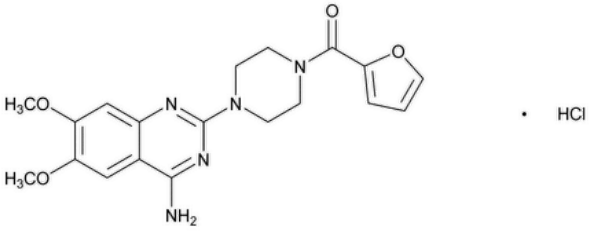
Status: Currently Official on 16-Feb-2025
Official Date: Official as of 01-Jan-2022
Document Type: USP Monographs
DocId: GUID-876D6F7C-1A36-4E19-80CA-F66784E53476_6_en-US
DOI: https://doi.org/10.31003/USPNF_M68470_06_01
DOI Ref: fhh11

Prazosin Hydrochloride



$C_{19}H_{21}N_5O_4 \cdot HCl$ 419.86

Piperazine, 1-(4-amino-6,7-dimethoxy-2-quinazolinyl)-4-(2-furanylcarbonyl)-, monohydrochloride;

1-(4-Amino-6,7-dimethoxy-2-quinazolinyl)-4-(2-furoyl)piperazine monohydrochloride CAS RN®: 19237-84-4; UNII: X0Z7454B90.

DEFINITION

Prazosin Hydrochloride contains NLT 97.0% and NMT 103.0% of prazosin hydrochloride ($C_{19}H_{21}N_5O_4 \cdot HCl$), calculated on the anhydrous basis.

IDENTIFICATION

- **A. Spectroscopic Identification Tests ⟨197⟩, *Infrared Spectroscopy*:** 197K or 197A
- **B.** The UV spectrum of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the *Assay*.
- **C.** The retention time of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the *Assay*.
- **D. Identification Tests—General ⟨191⟩, *Chemical Identification Tests, Chloride*:** Meets the requirements

ASSAY

- **Procedure**

[**Caution—**Care should be taken to prevent inhaling particles of Prazosin Hydrochloride and to prevent its contacting any part of the body.]

Mobile phase: Methanol, glacial acetic acid, and water (700:10:300). Add 0.2 mL of diethylamine to 1 L of *Mobile phase* such that the retention time of prazosin hydrochloride is 6–10 min.

Diluent: Methanol and water (70:30)

Standard stock solution: 1 mg/mL of USP Prazosin Hydrochloride RS in methanol

Standard solution: 30 µg/mL of USP Prazosin Hydrochloride RS in *Diluent* from the *Standard stock solution*

Sample stock solution: 1 mg/mL of Prazosin Hydrochloride in methanol

Sample solution: 30 µg/mL of Prazosin Hydrochloride in *Diluent* from *Sample stock solution*

Chromatographic system

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

Mode: LC

Detector: UV 254 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 L3

Flow rate: Adjusted to obtain a retention time of 6–10 min for prazosin

Injection volume: 5 µL

Run time: NLT 2 times the retention time of the prazosin peak

System suitability

Sample: *Standard solution*

Suitability requirements

Tailing factor: NMT 2.0

Relative standard deviation: NMT 1.10%

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of prazosin hydrochloride ($C_{19}H_{21}N_5O_4 \cdot HCl$) in the portion of Prazosin Hydrochloride taken:

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

r_U = peak response of prazosin from the *Sample solution*

r_S = peak response of prazosin from the *Standard solution*

C_S = concentration of USP Prazosin Hydrochloride RS in the *Standard solution* (µg/mL)

C_U = concentration of Prazosin Hydrochloride in the *Sample solution* (µg/mL)

Acceptance criteria: 97.0%–103.0% calculated on the anhydrous basis

IMPURITIES

• **Residue on Ignition ⟨281⟩**

Sample: 1 g of Prazosin Hydrochloride

Acceptance criteria: NMT 0.4%

[Note—Save the residue for the test for *Iron*.]

• **Iron**

Standard stock solution: Dissolve 100 mg of iron wire in 10 mL of hydrochloric acid with the aid of boiling. Cool, transfer to a 1000-mL volumetric flask, and dilute with water to volume.

Standard solution: 4.0 µg/mL of iron in 0.2 N nitric acid from *Standard stock solution*

Sample solution: Dissolve the residue obtained in the test for *Residue on Ignition* in 20 mL of 2 N nitric acid. Slowly evaporate this solution to approximately 5 mL; transfer to a 25-mL volumetric flask, using 0.2 N nitric acid as a wash solvent; and dilute with 0.2 N nitric acid to volume.

