grammed to rise to 280° at the rate of 3° per minute. Nitrogen is used as the carrier gas at a flow rate of about 7 mL per minute, and is also used as the makeup gas at a flow rate of about 50 mL per minute.

Procedure—Separately inject equal volumes (about 1 µL) of the *Standard preparation* and the *Test preparation* into the chromatograph, and allow both the *Standard preparation* and the *Test preparation* to elute for not less than 40 minutes. Record the chromatograms, and measure the areas of all of the peaks. Calculate the quantity, in percentage, of free lanolin alcohols in the portion of Modified Lanolin taken by the formula:

$$100(CK / IW)(r_U / r_S)$$

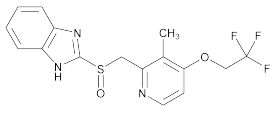
in which r_U and r_S are the total peak areas found in the *Test preparation* and the *Standard preparation,* respectively; *C* is the concentration, in mg per mL of USP Lanolin Alcohols RS in the *Standard preparation; I* is the volume, in mL, injected into the gel permeation chromatography column; *W* is the weight, in g, of Modified Lanolin taken; and *K* is the corrected fraction of free lanolin alcohols in the USP Lanolin Alcohols RS in the *Standard preparation* taken by the formula:

$$1 + (0.0062A - 0.0119S)$$

in which *A* and *S* are the acid value and saponification value, respectively, of USP Lanolin Alcohols RS: not more than 6% is found.

Petrolatum—Heat about 3 g, accurately weighed, on a steam bath, with frequent stirring, until it loses about 0.25% of its weight. Boil 40 mL of dehydrated alcohol with 500 mg of the dried lanolin so obtained: the solution is clear or not more than opalescent.

Lansoprazole



$C_{16}H_{14}F_3N_3O_2S$ 369.36

1*H*-Benzimidazole, 2-[[[3-methyl-4-(2,2,2-trifluoroethoxy)-2-pyridinyl]methyl]sulfinyl]-;
2-[[[3-Methyl-4-(2,2,2-trifluoroethoxy)-2-pyridyl]-methyl]sulfinyl] benzimidazole [103577-45-3].

DEFINITION
Lansoprazole contains NLT 98.0% and NMT 102.0% of $C_{16}H_{14}F_3N_3O_2S$.

IDENTIFICATION
- **A. INFRARED ABSORPTION ⟨197K⟩**
- **B. ULTRAVIOLET ABSORPTION ⟨197U⟩**
  Sample solution: 10 µg/mL in methanol
  Acceptance criteria: Meets the requirements

ASSAY

Change to read:

- **PROCEDURE**
  Mobile phase: Acetonitrile, water, and triethylamine (40:60:1). Adjust with phosphoric acid to a pH of 7.0.
  Diluent: Acetonitrile, water, and triethylamine (40:60:1). Adjust with phosphoric acid to a pH of 10.0.
  ▲▲*USP35*
  System suitability solution: 0.1 mg/mL of USP Lansoprazole RS and 0.1 mg/mL of USP Lansoprazole Related Compound A RS in *Diluent*
  Standard solution: ▲0.1 mg/mL of USP Lansoprazole RS in *Diluent*▲*USP35*
  Sample solution: ▲0.1 mg/mL of Lansoprazole in *Diluent*▲*USP35*
  Chromatographic system
  (See *Chromatography* ⟨621⟩*, System Suitability*.)
  Mode: LC
  Detector: UV 285 nm
  Column: 4.6-mm × 25-cm; 5-µm packing L1
  Flow rate: 1 mL/min
  Injection size: 10 µL
  System suitability
  Samples: *System suitability solution* and *Standard solution*
  Suitability requirements
  Resolution: NLT 5 between lansoprazole and lansoprazole related compound A, *System suitability solution*
  Relative standard deviation: NMT 1.0%, *Standard solution*
  Analysis
  Samples: *Standard solution* and *Sample solution*
  Calculate the percentage of lansoprazole ($C_{16}H_{14}F_3N_3O_2S$) in the portion of Lansoprazole taken:

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

r_U = peak response from the *Sample solution*
r_S = peak response from the *Standard solution*▲*USP35*
C_S = concentration of USP Lansoprazole RS in the *Standard solution* (mg/mL)
C_U = concentration of Lansoprazole in the *Sample solution* (mg/mL)

Acceptance criteria: 98.0%–102.0%

IMPURITIES
Inorganic Impurities
- **RESIDUE ON IGNITION ⟨281⟩:** NMT 0.1%

Change to read:

Organic Impurities
- **PROCEDURE**
  [NOTE—Store and inject the lansoprazole solutions at or below 5° using a cooled autosampler. The solutions are stable for about 24 h when stored at 5°.]
  Solution A: Water
  Solution B: Acetonitrile, water, and triethylamine (160:40:1). Adjust with phosphoric acid to a pH of 7.0.
  Diluent: Methanol and 0.1 N sodium hydroxide (1:3)
  Mobile phase: See *Table 1*.

Table 1

Time (min)	Solution A (%)	Solution B (%)
0	90	10
40	20	80
50	20	80
51	90	10
60	90	10

  System suitability solution: Prepare a solution containing 25 µg/mL of USP Lansoprazole RS and 25 µg/mL of USP Lansoprazole Related Compound A RS in methanol. Transfer 1 mL of this solution into a 10-mL volumetric flask, and dilute with *Diluent* to volume.
  ▲▲*USP35*
  Standard solution: Prepare a solution containing 25 µg/mL of USP Lansoprazole RS ▲and 25 µg/mL of USP Lansoprazole Related Compound B RS▲*USP35* in methanol. Transfer 1 mL of this solution into a ▲100-mL▲*USP35* volumetric flask, and dilute with *Diluent* to volume.
  Sample solution: 2.5 mg/mL of Lansoprazole in methanol. Transfer 1 mL of this solution into a 10-mL volumetric flask, and dilute with *Diluent* to volume.

