

Chlorothiazide Tablets

DEFINITION
Chlorothiazide Tablets contain NLT 90.0% and NMT 110.0% of the labeled amount of chlorothiazide ($C_7H_6ClN_3O_4S_2$).

- IDENTIFICATION**
- **A.** The retention time of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the Assay.
 - **B.** The UV spectrum of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the Assay.

ASSAY

- **PROCEDURE**
Solution A: 0.1% [formic acid](#) in water
Solution B: [Methanol](#)
Mobile phase: See [Table 1](#).

Table 1

Time (min)	Solution A (%)	Solution B (%)
0	94	6
4	94	6
14	80	20
18	40	60
25	40	60
26	94	6
30	94	6

Diluent: [Acetonitrile](#) and *Solution A* (30:70)
Standard solution: 0.1 mg/mL of [USP Chlorothiazide RS](#) in *Diluent*
Sample stock solution: 0.5 mg/mL of chlorothiazide in *Diluent* prepared as follows. Transfer a suitable amount of finely powdered Tablets (NLT 20), equivalent to 25 mg of chlorothiazide, to a 50-mL volumetric flask. Add 40 mL of *Diluent* and sonicate. Dilute with *Diluent* to volume. Centrifuge and use the supernatant.
Sample solution: Nominally 0.1 mg/mL of chlorothiazide in *Diluent* from the *Sample stock solution*
Chromatographic system
(See [Chromatography \(621\), System Suitability](#).)
Mode: LC
Detector: UV 275 nm. For *Identification test B*, use a diode array detector in the range of 200–400 nm.
Column: 4.6-mm × 15-cm; 5-μm packing L1
Temperatures
Autosampler: 5°
Column: 30°
Flow rate: 1 mL/min

Injection volume: 10 µL

System suitability

Sample: *Standard solution*

Suitability requirements

Tailing factor: NMT 2.0

Relative standard deviation: NMT 1.0%

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of the labeled amount of chlorothiazide ($C_7H_6ClN_3O_4S_2$) in the portion of Tablets taken:

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

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

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

C_S = concentration of [USP Chlorothiazide RS](#) in the *Standard solution* (mg/mL)

C_U = nominal concentration of chlorothiazide in the *Sample solution* (mg/mL)

Acceptance criteria: 90.0%–110.0%

PERFORMANCE TESTS

• [DISSOLUTION \(711\)](#)

Medium: 0.05 M pH 8.0 phosphate buffer (see [Reagents, Indicators, and Solutions—Buffer Solutions](#)); 900 mL

Apparatus 2: 75 rpm

Time: 60 min

Standard solution: Known concentration of [USP Chlorothiazide RS](#) in *Medium*

Sample solution: Filtered portions of the solution under test, suitably diluted with *Medium* to a concentration that is similar to the *Standard solution*

Instrumental conditions

Mode: UV

Analytical wavelength: 294 nm

Analysis

Samples: *Standard solution* and *Sample solution*

Tolerances: NLT 75% (Q) of the labeled amount of chlorothiazide ($C_7H_6ClN_3O_4S_2$) is dissolved.

• [UNIFORMITY OF DOSAGE UNITS \(905\)](#): Meet the requirements

IMPURITIES

• **ORGANIC IMPURITIES**

Solution A, Solution B, Mobile phase, Diluent, and Chromatographic system: Proceed as directed in the Assay.

Standard solution: 10 µg/mL of [USP Benzothiadiazine Related Compound A RS](#) and 2 µg/mL of [USP Chlorothiazide RS](#) in *Diluent*

Sample solution: Nominally 1 mg/mL of chlorothiazide in *Diluent* prepared as follows. Transfer a suitable amount of finely powdered Tablets (NLT 20) to an appropriate volumetric flask. Add *Diluent* to 80% of the final flask volume and sonicate. Dilute with *Diluent* to volume. Centrifuge and use the supernatant.

System suitability

Sample: *Standard solution*

[NOTE—See [Table 2](#) for relative retention times.]

Suitability requirements

Resolution: NLT 4.0 between the benzothiadiazine related compound A and chlorothiazide peaks

Relative standard deviation: NMT 5.0% for chlorothiazide

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of each individual unspecified degradation product in the portion of Tablets taken:

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

r_U = peak response of each unspecified degradation product from the *Sample solution*