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Flecainide Acetate Tablets

(To view the Compendial Notice regarding this revision, please click https://www.uspnf.com/notices/flecainide-acetate-tabs-pub-correction-20241025.)

DEFINITION

Flecainide Acetate Tablets contain NLT 90.0% and NMT 110.0% of the labeled amount of flecainide acetate ($C_{17}H_{20}F_6N_2O_3 \cdot C_2H_4O_2$).

IDENTIFICATION

- **A.** The retention time of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the *Assay*.
- **B.** The UV spectrum of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the *Assay*.

ASSAY

- **Procedure**

Solution A: 0.1 M ammonium acetate in water. Adjust with acetic acid to a pH of 5.4.

Solution B: Acetonitrile

Mobile phase: See *Table 1*.

Table 1

Time (min)	Solution A (%)	Solution B (%)
0	75	25
7.0	45	55
12.0	45	55
12.1	75	25
15.0	75	25

Diluent: Lactic acid and water (2:98)

Standard solution: 0.2 mg/mL of USP Flecainide Acetate RS in *Diluent*. Sonication may be needed for complete dissolution.

Sample stock solution: Nominally 1 mg/mL of flecainide acetate in *Diluent* prepared as follows. Transfer NLT 10 Tablets to a suitable volumetric flask, add *Diluent* to about 80% of the flask capacity, and sonicate for 30 min. Dilute with *Diluent* to volume.

Sample solution: Nominally 0.2 mg/mL of flecainide acetate from the *Sample stock solution* in *Diluent*. Centrifuge and use the supernatant.

Chromatographic system

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

Mode: LC

Detector: UV 300 nm. For *Identification B*, use a diode array detector in the range of 200–400 nm.

Column: 3.0-mm × 15-cm; 3-µm packing L1

Flow rate: 0.5 mL/min

Injection volume: 10 µL

System suitability

Sample: *Standard solution*

Suitability requirements

Tailing factor: NMT 2.0

Relative standard deviation: NMT 1.0%

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of the labeled amount of flecainide acetate ($C_{17}H_{20}F_6N_2O_3 \cdot C_2H_4O_2$) in the portion of Tablets taken:

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

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

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

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

C_U = nominal concentration of flecainide acetate in the *Sample solution* (mg/mL)

Acceptance criteria: 90.0%–110.0%

PERFORMANCE TESTS

Change to read:

• **Dissolution** ⟨711⟩

▲**Test 1**▲ (CN 1-Dec-2024)

Medium: 0.075 N hydrochloric acid; 900 mL

Apparatus 2: 50 rpm

Time: 30 min for Tablets each containing 50 mg of flecainide acetate; or 60 min for 100-, 150-, or 200-mg Tablets

Standard solution: A known concentration of USP Flecainide Acetate RS in *Medium*

Sample solution: Pass a portion of the solution under test through a suitable filter. Dilute with *Medium* to a concentration that is similar to that of the *Standard solution*.

Instrumental conditions

Mode: UV-Vis

Analytical wavelength: 296 nm

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of the labeled amount of flecainide acetate ($C_{17}H_{20}F_6N_2O_3 \cdot C_2H_4O_2$) dissolved.

Tolerances: NLT 70% (*Q*) of the labeled amount of flecainide acetate ($C_{17}H_{20}F_6N_2O_3 \cdot C_2H_4O_2$) is dissolved from 50-mg Tablets in 30 min; or from 100-, 150-, or 200-mg Tablets in 60 min.

▲**Test 2:** If the product complies with this test, the labeling indicates that it meets USP *Dissolution Test 2*.

Medium: 0.1 N hydrochloric acid; 500 mL

Apparatus 1: 100 rpm

Time: 30 min

Standard solution: 0.2 mg/mL of USP Flecainide Acetate RS prepared as follows. Dissolve a suitable amount of USP Flecainide Acetate RS in 2.5% of flask volume of methanol and dilute with *Medium* to volume.

Sample solution: Pass a portion of the solution under test through a suitable filter, discarding an appropriate volume of filtrate so that a consistent result can be obtained. Dilute with *Medium*, if necessary, to a concentration similar to that of the *Standard solution*.

