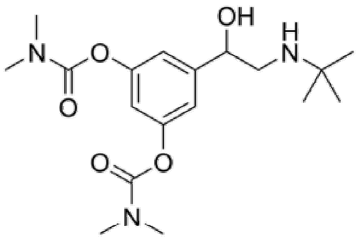
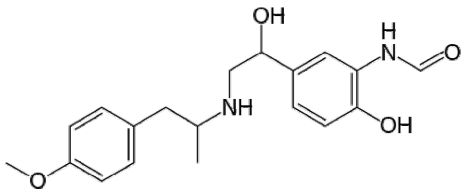
Bambuterol and Related Substances (EP)



Bambuterol



Formoterol

Bambuterol is a long acting beta-adrenoceptor agonist (LABA) used in the treatment of asthma. It is also a prodrug of terbutaline. Commercially, bambuterol is marketed as Bambec and Oxeol.

Formoterol or eformoterol is a long-acting β2 agonist used in the management of asthma and chronic obstructive pulmonary disease (COPD). It is marketed in four forms: a dry-powder inhaler, a metered-dose inhaler, an oral tablet, and an inhalation solution, under various trade names including Foradil/Foradile, Oxeze/Oxis, and (with Budenoside) Symbicort, Atock, Atimos, and Perforomist.

The current EP monograph for Bambuterol and related substances specifies the use of a 150x4.6 mm column with base-deactivated octadecylsilyl (ODS or RP-18) silica gel for chromatography R (5 µm). The total run-time must be 1.5 times the retention time of bambuterol, with the following retention times; formoterol = about 7 min; bambuterol = about 9 min. If necessary, the composition of the mobile phase can be adjusted; increase the content of phosphate buffer to increase the retention time to meet a chromatographic resolution of minimum 5.0 between the bambuterol and formoterol peaks.

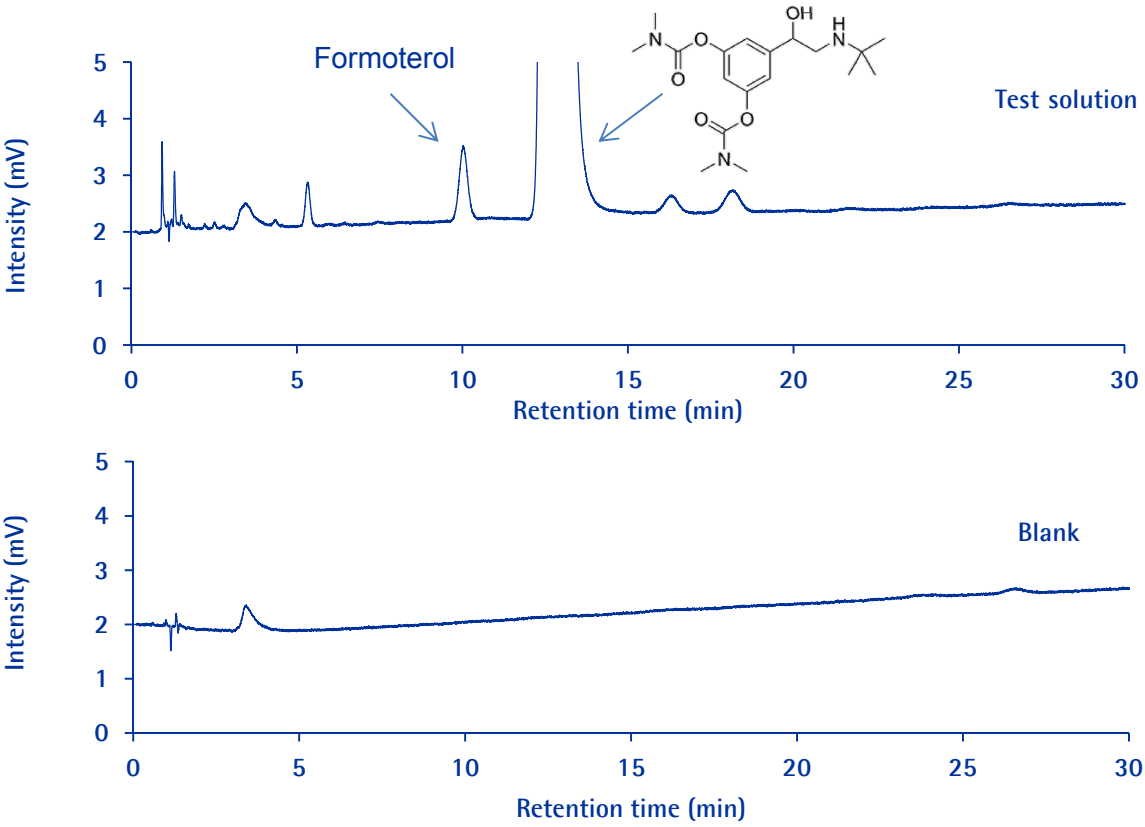
The following pages illustrate that acceptance critera are being met, and that a Purospher® STAR RP-18 endcapped (5 µm), Hibar® RT 150x4.6 mm column is an excellent alternative for Bambuterol analysis.

