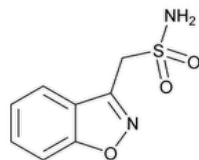


Status: Currently Official on 17-Feb-2025
 Official Date: Official as of 01-Oct-2020
 Document Type: USP Monographs
 DocId: GUID-10A9D44F-0E6A-46AC-ABCD-AAA03D4EBA8C_6_en-US
 DOI: https://doi.org/10.31003/USPNF_M89993_06_01
 DOI Ref: rn8m5

© 2025 USPC
 Do not distribute

Zonisamide



$C_8H_8N_2O_3S$ 212.23

1,2-Benzisoxazole-3-methanesulfonamide CAS RN®: 68291-97-4; UNII: 459384H98V.

DEFINITION

Zonisamide contains NLT 98.0% and NMT 102.0% of $C_8H_8N_2O_3S$, calculated on the anhydrous basis.

IDENTIFICATION

Change to read:

- **A.** ▲ [SPECTROSCOPIC IDENTIFICATION TESTS \(197\)](#), *Infrared Spectroscopy*: 197K ▲ (ERR 1-Oct-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

Buffer: 1.36 g/L of monobasic potassium phosphate in water. Adjust the pH to 3.0 ± 0.1 with 10% phosphoric acid.

Mobile phase: Acetonitrile, methanol, and *Buffer* (1:1:8)

Standard solution: 0.1 mg/mL of [USP Zonisamide RS](#) in *Mobile phase*

Sample solution: 0.1 mg/mL of Zonisamide in *Mobile phase*

Chromatographic system

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

Mode: LC

Detector: UV 240 nm

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

Flow rate: 1.5 mL/min

Injection size: 20 μL

System suitability

Sample: *Standard solution*

Suitability requirements

Column efficiency: NLT 5000 theoretical plates

Tailing: NMT 1.8

Relative standard deviation: NMT 2.0%

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of $C_8H_8N_2O_3S$ in the portion of Zonisamide taken:

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

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

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

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

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

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

IMPURITIES

INORGANIC IMPURITIES

- [RESIDUE ON IGNITION \(281\)](#): NMT 0.1%

ORGANIC IMPURITIES

• PROCEDURE

Mobile phase: Prepare as directed in the Assay.

Standard solution: 1 µg/mL of [USP Zonisamide RS](#) and 1.5 µg/mL of [USP Zonisamide Related Compound A RS](#) in *Mobile phase*

Sample solution: 1.0 mg/mL of Zonisamide in *Mobile phase*

Chromatographic system: Prepare as directed in the Assay.

Run time: 2 times the retention time of the zonisamide peak

System suitability

Sample: *Standard solution*

Suitability requirements

Resolution: NLT 10.0 between zonisamide related compound A and zonisamide

Relative standard deviation: NMT 10.0% for both zonisamide and zonisamide related compound A peaks

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of zonisamide related compound A in the portion of Zonisamide taken:

$$\text{Result} = (r_U/r_S) \times (C_S/C_U) \times (M_{r1}/M_{r2}) \times 100$$

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

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

C_S = concentration of [USP Zonisamide Related Compound A RS](#) in the *Standard solution* (mg/mL)

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

M_{r1} = molecular weight of zonisamide related compound A (free acid), 213.23

M_{r2} = molecular weight of [USP Zonisamide Related Compound A RS](#) (sodium salt), 235.23

Calculate the percentage of any unspecified impurity in the portion of Zonisamide taken:

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

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

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

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

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

Acceptance criteria

Individual impurities: See [Impurity Table 1](#).

Total impurities: NMT 0.3%

Impurity Table 1