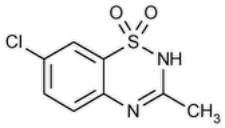
Status: Currently Official on 14-Feb-2025
Official Date: Official as of 01-Nov-2022
Document Type: USP Monographs
DocId: GUID-0ECAA11A-9761-452C-AF48-A2002C1B102F_4_en-US
DOI: https://doi.org/10.31003/USPNF_M24700_04_01
DOI Ref: k30zb

Diazoxide



$C_8H_7ClN_2O_2S$ 230.67

2*H*-1,2,4-Benzothiadiazine, 7-chloro-3-methyl-, 1,1-dioxide;

7-Chloro-3-methyl-2*H*-1,2,4-benzothiadiazine 1,1-dioxide CAS RN®: 364-98-7.

DEFINITION

Diazoxide contains NLT 97.0% and NMT 102.0% of diazoxide ($C_8H_7ClN_2O_2S$), calculated on the dried basis.

IDENTIFICATION

• **A. Spectroscopic Identification Tests ⟨197⟩, *Infrared Spectroscopy*:** 197M or 197A

• **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: Dissolve 1.56 g of sodium phosphate, monobasic in 1000 mL of water. Adjust with phosphoric acid to a pH of 2.5.

Mobile phase: Acetonitrile, methanol, and *Buffer* (10:10:80)

Diluent: Methanol and *Buffer* (50:50)

Standard solution: 0.05 mg/mL of USP Diazoxide RS in *Diluent*. Sonicate to dissolve if needed.

Sample solution: 0.05 mg/mL of Diazoxide in *Diluent*. Sonicate to dissolve if needed.

Chromatographic system

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

Mode: LC

Detector: UV 254 nm

Column: 4.6-mm x 5-cm; 2.6-µm packing L11

Temperatures

Autosampler: 10°

Column: 30°

Flow rate: 1 mL/min

Injection volume: 20 µL

Run time: NLT 2 times the retention time of diazoxide

System suitability

Sample: *Standard solution*

Suitability requirements

Tailing factor: NMT 2.0

Relative standard deviation: NMT 0.73%

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of diazoxide ($C_8H_7ClN_2O_2S$) in the portion of Diazoxide taken:

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

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

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

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

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

Acceptance criteria: 97.0%–102.0% on the dried basis

IMPURITIES

• **Residue on Ignition ⟨281⟩:** NMT 0.1%

Change to read:

• **Organic Impurities**

Buffer and **Diluent:** Prepare as directed in the *Assay*.

Solution A: Methanol and *Buffer* (15:85)

Solution B: Acetonitrile and methanol (70:30)

Mobile phase: See *Table 1*.

Table 1

Time (min)	Solution A (%)	Solution B (%)
0	95	5
10.0	85	15
20.0	35	65
25.0	35	65
25.1	95	5
30.0	95	5

Sensitivity solution: 0.25 µg/mL of USP Diazoxide RS in *Diluent* from the *Standard solution* in the *Assay*

Standard solution: 0.5 µg/mL of USP Diazoxide RS in *Diluent* from the *Standard solution* in the *Assay*

Sample solution: 0.5 mg/mL of Diazoxide in *Diluent*. Sonication may be used to aid in dissolution.

Chromatographic system

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

Mode: LC

Detector: UV 220 nm

Column: 4.6-mm x 5-cm; 2.6-µm packing L11

Temperatures

Autosampler: 10°

Column: 30°

Flow rate: 0.8 mL/min

Injection volume: 20 µL

System suitability

Samples: *Sensitivity solution* and *Standard solution*

Suitability requirements

Tailing factor: NMT 2.0, *Standard solution*

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

Signal-to-noise ratio: NLT 10, *Sensitivity solution*

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentages of specified and unspecified impurities in the portion of Diazoxide taken:

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

r_U = peak response of specified and unspecified impurities from the *Sample solution*

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

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

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

F = relative response factor (see *Table 2*)

Acceptance criteria: See *Table 2*. The reporting threshold is 0.05%.

Table 2

Name	Relative Retention Time	Relative Response Factor	Acceptance Criteria, NMT (%)
Diazoxide benzothiadiazinone analog[a]	0.45	0.74	0.15
Diazoxide	1.00	—	—
Any unspecified impurity	—	1.0	0.10
Total impurities	—	—	1.0

[a] 7-Chloro-2*H*-▲1,2,4-▲ (ERR 1-Nov-2022) benzothiadiazin-3(4*H*)-one 1,1-dioxide.

SPECIFIC TESTS

• **Loss on Drying** ⟨731⟩

Analysis: Dry at 105° for 4 h.

Acceptance criteria: NMT 0.5%

ADDITIONAL REQUIREMENTS

• **Packaging and Storage:** Preserve in well-closed containers. Store at controlled room temperature.

• **USP Reference Standards** ⟨11⟩

USP Diazoxide RS

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

Topic/Question	Contact	Expert Committee
DIAZOXIDE	Documentary Standards Support	SM22020 Small Molecules 2

Chromatographic Database Information: Chromatographic Database

Most Recently Appeared In:
Pharmacopeial Forum: Volume No. 45(1)

Current DocID: GUID-0ECAA11A-9761-452C-AF48-A2002C1B102F_4_en-US

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