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Chlorzoxazone Tablets

To view the Notice from the Expert Committee that posted in conjunction with this accelerated revision, please click www.uspnf.com/rb-clorzoxazone-tabs-20230630.

DEFINITION

Chlorzoxazone Tablets contain NLT 90.0% and NMT 110.0% of the labeled amount of chlorzoxazone ($C_7H_4ClNO_2$).

IDENTIFICATION

• **A. Ultraviolet Absorption**

Standard solution: 0.02 mg/mL of USP Chlorzoxazone RS in methanol

Sample stock solution: Nominally 1.0 mg/mL of chlorzoxazone from Tablets prepared as follows. Disperse a portion of powdered Tablets, equivalent to 100 mg of chlorzoxazone, in 100 mL of methanol and shake for 15 min. Pass the resulting solution through a suitable filter.

Sample solution: Nominally 0.02 mg/mL of chlorzoxazone from *Sample stock solution* in methanol

Acceptance criteria: The UV absorption spectrum of the *Sample solution* exhibits maxima and minima at the same wavelengths as those of the *Standard solution*, concomitantly measured.

• **B.** 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**

Solution A: Dilute 10 mL of glacial acetic acid with water to make 1000 mL of solution.

Mobile phase: Acetonitrile, water, and glacial acetic acid (30:70:1)

Internal standard solution: 1.25 mg/mL of phenacetin in acetonitrile

Standard stock solution: 1.25 mg/mL of USP Chlorzoxazone RS in *Mobile phase*

Standard solution: 0.125 mg/mL of USP Chlorzoxazone RS from *Standard stock solution* and 0.25 mg/mL of phenacetin from *Internal standard solution* in *Solution A*

System suitability stock solution: 8.5 mg/mL of *p*-chlorophenol in acetonitrile

System suitability solution: 0.17 mg/mL of *p*-chlorophenol from *System suitability stock solution*, 0.1 mg/mL of USP Chlorzoxazone RS from *Standard stock solution,* and 0.25 mg/mL of phenacetin from *Internal standard solution* in *Solution A*

Sample stock solution: Nominally 1.25 mg/mL of chlorzoxazone prepared as follows. Finely powder Tablets (NLT 20) and transfer a portion of powder to an appropriate volumetric flask. Add 70% of the flask volume of acetonitrile, and shake by mechanical means for about 30 min. Dilute with acetonitrile to volume. Filter a portion of this solution, discarding the first 10 mL of the filtrate.

Sample solution: Nominally 0.125 mg/mL of chlorzoxazone from *Sample stock solution* and 0.25 mg/mL of phenacetin from *Internal standard solution* in *Solution A*

Chromatographic system

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

Mode: LC

Detector: UV 280 nm

Column: 4-mm × 30-cm; packing L1

Flow rate: 1.5 mL/min

Injection volume: 20 µL

System suitability

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

[Note—The relative retention times for phenacetin, chlorzoxazone, and *p*-chlorophenol are about 0.7, 1.0, and 1.2, respectively.]

Suitability requirements

Resolution: NLT 2.0 between chlorzoxazone and *p*-chlorophenol, *System suitability solution*

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

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of the labeled amount of chlorzoxazone ($C_7H_4ClNO_2$) in the portion of Tablets taken:

$$\text{Result} = (R_U/R_S) \times (C_S/C_U) \times 100$$

R_U = peak response ratio of chlorzoxazone to phenacetin from the *Sample solution*

R_S = peak response ratio of chlorzoxazone to phenacetin from the *Standard solution*

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

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

Acceptance criteria: 90.0%–110.0%

PERFORMANCE TESTS

Change to read:

• **Dissolution** ⟨711⟩

Test 1

[Note—Use 2-L vessels for this test.]

Medium: pH 6.8 phosphate buffer; 1800 mL

Apparatus 2: 75 rpm

Time: 60 min

Standard solution: USP Chlorzoxazone RS in *Medium*

Sample solution: Pass a portion of the solution under test through a suitable filter. Dilute with *Medium*, if necessary.

Instrumental conditions

Mode: UV

Analytical wavelength: 284 nm

Analysis

Samples: *Standard solution* and *Sample solution*

Determine the percentage of the labeled amount of chlorzoxazone ($C_7H_4ClNO_2$) dissolved.

Tolerances: NLT 75% (*Q*) of the labeled amount of chlorzoxazone ($C_7H_4ClNO_2$) is dissolved.

Test 2: If the product complies with this test, the labeling indicates that it meets USP *Dissolution Test 2*.

Medium: pH 6.8 phosphate buffer; 1800 mL

Apparatus 2: 75 rpm

Time: 90 min

Standard stock solution: 0.84 mg/mL of USP Chlorzoxazone RS in methanol. Sonicate as necessary to dissolve.

