

Purity (1) Clarity and color of solution—Dissolve 0.1 g of Aztreonam in 20 mL of water: the solution is clear and colorless to pale yellow.

(2) Heavy metals—Proceed with 2.0 g of Aztreonam according to Method 2, and perform the test. Prepare the control solution with 2.0 mL of Standard Lead Solution (not more than 10 ppm).

(3) Arsenic—Prepare the test solution with 1.0 g of Aztreonam according to Method 3, and perform the test using Apparatus B (not more than 2 ppm).

(4) Related substances—Dissolve 0.04 g of Aztreonam in 100 mL of water, and use this solution as the sample solution. Pipet 2 mL of the sample solution, add water to make exactly 100 mL, and use this solution as the standard solution. Perform the test with 25 μ L each of these solutions as directed under the Liquid Chromatography according to the following conditions, and calculate the areas of each peak by the automatic integration method: the area of each peak is not more than the peak area of aztreonam from the standard solution, and the total area of peaks other than aztreonam from the sample solution is not more than 2.5 times of the peak area of aztreonam from the standard solution.

Operating conditions—

Column, column temperature, mobile phase, and flow rate: Proceed as directed in the operating conditions in the Assay.

Detector: An ultraviolet absorption photometer (wavelength: 254 nm).

Time span of measurement: About 4 times as long as the retention time of aztreonam after the solvent peak.

System suitability—

Test for required detection: Pipet 5 mL of the standard solution, add water to make exactly 10 mL, and use this solution as the solution for the test for required detection. Pipet 1 mL of the solution, and add water to make exactly 10 mL. Confirm that the peak area of aztreonam obtained from 25 μ L of this solution is equivalent to 7 to 13% of that obtained from 25 μ L of the solution for the test for required detection.

System performance: When the procedure is run under the above operating conditions with 25 μ L of the standard solution obtained in the Assay, the internal standard and aztreonam are eluted in this order with the resolution between these peaks being not less than 4.

System repeatability: When the test is repeated 6 times with 25 μ L of the standard solution under the above operating conditions, the relative standard deviation of the peak areas of aztreonam is not more than 2.0%.

Water Not more than 2.0% (0.5 g, volumetric titration, direct titration).

Residue on ignition Not more than 0.1% (1 g).

Assay Weigh accurately an amount of Aztreonam and Aztreonam Reference Standard, equivalent to about 0.02 g (potency), dissolve each in 70 mL of water, add exactly 10 mL of the internal standard solution and water to make 100 mL, and use these solutions as the sample solution and the standard solution, respectively. Perform the test with 25 μ L each of these solutions as directed under the Liquid Chromatography according to the following conditions, and calculate the ratios, Q_T and Q_S , of the peak area of aztreonam to that of the internal standard of each solution.

Amount [μ g (potency)] of aztreonam ($C_{13}H_{17}N_5O_8S_2$)
= amount [mg (potency)] of Aztreonam Reference

$$\text{Standard} \times \frac{Q_T}{Q_S} \times 1000$$

Internal standard solution—A solution of 4-aminobenzoic acid (1 in 6250).

Operating conditions—

Detector: An ultraviolet absorption photometer (wavelength: 280 nm).

Column: A stainless steel column 4.6 mm in inside diameter and 25 cm in length, packed with octadecylsilanized silica gel for liquid chromatography (10 μ m in particle diameter).

Column temperature: A constant temperature of about 40°C.

Mobile phase: Dissolve 1.7 g of tetrabutylammonium hydrogensulfate in 300 mL of water, adjust to pH 3.0 with 0.5 mol/L disodium hydrogenphosphate TS, and add water to make 1000 mL. To 650 mL of this solution add 350 mL of methanol.

Flow rate: Adjust the flow rate so that the retention time of aztreonam is about 8 minutes.

System suitability—

System performance: When the procedure is run with 25 μ L of the standard solution under the above operating conditions, the internal standard and aztreonam are eluted in this order with the resolution between these peaks being not less than 4.

System repeatability: When the test is repeated 6 times with 25 μ L of the standard solution under the above operating conditions, the relative standard deviation of the ratios of the peak area of aztreonam to that of the internal standard is not more than 1.5%.

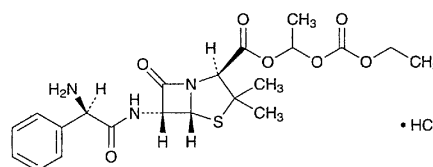
Containers and storage Containers—Tight containers.

Storage—Light-resistant.

Bacampicillin Hydrochloride

Ampicillin Ethoxycarbonyloxyethyl Hydrochloride

塩酸バカンピシリン



$C_{21}H_{27}N_3O_7S \cdot HCl$: 501.98

1-Ethoxycarbonyloxyethyl (2S,5R,6R)-6-[(2R)-2-amino-2-phenylacetyl-amino]-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylate monohydrochloride [37661-08-8]

Bacampicillin Hydrochloride contains not less than 626 μ g (potency) per mg, calculated on the anhydrous basis. The potency of Bacampicillin Hydrochloride is

expressed as mass (potency) of ampicillin ($C_{16}H_{19}N_3O_4S$: 349.40).

