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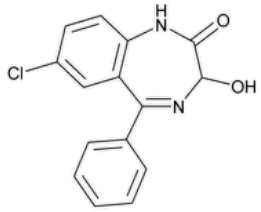
Oxazepam



$C_{15}H_{11}ClN_2O_2$ 286.71

2*H*-1,4-Benzodiazepin-2-one, 7-chloro-1,3-dihydro-3-hydroxy-5-phenyl-, (±)-;

(±)-7-Chloro-1,3-dihydro-3-hydroxy-5-phenyl-2*H*-1,4-benzodiazepin-2-one CAS RN®: 604-75-1.

DEFINITION

Oxazepam contains NLT 98.0% and NMT 102.0% of oxazepam ($C_{15}H_{11}ClN_2O_2$), calculated on the dried basis.

IDENTIFICATION

Change to read:

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

Change to read:

• **B.** ▲The retention time of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the *Assay*.▲ (USP 1-May-2019)

ASSAY

Change to read:

• **Procedure**

▲Prepare the *System suitability solution*, *Standard solution*, and *Sample solution* immediately before use.

Solution A: Dissolve 3.5 g of dibasic potassium phosphate in 900 mL of water. Adjust with 1 N sodium hydroxide to a pH of 10.5, and dilute with water to 1 L.

Solution B: Acetonitrile

Mobile phase: See *Table 1*.

Table 1

Time (min)	Solution A (%)	Solution B (%)
0	75	25
4	75	25
19	50	50
20	25	75
25	25	75

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Time (min)	Solution A (%)	Solution B (%)
26	75	25
30	75	25

Diluent: Acetonitrile and water (50:50)

System suitability solution: 1.6 µg/mL each of USP Oxazepam Related Compound A RS and USP Chlordiazepoxide Related Compound A RS, and 0.8 mg/mL of USP Oxazepam RS in *Diluent*

Standard solution: 0.08 mg/mL of USP Oxazepam RS in *Diluent*

Sample solution: 0.08 mg/mL of Oxazepam in *Diluent*

Chromatographic system

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

Mode: LC

Detector: UV 235 nm

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

Flow rate: 1 mL/min

Injection volume: 10 µL

System suitability

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

Suitability requirements

Resolution: NLT 1.5 between chlordiazepoxide related compound A and oxazepam related compound A, *System suitability solution*

Relative standard deviation: NMT 0.73%, *Standard solution*

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of oxazepam ($C_{15}H_{11}ClN_2O_2$) in the portion of Oxazepam taken:

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

r_U = peak response from the *Sample solution*

r_S = peak response from the *Standard solution*

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

C_U = concentration of Oxazepam in the *Sample solution* (mg/mL)▲ (USP 1-May-2019)

Acceptance criteria: 98.0%–102.0% on the dried basis

IMPURITIES

• **Residue on Ignition ⟨281⟩:** NMT 0.3%

Change to read:

• **Organic Impurities**

Prepare the ▲*System suitability solution*, *Standard solution*, and *Sample solution*▲ (USP 1-May-2019) immediately before use.

Solution A, Solution B, Diluent, System suitability solution, and **Chromatographic system:** Proceed as directed in the *Assay*.

Mobile phase: See *Table 2*.

Table 2

Time (min)	Solution A (%)	Solution B (%)
0	75	25
4	75	25
34	25	75

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Time (min)	Solution A (%)	Solution B (%)
45	25	75
50	75	25
60	75	25

Standard solution: 1.6 µg/mL of USP Oxazepam RS in *Diluent*

Sample solution: 0.8 mg/mL of Oxazepam in *Diluent*

System suitability

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

Suitability requirements

Resolution: NLT 1.5 between chlordiazepoxide related compound A and oxazepam related compound A, *System suitability solution*

Relative standard deviation: NMT 5.0%, *Standard solution*

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of each impurity in the portion of Oxazepam taken:

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

r_U = peak area of any impurity from the *Sample solution*

r_S = peak area of oxazepam from the *Standard solution*

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

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

F = relative response factor (see *Table 3*)

Acceptance criteria: See *Table 3*. ▲The reporting threshold is 0.05%.▲ (USP 1-May-2019)

Table 3

Name	Relative Retention Time	Relative Response Factor	Acceptance Criteria, NMT (%)
Chlordiazepoxide related compound A	0.7	1.0	0.2
Oxazepam related compound A	0.8	0.25	0.2
Oxazepam	1.0	—	—
Oxazepam related compound B[a]	1.2	0.90	0.2
Oxazepam related compound C[b]	1.4	1.0	0.2
Oxazepam related compound D[c]	2.0	1.0	0.2

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Name	Relative Retention Time	Relative Response Factor	Acceptance Criteria, NMT (%)
Any individual unknown impurity	—	—	0.10
Total impurities	—	—	1.0

[a] 7-Chloro-2-oxo-5-phenyl-2,3-dihydro-1*H*-benzodiazepin-3-yl acetate.

[b] 6-Chloro-4-phenylquinazoline-2-carbaldehyde.

[c] 5-Chloro-2-aminobenzophenone.

SPECIFIC TESTS

• **pH** ⟨791⟩

Sample: A suspension of 1 g of Oxazepam in 50 mL of water

Acceptance criteria: 4.8–7.0

• **Loss on Drying** ⟨731⟩

Analysis: Dry at a pressure not exceeding 5 mm of mercury at 105° for 3 h.

Acceptance criteria: NMT 2.0%

ADDITIONAL REQUIREMENTS

• **Packaging and Storage:** Preserve in well-closed containers.

• **USP Reference Standards** ⟨11⟩

USP Chlordiazepoxide Related Compound A RS

7-Chloro-1,3-dihydro-5-phenyl-2*H*-1,4-benzodiazepin-2-one 4-oxide.

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USP Oxazepam RS

USP Oxazepam Related Compound A RS

7-Chloro-5-phenyl-4,5-dihydro-1*H*-benzodiazepine-2,3-dione.

$C_{15}H_{11}ClN_2O_2$ 286.71

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

Topic/Question	Contact	Expert Committee
OXAZEPAM	Documentary Standards Support	SM42020 Small Molecules 4
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM42020 Small Molecules 4

Chromatographic Database Information: Chromatographic Database

Most Recently Appeared In:
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