Instrumental conditions

(See *Atomic Absorption Spectroscopy* ⟨852⟩.)

Mode: Atomic absorption

Analytical wavelength: 248 nm

Lamp: Iron hollow-cathode

Flame: Air–acetylene

Blank: Water

Analysis: Determine the absorbances of the *Standard solution* and the *Sample solution* against the *Blank*.

Acceptance criteria: The absorbance of the *Sample solution* is NMT that of the *Standard solution* (0.010%).

• **Nickel**

Standard stock solution: Dissolve 100 mg of nickel in 10 mL of nitric acid with the aid of boiling. Cool, transfer to a 1000-mL volumetric flask, and dilute with water to volume.

Standard solution: 4.0 µg/mL of nickel in 0.2 N nitric acid from *Standard stock solution*

Sample solution: Prepare as directed in the test for *Iron*.

Instrumental conditions

(See *Atomic Absorption Spectroscopy* ⟨852⟩.)

Mode: Atomic absorption

Analytical wavelength: 232 nm

Lamp: Nickel hollow-cathode

Flame: Air–acetylene

Blank: Water

Analysis: Determine the absorbances of the *Standard solution* and the *Sample solution* against the *Blank*.

Acceptance criteria: The absorbance of the *Sample solution* is NMT that of the *Standard solution* (0.010%).

Change to read:

• **Organic Impurities**

Buffer: 3.48 g/L of sodium pentanesulfonate and 3.64 g/L of tetramethylammonium hydroxide. Adjust with glacial acetic acid to a pH of 5.0.

Mobile phase: Methanol and *Buffer* (500:500)

System suitability solution: 0.032 mg/mL of USP Metoclopramide Hydrochloride RS and 0.004 mg/mL of USP Prazosin Hydrochloride RS in *Mobile phase*

Standard solution: 1 µg/mL of USP Prazosin Hydrochloride RS in *Mobile phase*

Sensitivity solution: ▲0.5▲ (ERR 1-Jan-2022) µg/mL of USP Prazosin Hydrochloride RS in *Mobile phase* from the *Standard solution*

Sample solution: 1 mg/mL of Prazosin Hydrochloride in *Mobile phase*

Chromatographic system

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

Mode: LC

Detector: UV 254 nm

Column: 4.6-mm × 25-cm; 5-µm packing L1

Flow rate: 1 mL/min

Injection volume: 20 µL

Run time: NLT 6 times the retention time of the prazosin peak

System suitability

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

[NOTE—The relative retention times of metoclopramide and prazosin are 0.55 and 1.00, respectively.]

Suitability requirements

Resolution: NLT 8 between the metoclopramide and prazosin peaks, *System suitability solution*

Relative standard deviation: NMT 2.0%, *Standard solution*

Signal-to-noise ratio: NLT 10, *Sensitivity solution*

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of each individual impurity in the portion of Prazosin Hydrochloride taken:

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

r_U = peak response of each individual impurity from the *Sample solution*

r_S = peak response of prazosin from the *Standard solution*

C_S = concentration of USP Prazosin Hydrochloride RS in the *Standard solution* (mg/mL)

C_U = concentration of Prazosin Hydrochloride in the *Sample solution* (mg/mL)

Acceptance criteria

Each individual impurity: NMT 0.2%

Total impurities: NMT 0.5%.The reporting threshold is 0.05%.

SPECIFIC TESTS

- **WATER DETERMINATION ⟨921⟩, *Method I***

Anhydrous form: NMT 2.0%

Polyhydrate form: 8.0%–15.0%

ADDITIONAL REQUIREMENTS

- **PACKAGING AND STORAGE:** Preserve in tight, light-resistant containers.
- **LABELING:** Label it to indicate whether it is anhydrous or is the polyhydrate.
- **USP REFERENCE STANDARDS ⟨11⟩**

USP Metoclopramide Hydrochloride RS

USP Prazosin Hydrochloride RS

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

Topic/Question	Contact	Expert Committee
PRAZOSIN HYDROCHLORIDE	Documentary Standards Support	SM22020 Small Molecules 2
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM22020 Small Molecules 2

Chromatographic Database Information: Chromatographic Database

Most Recently Appeared In:
Pharmacopeial Forum: Volume No. 45(4)
Current DocID: GUID-876D6F7C-1A36-4E19-80CA-F66784E53476_6_en-US
DOI: https://doi.org/10.31003/USPNF_M68470_06_01
DOI ref: fhh11