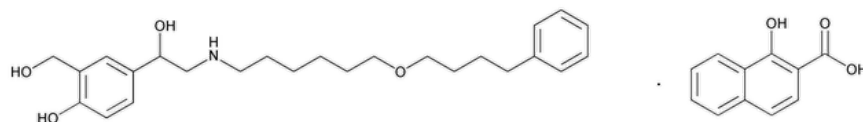


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Salmeterol Xinafoate



$C_{25}H_{37}NO_4 \cdot C_{11}H_8O_3$ 603.75

1,3-Benzenedimethanol, 4-hydroxy- α^1 -[[[6-(4-phenylbutoxy)hexyl]amino]methyl]-, (±)-, 1-hydroxy-2-naphthalenecarboxylate (salt);
 (±)-4-Hydroxy- α^1 -[[[6-(4-phenylbutoxy)hexyl]amino]methyl]-*m*-xylene- α,α' -diol 1-hydroxy-2-naphthoate (salt) CAS RN[®]: 94749-08-3; UNII:
 6EW8Q962A5.

DEFINITION

Salmeterol Xinafoate contains NLT 98.0% and NMT 102.0% of salmeterol xinafoate ($C_{25}H_{37}NO_4 \cdot C_{11}H_8O_3$), calculated on the water- and solvent-free basis.

IDENTIFICATION

Change to read:

- **A.** ▲ [SPECTROSCOPIC IDENTIFICATION TESTS \(197\)](#), *Infrared Spectroscopy*: 197A, 197K, or 197M ▲ (CN 1-May-2020)
- **B.** The retention time of the major peak of the *Sample solution* corresponds to that of the *Standard solution*, as obtained in the Assay.

ASSAY

• PROCEDURE

[NOTE—It is recommended that solutions containing salmeterol be protected from light.]

Buffer A: 0.1 M [sodium dodecyl sulfate](#)

Buffer B: 0.1 M [ammonium acetate](#)

Mobile phase: [Acetonitrile](#), Buffer A, and Buffer B (52:24:24). Adjust with [glacial acetic acid](#) to a pH of 3.8. [NOTE—This may need as much as 75 mL of glacial acetic acid for each liter.]

System suitability solution: 0.25 mg/mL of [USP Salmeterol Xinafoate RS](#) and 0.02 mg/mL of [USP Salmeterol Related Compound B RS](#) in *Mobile phase*

Standard solution: 0.25 mg/mL of [USP Salmeterol Xinafoate RS](#) in *Mobile phase*

Sample solution: 0.25 mg/mL of Salmeterol Xinafoate in *Mobile phase*

Chromatographic system

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

Mode: LC

Detector: UV 278 nm

Column: 4.6-mm × 15-cm; 5- μ m packing L1

Flow rate: 2 mL/min

Injection volume: 20 μ L

System suitability

Sample: *System suitability solution*

[NOTE—The relative retention times for salmeterol related compound B and salmeterol are about 0.9 and 1.0, respectively.]

Suitability requirements

Resolution: NLT 1.0 between salmeterol and salmeterol related compound B

Relative standard deviation: NMT 1.0% for salmeterol

Analysis

Samples: *Standard solution* and *Sample solution*

Calculate the percentage of salmeterol xinafoate ($C_{25}H_{37}NO_4 \cdot C_{11}H_8O_3$) in the portion of Salmeterol Xinafoate 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*

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

C_U = concentration of Salmeterol Xinafoate in the *Sample solution* (mg/mL)

Acceptance criteria: 98.0%–102.0% on the water- and solvent-free basis

IMPURITIES

• [RESIDUE ON IGNITION \(281\)](#): NMT 0.1%

• **ORGANIC IMPURITIES**

[NOTE—It is recommended that solutions containing salmeterol be protected from light.]

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

Diluent: [Acetonitrile](#) and [water](#) (50:50)

Solution A: [Acetonitrile](#), *Buffer A*, and *Buffer B* (52:24:24). Adjust with [glacial acetic acid](#) to a pH of 3.8.

Solution B: [Acetonitrile](#)

Mobile phase: See [Table 1](#).

Table 1

Time (min)	Solution A (%)	Solution B (%)
0	100	0
16.0	100	0
36.0	30	70
45.0	30	70
45.1	100	0
50 ^a	100 ^a	0 ^a

^a The required equilibration time may be modified to achieve a stable baseline.

System suitability solution: 5.0 mg/mL of [USP Salmeterol Xinafoate RS](#) and 0.3 mg/mL each of [USP Salmeterol Related Compound A RS](#) and [USP Salmeterol Related Compound B RS](#) in *Diluent*

Sample solution: 5.0 mg/mL of Salmeterol Xinafoate in *Diluent*

System suitability

Sample: *System suitability solution*

[NOTE—See [Table 2](#) for relative retention times.]

Suitability requirements

Resolution: NLT 1.0 between salmeterol and salmeterol related compound B

Tailing factor: NMT 2.5 for salmeterol

Analysis

[NOTE—Disregard the peak due to hydroxynaphthoic acid and any peaks from blank injections.]

Sample: *Sample solution*

Calculate the percentage of any individual impurity in the portion of Salmeterol Xinafoate taken:

$$\text{Result} = (r_U/r_T) \times 100$$