Instrumental conditions

(See *Ultraviolet-Visible Spectroscopy* ⟨857⟩.)

Mode: UV

Analytical wavelength: 296 nm

Blank: *Medium*

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of the labeled amount of flecainide acetate ($C_{17}H_{20}F_6N_2O_3 \cdot C_2H_4O_2$) dissolved:

$$\text{Result} = (A_U/A_S) \times C_S \times V \times D \times (1/L) \times 100$$

A_U = absorbance from the *Sample solution*

A_S = absorbance from the *Standard solution*

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

V = volume of *Medium*, 500 mL

D = dilution factor of the *Sample solution*, if needed

L = label claim (mg/Tablet)

Tolerances: NLT 80% (*Q*) of the labeled amount of flecainide acetate ($C_{17}H_{20}F_6N_2O_3 \cdot C_2H_4O_2$) is dissolved.▲ (CN 1-Dec-2024)

• **Uniformity of Dosage Units** ⟨905⟩**:** Meet the requirements

IMPURITIES

• **Organic Impurities**

Solution A, Solution B, Mobile phase, Diluent, and **Chromatographic system:** Proceed as directed in the *Assay*.

System suitability solution: 0.25 mg/mL of USP Flecainide Acetate RS and 0.1 mg/mL of flecainide acid in *Diluent*

Sensitivity solution: 0.002 mg/mL of USP Flecainide Acetate RS in *Diluent*

Standard solution: 0.01 mg/mL each of USP Flecainide Acetate RS and USP Flecainide Related Compound A RS in *Diluent*

Sample solution: Nominally 2 mg/mL of flecainide acetate in *Diluent* prepared as follows. Transfer NLT 5 Tablets to a suitable volumetric flask, add *Diluent* to about 80% of the flask capacity, and sonicate for 30 min. Dilute with *Diluent* to volume. Centrifuge a portion of the solution and use the supernatant.

System suitability

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

Suitability requirements

Resolution: NLT 5.0 between flecainide acetate and flecainide acid, *System suitability solution*

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

Signal-to-noise ratio: NLT 50, *Sensitivity solution*

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of flecainide related compound A in the portion of Tablets taken:

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

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

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

C_S = concentration of USP Flecainide Related Compound A RS in the *Standard solution* (mg/mL)

C_U = nominal concentration of flecainide acetate in the *Sample solution* (mg/mL)

Calculate the percentage of any unspecified degradation product in the portion of Tablets taken:

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

r_U = peak response of any unspecified degradation product from the *Sample solution*

r_S = peak response of flecainide acetate from the *Standard solution*

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

C_U = nominal concentration of flecainide acetate in the *Sample solution* (mg/mL)

Acceptance criteria: See *Table 2*. The reporting threshold is 0.1%.

Table 2

Name	Relative Retention Time	Acceptance Criteria, NMT (%)
Flecainide acid[a,b]	0.8	—
Flecainide	1.0	—
Flecainide related compound A	1.2	0.5
Flecainide pyridine analog[b,c]	1.6	—
Each unspecified degradation product	—	0.2
Total impurities	—	2.0

[a] 2,5-Bis(2,2,2-trifluoroethoxy)benzoic acid.

[b] Included for identification only. These impurities are controlled in the drug substance. They are not to be reported for the drug product and should not be included in the total impurities.

[c] *N*-(Pyridin-2-ylmethyl)-2,5-bis(2,2,2-trifluoroethoxy)benzamide.

ADDITIONAL REQUIREMENTS

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

Change to read:

• **USP Reference standards** ⟨11⟩

USP Flecainide Acetate RS

USP Flecainide Related Compound A RS

3-[2,5-Bis(2,2,2-trifluoroethoxy)phenyl]-1,5,6,7,8,8a-hexahydroimidazo[1,5-*a*]pyridine hydrochloride.
$C_{17}H_{18}F_6N_2O_2 \cdot HCl$ 432.79

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

Topic/Question	Contact	Expert Committee
FLECAINIDE ACETATE TABLETS	Documentary Standards Support	SM22020 Small Molecules 2

Chromatographic Database Information: Chromatographic Database

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