Status: Currently Official on 13-Feb-2025
Official Date: Official as of 01-May-2020
Document Type: USP Monographs
DocId: GUID-3CD9DAEE-8214-4138-8101-BBF72FA8277A_2_en-US
DOI: https://doi.org/10.31003/USPNF_M4040_02_01
DOI Ref: m7mvg

Amodiaquine Hydrochloride

$C_{20}H_{22}ClN_3O \cdot 2HCl \cdot 2H_2O$ 464.81
$C_{20}H_{22}ClN_3O \cdot 2HCl$ 428.79
Phenol, 4-[(7-chloro-4-quinolinyl)amino]-2-[(diethylamino)-methyl]-, dihydrochloride, dihydrate;
4-[(7-Chloro-4-quinolyl)amino]-α-(diethylamino)-*o*-cresol dihydrochloride dihydrate CAS RN®: 6398-98-7; UNII: K6PW2S574L.
Anhydrous CAS RN®: 69-44-3; UNII: HOE64181MP.

DEFINITION

Amodiaquine Hydrochloride contains NLT 97.0% and NMT 103.0% of amodiaquine hydrochloride ($C_{20}H_{22}ClN_3O \cdot 2HCl$), calculated on the anhydrous basis.

IDENTIFICATION

Change to read:

• **A.** ▲Spectroscopic Identification Tests ⟨197⟩, *Infrared Spectroscopy*: 197K▲ (CN 1-May-2020)

Sample: Dissolve 20 mg of Amodiaquine Hydrochloride in 10 mL of water in a separator. Add 1 mL of ammonium hydroxide, and extract by shaking with 25 mL of chloroform. Draw off and evaporate the chloroform extract, and dry the residue at 105° for 2 h.

Acceptance criteria: Meets the requirements

Change to read:

• **B.** ▲Spectroscopic Identification Tests ⟨197⟩, *Ultraviolet-Visible Spectroscopy*: 197U▲ (CN 1-May-2020)

Sample solution: 10 µg/mL in dilute hydrochloric acid (1 in 100)

Acceptance criteria: Meets the requirements

• **C.** Identification Tests—General, *Chloride* ⟨191⟩: Meets the requirements

• **D.** The retention time of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the *Assay*.

ASSAY

• **Procedure**

Buffer: 6.8 g/L of monobasic potassium phosphate in water. Add 1.0 mL of perchloric acid to each 1 L of solution, adjust with phosphoric acid to a pH of 2.5 ± 0.5, and pass through a filter of 0.45-µm pore size.

Mobile phase: Methanol and *Buffer* (22:78)

System suitability solution: 0.15 mg/mL of USP Amodiaquine Hydrochloride RS and 0.15 mg/mL of USP Chloroquine Phosphate RS in water

Standard solution: 0.15 mg/mL of USP Amodiaquine Hydrochloride RS in water

Sample solution: 0.15 mg/mL in water

Chromatographic system

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

Mode: LC

Detector: UV 224 nm

Column: 4.6-mm × 10-cm; 5-µm packing L1

Column temperature: 25° ± 5°

Flow rate: 1.2 mL/min

Injection volume: 10 µL

System suitability

Sample: *System suitability solution*

[Note—The relative retention times for chloroquine phosphate and amodiaquine hydrochloride are 0.8 and 1.0, respectively.]

Suitability requirements

Resolution: NLT 1.5 between amodiaquine hydrochloride and chloroquine phosphate

Tailing factor: NMT 1.5 for amodiaquine hydrochloride and chloroquine phosphate

Relative standard deviation: NMT 2.0% for amodiaquine hydrochloride and chloroquine phosphate

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of amodiaquine hydrochloride ($C_{20}H_{22}ClN_3O \cdot 2HCl$) in the portion of Amodiaquine Hydrochloride taken:

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

r_U = response from the *Sample solution*

r_S = response from the *Standard solution*

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

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

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

IMPURITIES

- **Residue on Ignition ⟨281⟩:** NMT 0.2%
- **Organic Impurities**

Buffer, Mobile phase, System suitability solution, Standard solution, Sample solution, Chromatographic system, and **System suitability:** Proceed as directed in the *Assay*.

Analysis

Sample: *Sample solution*

Calculate the percentage of each impurity in the portion of Amodiaquine Hydrochloride taken:

$$\text{Result} = (r_U/r_T) \times 100$$

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

r_T = sum of the responses from the *Sample solution*

Acceptance criteria

Individual impurity: NMT 0.5%

SPECIFIC TESTS

- **Water Determination, *Method I*⟨921⟩:** 7.0%–9.0%
- **Completeness of Solution ⟨641⟩:** A solution of 200 mg in 10 mL of water is clear.

ADDITIONAL REQUIREMENTS

- **Packaging and Storage:** Preserve in tight containers.
- **USP Reference Standards ⟨11⟩**

USP Amodiaquine Hydrochloride RS

USP Chloroquine Phosphate RS

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

Topic/Question	Contact	Expert Committee
AMODIAQUINE HYDROCHLORIDE	Documentary Standards Support	SM12020 Small Molecules 1

Chromatographic Database Information: Chromatographic Database

Most Recently Appeared In:
Pharmacopeial Forum: Volume No. PF 34(2)

Current DocID: GUID-3CD9DAEE-8214-4138-8101-BBF72FA8277A_2_en-US

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