Status: Currently Official on 14-Feb-2025
Official Date: Official as of 01-May-2021
Document Type: USP Monographs
DocId: GUID-411FF00C-34D9-4CCB-83C0-06A586018BA7_2_en-US
DOI: https://doi.org/10.31003/USPNF_M32530_02_01
DOI Ref: hvt61

Add the following:

▲Exemestane Tablets

DEFINITION
Exemestane Tablets contain Exemestane equivalent to NLT 90.0% and NMT 110.0% of the labeled amount of exemestane ($C_{20}H_{24}O_2$).

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 absorption spectra of the *Sample solution* and the *Standard solution* exhibit maxima and minima at the same wavelengths, as obtained in the *Assay*.

ASSAY
• **Procedure**

Solution A: Methanol and water (5:95)

Solution B: Methanol and water (95:5)

Mobile phase: See *Table 1*.

Table 1

Time (min)	Solution A (%)	Solution B (%)
0	72.2	27.8
35	38.9	61.1
40	5.6	94.4
50	5.6	94.4
52	72.2	27.8
60	72.2	27.8

Diluent: Acetonitrile and water (50:50)

Standard solution: 0.1 mg/mL of USP Exemestane RS prepared as follows. Transfer a weighed amount of USP Exemestane RS into a suitable volumetric flask and add acetonitrile equivalent to 5% of the final volume. Sonicate to dissolve and dilute with *Diluent* to volume.

Sample stock solution: Nominally equivalent to 1.0 mg/mL of exemestane prepared as follows. Place 10 Tablets in a 250-mL volumetric flask. Add 100 mL of *Diluent*, sonicate for 15 min, and then shake mechanically for 15 min. Dilute with *Diluent* to volume.

Sample solution: Nominally equivalent to 0.1 mg/mL of exemestane in *Diluent* from *Sample stock solution*. Pass this solution through a suitable filter of 0.45-µm pore size and discard the first few milliliters.

Chromatographic system

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

Mode: LC

Detector: UV 247 nm. For *Identification B*, use a diode array detector in the range of 200–400 nm.

Column: 4.6-mm × 15-cm; 3-µm packing L1

Column temperature: 40°–50°

Flow rate: 1.0 mL/min

Injection volume: 10 µL

System suitability

Sample: *Standard solution*

Suitability requirements

Tailing factor: NMT 1.5

Relative standard deviation: NMT 2.0%

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of the labeled amount of exemestane ($C_{20}H_{24}O_2$) in the portion of Tablets taken:

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

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

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

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

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

Acceptance criteria: 90.0%–110.0%

PERFORMANCE TESTS

• **Dissolution ⟨711⟩**

Medium: 5 g/L sodium dodecyl sulfate in water, do not degas; 900 mL

Apparatus 1: 100 rpm

Time: 30 min

Standard solution: 0.03 mg/mL of USP Exemestane RS prepared as follows. Transfer a weighed amount of USP Exemestane RS into a suitable volumetric flask and add methanol equivalent to 2% of the final volume. Sonicate to dissolve and dilute with *Medium* to volume.

Sample solution: Pass a portion of the solution under test through a suitable filter of 0.2-µm pore size. Discard NLT 2 mL and use the filtrate for analysis.

Instrumental conditions

Mode: UV

Analytical wavelength: 250 nm

Cell length: 0.5 cm

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of the labeled amount of exemestane ($C_{20}H_{24}O_2$) dissolved:

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

A_U = absorbance of the *Sample solution*

A_S = absorbance of the *Standard solution*

C_S = concentration of the *Standard solution* (mg/mL)

V = volume of *Medium*, 900 mL

L = label claim (mg/Tablet)

Tolerances: NLT 80% (Q) of the labeled amount of exemestane ($C_{20}H_{24}O_2$) is dissolved.

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

IMPURITIES

• **Organic Impurities**

Mobile phase, Diluent, Sample solution, and **Chromatographic system:** Proceed as directed in the *Assay*.

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

Standard solution: 0.3 µg/mL of USP Exemestane RS in *Diluent* from *Standard stock solution*

Sensitivity solution: 0.05 µg/mL of USP Exemestane RS in *Diluent* from *Standard solution*

System suitability

Samples: *Standard solution* and *Sensitivity solution*

Suitability requirements

Relative standard deviation: NMT 10.0%, *Standard solution*

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

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of each impurity in the portion of Tablets taken:

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

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

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

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

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

Acceptance criteria: See *Table 2*.

Table 2

Name	Relative Retention Time	Acceptance Criteria, NMT (%)
Exemestane related compound B[a]	0.41	0.4
6-Oxo Boldione[b]	0.42	0.7
Exemestane methanesulfonate analog[c,d]	0.49	—
Exemestane oxide 1[e]	0.53	1.0
Exemestane oxide 2[f]	0.60	1.0
Exemestane methoxy ether[g,d]	0.77	—
Exemestane related compound C[h,d]	0.80	—
Exemestane	1.0	—
Exemestane related compound A[i]	1.12	0.4
Any unspecified degradation product	—	0.2
Total degradation products	—	2.0

[a] 6-Hydroxymethylandrosta-1,4-diene-3,17-dione.

[b] Androsta-1,4-diene-3,6,17-trione.

[c] 6-[{(Methylsulfonyl)oxy}methyl]androsta-1,4-diene-3,17-dione.

[d] This is a process impurity and is listed for information only. It is controlled in the drug substance. It is not to be reported and is not to be included in the total degradation products.

[e] 6α/β-Spirooxiranandrosta-1,4-diene-3,17-dione. The α and β forms are diastereomers.

[f] 6α/β-Spirooxiranandrosta-1,4-diene-3,17-dione. The α and β forms are diastereomers.

[g] 6α-(Methoxymethyl)androsta-1,4-diene-3,17-dione.

[h] Androsta-1,4-diene-3,17-dione.

[i] 6-Methyleneandrosta-4-ene-3,17-dione.

ADDITIONAL REQUIREMENTS

- **Packaging and Storage:** Preserve in tight containers, and store at controlled room temperature.
- **USP Reference Standards** ⟨11⟩

  USP Exemestane RS▲ (USP 1-May-2021)

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

Topic/Question	Contact	Expert Committee
EXEMESTANE TABLETS	Documentary Standards Support	SM32020 Small Molecules 3

Chromatographic Database Information: Chromatographic Database

Most Recently Appeared In:
Pharmacopeial Forum: Volume No. PF 44(6)

Current DocID: GUID-411FF00C-34D9-4CCB-83C0-06A586018BA7_2_en-US

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