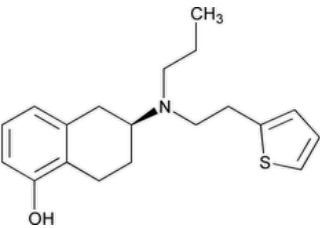


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Rotigotine

Change to read:



$C_{19}H_{25}NOS$ ▲315.48▲ (CN 1-Aug-2024)
1-Naphthalenol, 5,6,7,8-tetrahydro-6-[propyl[2-(2-thienyl)ethyl]amino-(6S)-;
(-)-(S)-5,6,7,8-Tetrahydro-6-[propyl[2-(2-thienyl)ethyl]amino]-1-naphthol;
(6S)-6-[Propyl(2-(2-thienyl)ethyl)amino]-5,6,7,8-tetrahydro-1-naphthalenol CAS RN®: 99755-59-6.

DEFINITION
Rotigotine contains NLT 98.0% and NMT 102.0% of rotigotine ($C_{19}H_{25}NOS$).

IDENTIFICATION

- A. [SPECTROSCOPIC IDENTIFICATION TESTS \(197\)](#), [Infrared Spectroscopy](#):** 197A or 197K
Standard: [USP Rotigotine RS](#)
Acceptance criteria: Meets the requirements
- B.** The retention time of the major peak of the *Identification solution* corresponds to the rotigotine–S isomer peak of the *System suitability solution*, as obtained in the *Limit of Rotigotine R-Enantiomer* test.

ASSAY

Change to read:

- PROCEDURE**
Solution A: 0.3 mL of [trifluoroacetic acid](#) in 1 L of [water](#)
Solution B: 0.2 mL of [trifluoroacetic acid](#) in 1 L of [acetonitrile](#)
Mobile phase: See [Table 1](#).

Table 1

Time (min)	Solution A (%)	Solution B (%)
0	82	18
2	82	18
24	50	50
24.1	82	18
27	82	18

Diluent A: 1 mL of [trifluoroacetic acid](#) in 1 L of [water](#)
Diluent B: 1 mL of [trifluoroacetic acid](#) in 1 L of [acetonitrile](#)

Standard stock solution: 1.3 mg/mL of [USP Rotigotine Hydrochloride RS](#) prepared as follows. Transfer a suitable amount of [USP Rotigotine Hydrochloride RS](#) to a suitable volumetric flask. Add 5% of the flask volume of *Diluent B* and 40% of the flask volume of *Diluent A*. Sonicate to promote dissolution. [NOTE—A sonication time of NLT 20 min with shaking at 5-min intervals may be suitable.] Dilute with *Diluent A* to volume.

Standard solution: 650 µg/mL of [USP Rotigotine Hydrochloride RS](#) from *Standard stock solution* in *Diluent A*

System suitability solution: 0.005 mg/mL each of [USP Rotigotine Related Compound G RS](#) and [USP Rotigotine Related Compound H RS](#) in *Standard solution*

Sample solution: 600 µg/mL of Rotigotine in *Diluent A* prepared as follows. Transfer a suitable amount of Rotigotine to a suitable volumetric flask. Add 5% of the flask volume of *Diluent B* followed by 40% of the flask volume of *Diluent A*. Sonicate to promote dissolution. [NOTE—A sonication time of NLT 20 min with shaking at 5-min intervals may be suitable.] Dilute with *Diluent A* to volume.

Chromatographic system

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

Mode: LC

Detector: UV 220 nm

Column: 4.6-mm × 15-cm; 5-µm packing [L7](#)

Column temperature: 40°

Flow rate: 2 mL/min

Injection volume: 10 µL

System suitability

Sample: *System suitability solution*

[NOTE—See [Table 2](#) for relative retention times.]

Suitability requirements

Resolution: NLT 1.2 between rotigotine related compound G and rotigotine related compound H

Tailing factor: NMT 3.0 for rotigotine

Relative standard deviation: NMT 0.73% for rotigotine

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of rotigotine (C₁₉H₂₅NOS) in the portion of Rotigotine taken:

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

r_U = peak response from the *Sample solution*

r_S = peak response from the *Standard solution*

C_S = concentration of [USP Rotigotine Hydrochloride RS](#) in the *Standard solution* (µg/mL)

C_U = concentration of Rotigotine in the *Sample solution* (µg/mL)

M_{r1} = molecular weight of rotigotine, ▲315.48▲ (CN 1-Aug-2024)

M_{r2} = molecular weight of rotigotine hydrochloride, 351.93

Acceptance criteria: 98.0%–102.0%

IMPURITIES

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

• **LIMIT OF ROTIGOTINE R-ENANTIOMER**

Diluent A: [Absolute alcohol](#), [methanol](#), and [2-propanol](#) (90:5:5)

Diluent B: 1 mL of [diethylamine](#) in 1 L of *Diluent A*

Mobile phase: [Heptane](#), *Diluent A*, and [diethylamine](#) (98:2:0.1)

System suitability solution: 0.1 mg/mL of [USP Rotigotine Racemate RS](#) in *Diluent B*

Sample solution: 2 mg/mL of Rotigotine in *Diluent B*

Identification solution: 0.05 mg/mL of Rotigotine from the *Sample solution* in *Diluent B*

Chromatographic system

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

Mode: LC

Detector: UV 225 nm