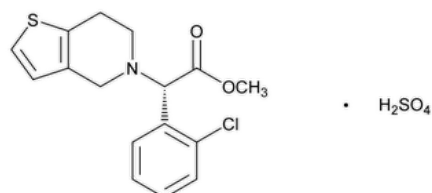


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Clopidogrel Bisulfate



$C_{16}H_{16}ClNO_2S \cdot H_2SO_4$ 419.90

Thieno[3,2-c]pyridine-5(4H)-acetic acid, α -(2-chlorophenyl)-6,7-dihydro-, methyl ester, (S)-, sulfate (1:1);

Methyl (+)-(S)- α -(o-chlorophenyl)-6,7-dihydrothieno[3,2-c]pyridine-5(4H)-acetate, sulfate (1:1) CAS RN®: 120202-66-6; UNII: 08I79HTP27.

DEFINITION

Clopidogrel Bisulfate contains NLT 97.0% and NMT 101.5% of clopidogrel bisulfate ($C_{16}H_{16}ClNO_2S \cdot H_2SO_4$), calculated on the dried basis.

IDENTIFICATION

Change to read:

- **A.** [▲ SPECTROSCOPIC IDENTIFICATION TESTS \(197\), Infrared Spectroscopy: 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.
- **C.** [IDENTIFICATION TESTS—GENERAL, Sulfate\(191\)](#): Meets the requirements

ASSAY

PROCEDURE

[NOTE—For all clopidogrel related compounds, the concentrations are expressed as bisulfate salts. Use bisulfate salt equivalents stated on USP Reference Standards labels to calculate the concentrations as appropriate.]

Buffer: 1.36 g/L of monobasic potassium phosphate in water

Mobile phase: Acetonitrile and *Buffer* (25:75)

System suitability stock solution: 100 μ g/mL of [USP Clopidogrel Bisulfate RS](#) and 200 μ g/mL of [USP Clopidogrel Related Compound B RS](#) in methanol

System suitability solution: 2.5 μ g/mL of [USP Clopidogrel Bisulfate RS](#) and 5.0 μ g/mL of [USP Clopidogrel Related Compound B RS](#) in *Mobile phase* from *System suitability stock solution*

Standard stock solution: 1.0 mg/mL of [USP Clopidogrel Bisulfate RS](#) in methanol

Standard solution: 0.1 mg/mL in *Mobile phase* from the *Standard stock solution*

Sample stock solution: 1 mg/mL of Clopidogrel Bisulfate in methanol

Sample solution: 0.1 mg/mL in *Mobile phase*, from *Sample stock solution*

Chromatographic system

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

Mode: LC

Detector: UV 220 nm

Column: 4.6-mm $\times$ 15-cm; packing L57

Flow rate: 1 mL/min

Injection volume: 10 μ L

System suitability

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

[NOTE—The relative retention times for the two enantiomers of clopidogrel related compound B and for clopidogrel are 0.8, 1.2, and 1.0, respectively.]

Suitability requirements

Resolution: Greater than 2.5 between clopidogrel and the first enantiomer of clopidogrel related compound B, *System suitability solution*

Relative standard deviation: NMT 1.0% from clopidogrel bisulfate, *Standard solution*

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of clopidogrel bisulfate ($C_{16}H_{16}ClNO_2S \cdot H_2SO_4$) in the portion of the sample 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 the *Standard solution* (mg/mL)

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

Acceptance criteria: 97.0%–101.5% on the dried basis

IMPURITIES

• **RESIDUE ON IGNITION (281):** NMT 0.1%

• **ORGANIC IMPURITIES**

[NOTE—For all clopidogrel related compounds, the concentrations are expressed as bisulfate salts. Use bisulfate salt equivalents stated on USP Reference Standards labels to calculate the concentrations as appropriate.]

Buffer: 0.96 g/L sodium 1-pentanesulfonate. Adjust with phosphoric acid to a pH of 2.5.

Solution A: Acetonitrile

Solution B: Methanol

Mobile phase: See [Table 1](#).

Table 1

Time (min)	Buffer (%)	Solution A (%)	Solution B (%)
0	85	10	5
3	85	10	5
48	30	65	5
68	30	65	5

Diluent: Acetonitrile and *Buffer* (60:40)

System suitability solution: 6.5 mg/mL of [USP Clopidogrel Bisulfate RS](#) and 0.01 mg/mL each of [USP Clopidogrel Related Compound A RS](#) and [USP Clopidogrel Related Compound B RS](#) in *Diluent*

Standard solution: 6.5 µg/mL of [USP Clopidogrel Bisulfate RS](#) in *Diluent*

Sample solution: 6.5 mg/mL of Clopidogrel Bisulfate in *Diluent*

Chromatographic system

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

Mode: LC

Detector: UV 220 nm

Column: 3.9-mm × 15-cm; 5-µm packing L1

Column temperature: 30°

Flow rate: 1 mL/min

Injection volume: 10 µL

System suitability

Sample: *System suitability solution*

[NOTE—The relative retention times for clopidogrel related compound A, clopidogrel, and clopidogrel related compound B are given in [Table 2](#).]

Suitability requirements



Documents

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