenzaprine Related Compound B RS](#) in *Diluent*

Standard solution: 0.11 mg/mL of [USP Nortriptyline Hydrochloride RS](#) (equivalent to 0.1 mg/mL of nortriptyline) in *Diluent*

Sample stock solution: Nominally 1 mg/mL of nortriptyline in *Diluent* prepared as follows. Weigh and combine the contents of Capsules (NLT 20). Transfer a portion of the composite to a suitable volumetric flask, and add *Diluent* to 60% of the flask volume. Shake by mechanical means for 15 min, and sonicate for 10 min. Dilute with *Diluent* to volume.

Sample solution: Nominally 0.1 mg/mL of nortriptyline in *Diluent* from the *Sample stock solution*. Pass through a suitable filter of 0.45-µm pore size, discarding NLT 2 mL of filtrate.

Chromatographic system

(See [Chromatography \(621\)](#), [System Suitability](#).)

Mode: LC

Detector: UV 220 nm. For *Identification B*, use a diode array detector in the range of 200–400 nm.

Column: 4.6-mm × 25-cm; 5-µm packing [L1](#)

Column temperature: 45°

Flow rate: 1.2 mL/min

Injection volume: 20 µL

Run time: NLT 1.9 times the retention time of nortriptyline

System suitability**Samples:** *System suitability solution* and *Standard solution*

[NOTE—The relative retention times for cyclobenzaprine related compound B and nortriptyline are 0.9 and 1.0, respectively.]

Suitability requirements**Resolution:** NLT 2 between cyclobenzaprine related compound B and nortriptyline, *System suitability solution***Tailing factor:** NMT 2.5, *Standard solution***Relative standard deviation:** NMT 1.0%, *Standard solution***Analysis****Samples:** *Standard solution* and *Sample solution*Calculate the percentage of the labeled amount of nortriptyline ($C_{19}H_{21}N$) in the portion of Capsules taken:

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

 r_U = peak response of nortriptyline from the *Sample solution* r_S = peak response of nortriptyline from the *Standard solution* C_S = concentration of [USP Nortriptyline Hydrochloride RS](#) in the *Standard solution* (mg/mL) C_U = nominal concentration of nortriptyline in the *Sample solution* (mg/mL) M_{r1} = molecular weight of nortriptyline, 263.38 M_{r2} = molecular weight of nortriptyline hydrochloride, 299.84

▲ (USP 1-May-2024)

Acceptance criteria: 90.0%–110.0%**PERFORMANCE TESTS****Change to read:**

- [DISSOLUTION \(711\)](#).

Test 1**Medium:** [Water](#); 500 mL**Apparatus 1:** 100 rpm**Time:** 30 min**▲Buffer:** 1.63 g/L of [monobasic potassium phosphate](#) in [water](#). Adjust with [1 N potassium hydroxide VS](#) to a pH of 6.7.**Mobile phase:** [Acetonitrile](#), [methanol](#), and *Buffer* (40:43:17) ▲ (USP 1-May-2024)**Standard solution:** 0.023 mg/mL of [USP Nortriptyline Hydrochloride RS](#) (equivalent to 0.02 mg/mL of nortriptyline) in *Medium***Sample stock solution:** Pass a portion of the solution under test through a suitable filter of 0.45-μm pore size.**Sample solution:** Nominally 0.02 mg/mL of nortriptyline from the *Sample stock solution* diluted with *Medium*, if necessary**▲Chromatographic system**(See [Chromatography \(621\)](#), *System Suitability*.)**Mode:** LC**Detector:** UV 239 nm**Column:** 4.6-mm × 25-cm; 10-μm packing [L10](#)**Flow rate:** 2.5 mL/min**Injection volume:** 100 μL**Run time:** NLT 2 times the retention time of nortriptyline ▲ (USP 1-May-2024)**System suitability****Sample:** *Standard solution***Suitability requirement****Relative standard deviation:** NMT 1.0%**Analysis****Samples:** *Standard solution* and *Sample solution*Calculate the percentage of the labeled amount of nortriptyline ($C_{19}H_{21}N$) dissolved:

$$\text{Result} = (r_U/r_S) \times C_S \times V \times D \times (M_{r1}/M_{r2}) \times (1/L) \times 100$$

**Documents**

Document Sharing Hub