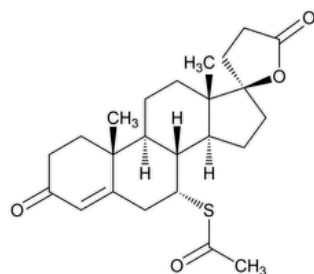


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Spironolactone



$C_{24}H_{32}O_4S$ 416.57

Pregn-4-ene-21-carboxylic acid, 7-(acetylthio)-17-hydroxy-3-oxo-, γ -lactone, (7 α ,17 α);
 17-Hydroxy-7 α -mercapto-3-oxo-17 α -pregn-4-ene-21-carboxylic acid γ -lactone acetate;
 (2'*R*)-7 α -(Acetylthio)-3',4'-dihydro-5'*H*-spiro[androst-4-ene-17,2'-furan]-3,5'-dione CAS RN[®]: 52-01-7; UNII: 2707W4T232.

DEFINITION

Spironolactone contains NLT 97.0% and NMT 103.0% of spironolactone ($C_{24}H_{32}O_4S$), calculated on the dried basis.

IDENTIFICATION

Change to read:

- **A.** **▲SPECTROSCOPIC IDENTIFICATION TESTS (197), Infrared Spectroscopy:** 197A or 197K▲ (CN 1-May-2020)
- **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

Mobile phase: [Methanol](#) and [water](#) (60:40)

Standard solution: 0.5 mg/mL of [USP Spironolactone RS](#) in a mixture of [acetonitrile](#) and [water](#) (1:1)

Sample solution: 0.5 mg/mL of Spironolactone in a mixture of [acetonitrile](#) and [water](#) (1:1)

Chromatographic system

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

Mode: LC

Detector: UV 230 nm

Column: 4.6-mm × 15-cm; 5- μ m packing L1

Flow rate: 1 mL/min

Injection volume: 20 μ L

Run time: NLT 2 times the retention time of spironolactone

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 spironolactone ($C_{24}H_{32}O_4S$) in the portion of Spironolactone taken:

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

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

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

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

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

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

IMPURITIES

• LIMIT OF MERCAPTO COMPOUNDS

Sample solution: Shake 2.0 g with 30 mL of [water](#), and filter.

Analysis: To 15 mL of the *Sample solution* add 3 mL of [starch TS](#), and titrate with 0.010 N [iodine](#). Perform a blank determination, and make any necessary correction.

Acceptance criteria: NMT 0.10 mL of 0.010 N [iodine](#) is consumed.

• ORGANIC IMPURITIES

Diluent: [Acetonitrile](#) and [water](#) (50:50)

Mobile phase: [Acetonitrile](#), [tetrahydrofuran](#), [methanol](#), and [water](#) (15:20:425:540)

Standard stock solutions: 2 mg/mL of [USP Spironolactone RS](#) and 0.2 mg/mL each of [USP Spironolactone Related Compound A RS](#), [USP Spironolactone Related Compound B RS](#), [USP Spironolactone Related Compound C RS](#), [USP Spironolactone Related Compound D RS](#), [USP Spironolactone Epimer Mixture RS](#), and [USP Spironolactone Related Compound I RS](#) prepared separately as follows. Dissolve each suitable amount of the corresponding USP Reference Standard in a suitable volumetric flask in about 10% of the total volume of [tetrahydrofuran](#). Dilute with *Diluent* to volume.

Standard solution: 0.002 mg/mL of [USP Spironolactone RS](#) and 0.006 mg/mL of [USP Spironolactone Related Compound A RS](#) in *Diluent* from the corresponding *Standard stock solutions*

System suitability solution: 0.02 mg/mL of [USP Spironolactone RS](#) and 0.006 mg/mL each of [USP Spironolactone Related Compound A RS](#), [USP Spironolactone Related Compound B RS](#), [USP Spironolactone Related Compound C RS](#), [USP Spironolactone Related Compound D RS](#), [USP Spironolactone Epimer Mixture RS](#), and [USP Spironolactone Related Compound I RS](#) in *Diluent* from the corresponding *Standard stock solutions*

Sensitivity solution: 0.001 mg/mL of [USP Spironolactone RS](#) in *Diluent* from the corresponding *Standard stock solution*

Sample solution: 2 mg/mL of Spironolactone prepared as follows. Dissolve a suitable amount of Spironolactone in about 10% of the total volume of [tetrahydrofuran](#) and dilute with *Diluent* to volume.

Chromatographic system

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

Mode: LC

Detector: UV 254 nm

Column: 4.6-mm × 15-cm; 3.5-μm packing L1

Column temperature: 40°

Flow rate: 1 mL/min

Injection volume: 20 μL

Run time: NLT 2.8 times the retention time of the spironolactone peak

System suitability

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

Suitability requirements

Resolution: NLT 1.2 between spironolactone and spironolactone related compound B, *System suitability solution*

Relative standard deviation: NMT 5.0% for the spironolactone peak, *Standard solution*

Signal-to-noise ratio: NLT 20, *Sensitivity solution*

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of spironolactone related compound A in the portion of Spironolactone taken:

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

r_U = peak response of spironolactone related compound A from the *Sample solution*

r_S = peak response of spironolactone related compound A from the *Standard solution*