Blank: Methanol and *Diluent* (1:9)
Chromatographic system
(See *Chromatography* ⟨621⟩, *System Suitability*.)
Mode: LC
Detector: UV 285 nm
Column: 4.6-mm × 15-cm; 5-µm packing L1
Flow rate: 0.8 mL/min
Injection size: 40 µL
System suitability
Sample: *System suitability solution* ▲▲*USP35*
Suitability requirements
Resolution: NLT 6 between lansoprazole and lansoprazole related compound A ▲▲*USP35*
Relative standard deviation: NMT 3% ▲▲*USP35*
Analysis
Samples: *Standard solution*, *Sample solution*, and *Blank*
Identify the lansoprazole peak and the peaks due to the impurities listed in *Table 2*. Measure the areas for the major peaks, excluding peaks obtained from the *Blank*.
▲Calculate the percentage of lansoprazole related compound B in the portion of Lansoprazole taken:

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

r_U = peak response for lansoprazole related compound B from the *Sample solution*
r_S = peak response for lansoprazole related compound B from the *Standard solution*
C_S = concentration of USP Lansoprazole Related Compound B RS in the *Standard solution* (µg/mL)
C_U = concentration of Lansoprazole in the *Sample solution* (µg/mL)▲*USP35*

Calculate the percentage of ▲lansoprazole *N*-oxide, lansoprazole sulfone, and any other individual▲*USP35* impurity in the portion of Lansoprazole taken:

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

r_U = peak response for each impurity from the *Sample solution*
r_S = peak response for lansoprazole from the *Standard solution*
C_S = concentration of USP Lansoprazole RS in the *Standard solution* (µg/mL)
C_U = concentration of Lansoprazole in the *Sample solution* (µg/mL)
F = relative response factor for each impurity (see *Table 2*)

Acceptance criteria
Individual impurities: See *Table 2*. ▲Disregard any peak below 0.05%.▲*USP35*

Table 2

Name	Relative Retention Time	Relative Response Factor	Acceptance Criteria, NMT (%)
Lansoprazole *N*-oxide[a]	0.8	1.3	0.1
Lansoprazole	1.0	—	—
Lansoprazole related compound A (lansoprazole sulfone)[b]	1.1	0.82	0.4
▲Lansoprazole related compound B▲*USP35* (lansoprazole sulfide)[c]	1.2	▲—▲*USP35*	0.1
Other individual impurity	—	1.00	0.1
Total impurities	—	—	0.6

[a] [[(1*H*-Benzimidazole-2-yl)sulfinyl]methyl]-3-methyl-4-(2,2,2-trifluoroethoxy)-pyridine 1-oxide.
[b] 2-[[[3-Methyl-4-(2,2,2-trifluoroethoxy)-2-pyridyl]methyl]sulfonyl]benzimidazole.
[c] 2-[[[3-Methyl-4-(2,2,2-trifluoroethoxy)-pyridin-2-yl]methyl]sulfanyl]-1*H*-benzimidazole.

SPECIFIC TESTS
• **WATER DETERMINATION,** *Method Ia* ⟨**921**⟩
Sample: 1.0 g
[NOTE—Use 50 mL of a dehydrated mixture of pyridine and ethylene glycol (9:1 to 8:2) as the solvent.]
Acceptance criteria: NMT 0.1%

ADDITIONAL REQUIREMENTS
• **PACKAGING AND STORAGE:** Preserve in tight, light-resistant containers. Store at room temperature, and protect from excessive heat.

Change to read:

• **USP REFERENCE STANDARDS** ⟨**11**⟩
USP Lansoprazole RS
USP Lansoprazole Related Compound A RS
2-[[[3-Methyl-4-(2,2,2-trifluoroethoxy)-2-pyridyl]methyl]sulfonyl]benzimidazole.
$C_{16}H_{14}F_3N_3O_3S$ 385.36
▲USP Lansoprazole Related Compound B RS
2-[[[3-Methyl-4-(2,2,2-trifluoroethoxy)-pyridin-2-yl]methyl]sulfanyl]-1*H*-benzimidazole.
$C_{16}H_{14}F_3N_3OS$ 353.36▲*USP35*

Lansoprazole Delayed-Release Capsules

» Lansoprazole Delayed-Release Capsules contain not less than 90.0 percent and not more than 110.0 percent of the labeled amount of lansoprazole ($C_{16}H_{14}F_3N_3O_2S$).

Packaging and storage—Preserve in tight containers, and store at controlled room temperature.

USP Reference standards ⟨11⟩**—**
USP Lansoprazole RS
$C_{16}H_{14}F_3N_3O_2S$ 369.36
USP Lansoprazole Related Compound A RS
2-[[[3-Methyl-4-(2,2,2-trifluoroethoxy)-2-pyridyl]methyl]sulfonyl]benzimidazole.
$C_{16}H_{14}F_3N_3O_3S$ 385.36

Identification—
A: *Ultraviolet Absorption* ⟨197U⟩—
Medium: methanol.
Procedure—Powder a portion of Capsule contents equivalent to 5 mg of lansoprazole. Add 5 mL of methanol, shake well,