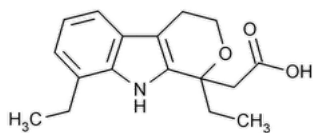


Status: Currently Official on 14-Feb-2025
Official Date: Official as of 01-Dec-2024
Document Type: USP Monographs
DocId: GUID-92BC5321-0D7F-4CFE-8326-987A7271B071_5_en-US
DOI: https://doi.org/10.31003/USPNF_M32370_05_01
DOI Ref: 9e1hb

© 2025 USPC
Do not distribute

Etodolac

Change to read:



$C_{17}H_{21}NO_3$ Δ 287.36 Δ (USP 1-Dec-2024)
Pyrano[3,4-*b*]indole-1-acetic acid, 1,8-diethyl-1,3,4,9-tetrahydro-(±);
 Δ 1,8-Diethyl-1,3,4,9-tetrahydropyrano[3,4-*b*]indol-1-ylacetic acid Δ (USP 1-Dec-2024) CAS RN[®]: 41340-25-4; UNII: 2M36281008.

DEFINITION
Etodolac contains NLT 98.0% and NMT 102.0% of etodolac ($C_{17}H_{21}NO_3$), calculated on the anhydrous basis.

IDENTIFICATION

Change to read:

• **A. SPECTROSCOPIC IDENTIFICATION TESTS (197), Infrared Spectroscopy:** Δ 197A or Δ (USP 1-Dec-2024) 197K

Add the following:

Δ • **B.** The retention time of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the Assay. Δ (USP 1-Dec-2024)

ASSAY

Change to read:

• **PROCEDURE**

Δ Protect solutions containing etodolac from light.

Solution A: 0.77 g/L of [ammonium acetate](#) in [water](#)

Solution B: [Acetonitrile](#) and *Solution A* (90:10)

Mobile phase: See [Table 1](#). Return to the original conditions to re-equilibrate the system. [NOTE—A re-equilibration time of 5 min may be used.]

Table 1

Time (min)	Solution A (%)	Solution B (%)
0	80	20
18	58	42
18.1	0	100
20	0	100

Standard solution: 0.2 mg/mL of [USP Etodolac RS](#) in [acetonitrile](#)

Sample solution: 0.2 mg/mL of Etodolac in [acetonitrile](#)

Chromatographic system

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

Mode: LC

Detector: UV 225 nm

Column: 4.6-mm × 15-cm; 3.5- μ m packing [L26](#)

Temperatures

Autosampler: 5°

Column: 35°

Flow rate: 1 mL/min
Injection volume: 5 µL
System suitability
Sample: *Standard solution*
Suitability requirements
Tailing factor: NMT 2.0
Relative standard deviation: NMT 0.73%

Analysis
Samples: *Standard solution* and *Sample solution*
Calculate the percentage of etodolac (C₁₇H₂₁NO₃) in the portion of Etodolac taken:

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

r_U = peak response of etodolac from the *Sample solution*
 r_S = peak response of etodolac from the *Standard solution*
 C_S = concentration of [USP Etodolac RS](#) in the *Standard solution* (mg/mL)
 C_U = concentration of Etodolac in the *Sample solution* (mg/mL)

▲ (USP 1-Dec-2024)

Acceptance criteria: 98.0%–102.0% on the anhydrous basis

IMPURITIES

- [RESIDUE ON IGNITION \(281\)](#): NMT 0.1%
- **LIMIT OF CHLORIDE**

Sample: 1.0 g of Etodolac

Titrimetric system

(See [Titrimetry \(541\)](#).)

Mode: Direct titration
Titrant: 0.01 N [silver nitrate](#)

Endpoint detection: Potentiometric

Analysis: Dissolve the *Sample* in 60 mL of [methanol](#), dilute with 10 mL of [water](#), and add 20 mL of [2 N nitric acid](#). Titrate with the *Titrant*.

Acceptance criteria: NMT 300 ppm

Delete the following:

- ▲ **LIMIT OF ALCOHOL AND METHANOL** ▲ (USP 1-DEC-2024)

Change to read:

- **ORGANIC IMPURITIES**

▲ Protect solutions containing etodolac from light.

Solution A, Solution B, and Chromatographic system: Proceed as directed in the Assay.

Mobile phase: See [Table 2](#). Return to the original conditions and re-equilibrate the system. [NOTE—A re-equilibration time of 15 min may be used.]

Table 2

Time (min)	Solution A (%)	Solution B (%)
0	80	20
25	50	50
50	50	50

System suitability solution: 1.0 mg/mL of [USP Etodolac Peak Identification Mixture RS](#) in [acetonitrile](#). Sonicate to dissolve as needed.

Standard solution: 0.002 mg/mL of [USP Etodolac RS](#) in [acetonitrile](#). Sonicate to dissolve as needed.

Sensitivity solution: 0.5 µg/mL of [USP Etodolac RS](#) in [acetonitrile](#) from the *Standard solution*

Sample solution: 1.0 mg/mL of Etodolac in [acetonitrile](#). Sonicate to dissolve as needed.

System suitability

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

Suitability requirements

Resolution: NLT 3.0 between etodolac and 7-ethyltryptanol (etodolac related compound H), *System suitability solution*