Standard solution: 0.021 mg/mL of USP Chlorzoxazone RS from the *Standard stock solution* in *Medium*

Sample solution: Pass a portion of the solution under test through a suitable filter. Dilute with *Medium*.

Instrumental conditions

(See *Ultraviolet-Visible Spectroscopy* ⟨857⟩.)

Mode: UV

Analytical wavelength: 284 nm

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of the labeled amount of chlorzoxazone ($C_7H_4ClNO_2$) dissolved:

$$\text{Result} = (A_U/A_S) \times C_S \times V \times D \times (1/L) \times 100$$

A_U = absorbance of chlorzoxazone from the *Sample solution*

A_S = absorbance of chlorzoxazone from the *Standard solution*

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

V = volume of *Medium*, 1800 mL

D = dilution factor for the *Sample solution*

L = label claim (mg/Tablet)

Tolerances: NLT 75% (Q) of the labeled amount of chlorzoxazone ($C_7H_4ClNO_2$) is dissolved.

Test 4: If the product complies with this test, the labeling indicates that it meets USP *Dissolution Test 4*.

Medium: 0.2% sodium dodecyl sulfate in water; 1800 mL

Apparatus 2: 100 rpm

Time: 20 min

Mobile phase: Acetonitrile and water (30:70). Add 10 mL of glacial acetic acid to each liter of the mixture.

Standard solution: 0.14 mg/mL of USP Chlorzoxazone RS prepared as follows. Transfer a suitable amount of USP Chlorzoxazone RS to an appropriate volumetric flask. Add 5% of the flask volume of acetonitrile and sonicate to dissolve. Dilute with *Medium* to volume.

Sample solution: Pass a portion of the solution under test through a suitable filter.

Chromatographic system

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

Mode: LC

Detector: UV 280 nm

Column: 4.6-mm × 15-cm; 3-µm packing L1

Flow rate: 1 mL/min

Injection volume: 15 µL

Run time: NLT 2 times the retention time of chlorzoxazone

System suitability

Sample: *Standard solution*

Suitability requirements

Relative standard deviation: NMT 3.0%

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of the labeled amount of chlorzoxazone ($C_7H_4ClNO_2$) dissolved:

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

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

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

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

V = volume of *Medium*, 1800 mL

L = label claim (mg/Tablet)

Tolerances: NLT 80% (Q) of the labeled amount of chlorzoxazone ($C_7H_4ClNO_2$) is dissolved.

▲**Test 5:** If the product complies with this test, the labeling indicates that it meets USP *Dissolution Test 5*.

Medium: Phosphate buffer, pH 8.0 (Dissolve 6.8 g of potassium phosphate, monobasic in 1 L water, add 1.85 g of sodium hydroxide and dissolve. Adjust with 1 N sodium hydroxide or 1 N hydrochloric acid to a pH of 8.0, if necessary.); 1800 mL

Apparatus 2: 75 rpm

Time: 60 min

Standard stock solution: 0.3 mg/mL of USP Chlorzoxazone RS prepared as follows. Transfer an appropriate quantity of USP Chlorzoxazone RS to a suitable volumetric flask, add 15% of the flask volume of methanol, and sonicate to dissolve. Dilute with *Medium* to volume.

Standard solution: 0.03 mg/mL of USP Chlorzoxazone RS from the *Standard stock solution* in *Medium*

Sample solution: Pass a portion of the solution under test through a suitable filter of 0.45-µm pore size, discarding NLT 4 mL of filtrate. Dilute with *Medium* to a concentration similar to that of the *Standard solution*, if necessary.

Instrumental conditions

(See *Ultraviolet-Visible Spectroscopy ⟨857⟩*.)

Mode: UV

Analytical wavelength: 282 nm

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of the labeled amount of chlorzoxazone ($C_7H_4ClNO_2$) dissolved:

$$\text{Result} = (A_U/A_S) \times C_S \times V \times D \times (1/L) \times 100$$

A_U = absorbance of the *Sample solution*

A_S = absorbance of the *Standard solution*

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

V = volume of *Medium*, 1800 mL

D = dilution factor for the *Sample solution*, if necessary

L = label claim (mg/Tablet)

Tolerances: NLT 75% (Q) of the labeled amount of chlorzoxazone ($C_7H_4ClNO_2$) is dissolved.▲ (RB 1-Jul-2023)

• **Uniformity of Dosage Units ⟨905⟩:** Meet the requirements

ADDITIONAL REQUIREMENTS

• **Packaging and Storage:** Preserve in tight containers.

• **Labeling:** The labeling states the *Dissolution* test used only if *Test 1* is not used.

• **USP Reference Standards ⟨11⟩**

USP Chlorzoxazone RS

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

Topic/Question	Contact	Expert Committee
CHLORZOXAZONE TABLETS	Documentary Standards Support	SM42020 Small Molecules 4

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