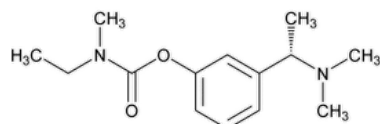


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Rivastigmine



$C_{14}H_{22}N_2O_2$ 250.34

Ethylmethylcarbamic acid, 3-[(S)-1-(dimethylamino)ethyl]phenyl ester;

(S)-3-[1-(Dimethylamino)ethyl]phenyl ethyl(methyl)carbamate CAS RN®: 123441-03-2; UNII: PKI06M3IW0.

DEFINITION

Rivastigmine contains NLT 98.0% and NMT 102.0% of rivastigmine ($C_{14}H_{22}N_2O_2$), calculated on the anhydrous and solvent-free basis.

IDENTIFICATION

Change to read:

- **A.** [▲ SPECTROSCOPIC IDENTIFICATION TESTS \(197\), Infrared Spectroscopy: 197F](#) ▲ (CN 1-MAY-2020)
- **B.** The retention time of the major peak of the *Sample solution* corresponds to that of the *System suitability solution*, as obtained in the test for *Enantiomeric Purity*.

ASSAY

• PROCEDURE

[NOTE—Protect solutions containing rivastigmine from light.]

Buffer: 8.9 g/L of dibasic sodium phosphate dihydrate in water (0.05 M)

Mobile phase: Methanol and *Buffer* (58:42), adjusted with phosphoric acid to a pH of 8.45. [NOTE—Let the solution cool to room temperature before pH adjustment.]

System suitability solution: 1 mg/mL of [USP Rivastigmine Tartrate RS](#), and 1 µg/mL each of [USP Rivastigmine Related Compound B RS](#), [USP Rivastigmine Related Compound C RS](#), and [USP Rivastigmine Related Compound D RS](#) in *Mobile phase*

Standard solution: 1.0 mg/mL of [USP Rivastigmine Tartrate RS](#) in *Mobile phase*

Sample solution: 0.625 mg/mL of Rivastigmine in *Mobile phase*

Chromatographic system

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

Mode: LC

Detector: UV 214 nm

Column: 4.0-mm × 25-cm; 5-µm packing L1

Column temperature: 40°

Flow rate: 1.0 mL/min

Injection volume: 20 µL

System suitability

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

[NOTE—The relative retention times for rivastigmine related compound C, rivastigmine related compound D, rivastigmine related compound B, and rivastigmine are 0.37, 0.56, 0.68, and 1.0, respectively.]

Suitability requirements

Resolution: NLT 1.5 between rivastigmine related compound D and rivastigmine related compound B, *System suitability solution*

Relative standard deviation: NMT 1.0%, *Standard solution*

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of rivastigmine ($C_{14}H_{22}N_2O_2$) in the portion of Rivastigmine 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 Rivastigmine Tartrate RS](#) in the *Standard solution* (mg/mL)

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

M_{r1} = molecular weight of rivastigmine, 250.34

M_{r2} = molecular weight of rivastigmine tartrate, 400.42

Acceptance criteria: 98.0%–102.0% on the anhydrous and solvent-free basis

IMPURITIES

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

• **ORGANIC IMPURITIES**

[NOTE—Protect solutions containing rivastigmine from light.]

Buffer, Mobile phase, System suitability solution, Sample solution, and Chromatographic system: Proceed as directed in the Assay.

Standard solution: 0.0025 mg/mL of [USP Rivastigmine Tartrate RS](#) in *Mobile phase*

Sensitivity solution: 0.5 µg/mL of [USP Rivastigmine Tartrate RS](#) in *Mobile phase* from the *Standard solution*

System suitability

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

[NOTE—The relative retention times for rivastigmine related compound C, rivastigmine related compound D, rivastigmine related compound B, and rivastigmine are 0.37, 0.56, 0.68, and 1.0, respectively.]

Suitability requirements

Resolution: NLT 1.5 between rivastigmine related compound D and rivastigmine related compound B, *System suitability solution*

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

Relative standard deviation: NMT 10%, *Standard solution*

Analysis

Samples: *Standard solution and Sample solution*

Calculate the percentage of any impurity in the portion of Rivastigmine taken:

$$\text{Result} = (r_U/r_S) \times (C_S/C_U) \times (M_{r1}/M_{r2}) \times (1/F) \times 100$$

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

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

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

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

M_{r1} = molecular weight of rivastigmine, 250.34

M_{r2} = molecular weight of rivastigmine tartrate, 400.42

F = relative response factor, see [Table 1](#)

Acceptance criteria: See [Table 1](#). Disregard the system peak eluting at the relative retention time of about 0.45.

Table 1