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Clonazepam Orally Disintegrating Tablets

DEFINITION

Clonazepam Orally Disintegrating Tablets contain NLT 90.0% and NMT 110.0% of the labeled amount of clonazepam ($C_{15}H_{10}ClN_3O_3$).

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

Mobile phase: Acetonitrile, methanol, and [water](#) (25:25:50)

Standard solution: 0.01 mg/mL of [USP Clonazepam RS](#) in *Mobile phase*

Sample solution: Nominally 0.01 mg/mL of clonazepam in *Mobile phase* prepared as follows. Transfer an equivalent to about 2 mg of clonazepam, from finely powdered Tablets (NLT 20), to a 200-mL volumetric flask. Add 120 mL of *Mobile phase* and sonicate for about 15 min with intermittent shaking. Shake the flask on a mechanical shaker for about 30 min. Dilute with *Mobile phase* to volume. Pass a portion of this solution through a nylon membrane filter of 0.45- μ m or finer pore size. Use the filtrate after discarding the first 4 mL. This solution is stable for 48 h at room temperature.

Chromatographic system

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

Mode: LC

Detector: UV 254 nm. For *Identification B*, use a diode array detector in the range of 210–400 nm.

Column: 4.6-mm $\times$ 15-cm; 5- μ m packing [L7](#)

Column temperature: 30°

Flow rate: 1.2 mL/min

Injection volume: 60 μ L

System suitability

Sample: *Standard solution*

Suitability requirements

Column efficiency: NLT 2000 theoretical plates

Tailing factor: NMT 2.0

Relative standard deviation: NMT 2.0%

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of the labeled amount of clonazepam ($C_{15}H_{10}ClN_3O_3$) in the portion of Tablets taken:

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

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

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

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

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

Acceptance criteria: 90.0%–110.0%

PERFORMANCE TESTS

- **DISINTEGRATION** (701): NMT 60 s

- **DISSOLUTION** (711)

Medium: [Water](#); 900 mL, deaerated

Apparatus 2: 50 rpm

Time: 60 min

Mobile phase, Chromatographic system, and System suitability: Proceed as directed in the Assay except for *Injection volume*.

Injection volume: 100 µL

Standard stock solution: 0.01 mg/mL of [USP Clonazepam RS](#) in *Mobile phase*

Standard solution: Dilute the *Standard stock solution* with *Medium* according to the Tablet strength. See [Table 1](#) for the concentration of the *Standard solution* corresponding to each Tablet strength.

Table 1

Tablet Strength (mg/Tablet)	Standard Solution (µg/mL of clonazepam)
0.125	0.125
0.25	0.25
0.5	0.50
1.0	1.0
2.0	2.0

Sample solution: Pass a portion of the solution under test through a nylon membrane filter of 0.45-µm pore size, discarding the first few milliliters.

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of the labeled amount of clonazepam ($C_{15}H_{10}ClN_3O_3$) dissolved:

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

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

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

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

V = volume of *Medium*, 900 mL

L = label claim (mg/Tablet)

Tolerances: NLT 75% (Q) of the labeled amount of clonazepam ($C_{15}H_{10}ClN_3O_3$) is dissolved.

- **UNIFORMITY OF DOSAGE UNITS** (905): Meet the requirements

IMPURITIES• **ORGANIC IMPURITIES**

Mobile phase: Proceed as directed in the Assay.

System suitability solution: 0.2 µg/mL each of [USP Clonazepam Related Compound A RS](#) and [USP Clonazepam Related Compound B RS](#) in *Mobile phase*

Standard stock solution: Use the *Standard solution* from the Assay.

Standard solution: 0.2 µg/mL of [USP Clonazepam RS](#) from the *Standard stock solution* in *Mobile phase*

Sample solution: Nominally 0.1 mg/mL of clonazepam from Tablets prepared as follows. Transfer an equivalent to about 2 mg of clonazepam, from finely powdered Tablets (NLT 20), to a 50-mL volumetric flask. Pipet 20.0 mL of *Mobile phase* into the flask, and sonicate for about 2 min with intermittent shaking. Do not dilute to volume. Shake the flask for 30 min on a mechanical shaker. Pass a portion of this solution through a nylon membrane filter of 0.45-µm or finer pore size, and use the filtrate after discarding the first 4 mL of the filtrate.