Bambuterol and Related Substances (EP)

Purospher® STAR RP-18 endcapped

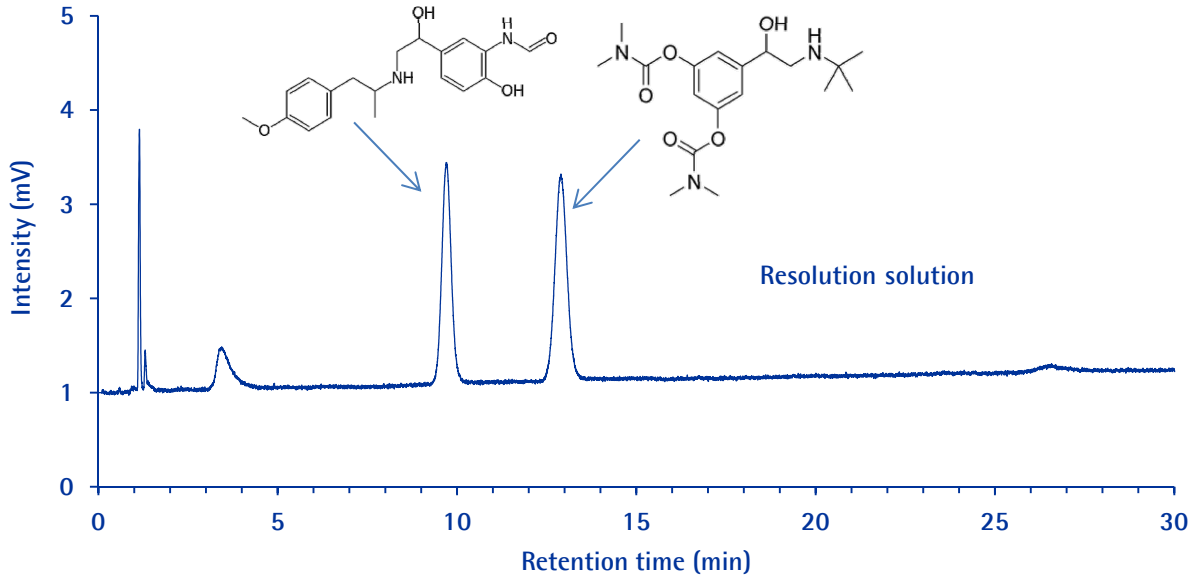
Chromatographic Conditions

Column:	Purospher® STAR RP-18 endcapped (5 µm), Hibar® RT 150x4.6 mm	1.51455.0001
Injection:	20 µL	
Detection:	UV, 214 nm	
Cell:	10 µL	
Flow Rate:	1.5 mL/min	
Mobile Phase:	Dissolve 6.90 g of sodium di-hydrogen phosphate monohydrate in water and dilute to 1000 mL with water. Adjust to pH 3.0 with a 50 g/L solution of dilute phosphoric acid. Dissolve 1.3 g of sodium octanesulfonate in 430 mL of a mixture of 25 volumes of acetonitrile and 75 volumes of methanol and 570 ml of buffer solution.	
Temperature:	Ambient	
Diluent:	Mobile phase	
Test Solution:	5.0 mg Bambuterol in 10 ml mobile phase.	
Resolution Solution:	Dissolve 1.0 mg of formoterol fumarate dihydrate in the mobile phase and dilute to 10.0 mL with the mobile phase. Mix 0.8 mL of this solution with 0.4 mL of the test solution and dilute to 100.0 mL with the mobile phase.	
Pressure Drop:	224 Bar (3248 psi)	



Bambuterol and Related Substances (EP)

Purospher® STAR RP-18 endcapped

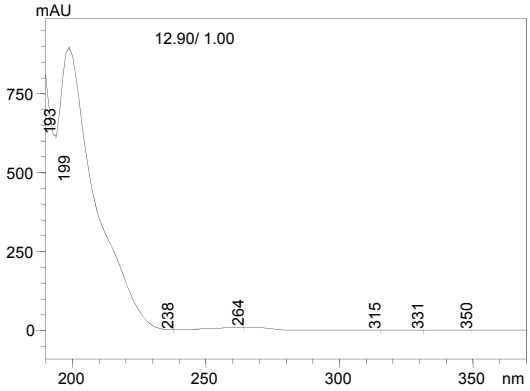


Suitability requirement: NLT 5.0

Chromatographic Data:

No.	Compound	Retention Time (min)	Resolution	RRT
1	Formoterol	9.7		0.75
2	Bambuterol	12.9	6.2	1.00

UV spectra: Bambuterol



Peak purity curve - Bambuterol