Description Bacampicillin Hydrochloride occurs as a white to pale yellow crystalline powder. It has a characteristic odor.

It is freely soluble in methanol and in ethanol (95), and soluble in water.

Identification (1) Determine the absorption spectrum of a solution of Bacampicillin Hydrochloride in methanol (1 in 1000) as directed under the Ultraviolet-visible Spectrophotometry, and compare the spectrum with the Reference Spectrum or the spectrum of Bacampicillin Hydrochloride Reference Standard: both spectra exhibit similar intensities of absorption at the same wavelength.

(2) Determine the infrared absorption spectrum of Bacampicillin Hydrochloride as directed in the potassium chloride disk method under the Infrared Spectrophotometry, and compare the spectrum with the Reference Spectrum or the spectrum of Bacampicillin Hydrochloride Reference Standard: both spectra exhibit similar intensities of absorption at the same wave numbers.

(3) A solution of Bacampicillin Hydrochloride (1 in 50) responds to the Qualitative Tests for chloride.

Purity Ampicillin—Weigh accurately about 0.1 g of Bacampicillin Hydrochloride, transfer into a 100-mL separator, add exactly 15 mL of ice-cold water to dissolve, add and mix with exactly 10 mL of ice-cold 0.05 mol/L phosphate buffer solution, pH 7.0, then add 25 mL of ice-cold chloroform, shake, and abandon the chloroform layer. Repeat the procedure twice with two 25-mL portions of ice-cold chloroform. Centrifuge the water layer, filter the supernatant, and use the filtrate as the sample solution. Separately, weigh accurately an amount of Ampicillin Reference Standard, equivalent to about 0.02 g, and dissolve in water to make exactly 100 mL. Pipet 5 mL of this solution, add 10 mL of 0.05 mol/L phosphate buffer solution, pH 7.0 and water to make exactly 25 mL, and use this solution as the standard solution. To exactly 10 mL each of the sample solution and the standard solution add exactly 2 mL of sodium hydroxide TS, allow to stand for exactly 15 minutes, add exactly 2 mL of 1 mol/L hydrochloric acid TS, exactly 10 mL of 0.3 mol/L potassium hydrogen phthalate buffer solution, pH 4.6, and exactly 10 mL of 0.005 mol/L iodine VS, allow to stand for exactly 20 minutes without exposure to light. Titrate these solutions with 0.01 mol/L sodium thiosulfate VS until the color of the solution changes to colorless. Separately, to exactly 10 mL each of the sample solution and the standard solution add exactly 10 mL of 0.3 mol/L potassium hydrogen phthalate buffer solution, pH 4.6 and exactly 10 mL of 0.005 mol/L iodine VS, and perform a blank determination with the same manner. Determine the consumed amounts (mL) of 0.005 mol/L iodine VS, V_T and V_S , of the sample solution and the standard solution: the amount of ampicillin is not more than 1.0%.

$$\begin{aligned} \text{Amount (mg) of ampicillin (C}_{16}\text{H}_{19}\text{N}_3\text{O}_4\text{S)} \\ = \text{amount (mg) of Ampicillin Reference Standard} \\ \times \frac{V_T}{V_S} \times \frac{1}{20} \end{aligned}$$

Water Not more than 1.0% (0.5 g, volumetric titration, direct titration).

Residue on ignition Not more than 1.5% (1 g).

Assay Weigh accurately an amount of Bacampicillin Hydrochloride and Bacampicillin Hydrochloride Reference Standard, equivalent to about 0.04 g (potency), dissolve each in water to make exactly 100 mL, and use these solutions as the sample solution and the standard solution. Perform the test with exactly 20 μ L each of the sample solution and the standard solution as directed under the Liquid Chromatography according to the following conditions, and calculate the peak areas, A_T and A_S , of bacampicillin of these solutions.

$$\begin{aligned} \text{Amount } [\mu\text{g (potency)}] \text{ of bacampicillin (C}_{21}\text{H}_{27}\text{N}_3\text{O}_7\text{S)} \\ = \text{amount [mg (potency)] of Bacampicillin} \\ \text{Hydrochloride Reference Standard} \times \frac{A_T}{A_S} \times 1000 \end{aligned}$$

Operating conditions—

Detector: An ultraviolet absorption photometer (wavelength: 254 nm).

Column: A stainless steel column 4.6 mm in inside diameter and 15 cm in length, packed with octadecylsilanized silica gel for liquid chromatography (5 μ m in particle diameter).

Column temperature: A constant temperature of about 25°C.

Mobile phase: To 500 mL of diluted 2 mol/L sodium dihydrogenphosphate TS (1 in 100), add diluted 0.05 mol/L disodium hydrogenphosphate TS (2 in 5) to adjust the pH to 6.8. To 500 mL of this solution add 500 mL of acetonitrile.

Flow rate: Adjust the flow rate so that the retention time of bacampicillin is about 6.5 minutes.

System suitability—

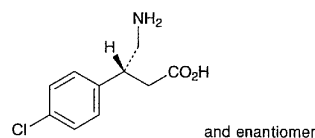
System performance: When the procedure is run with 20 μ L of this solution under the above operating conditions, the number of theoretical plates and the symmetry constant of the peak of bacampicillin are not less than 10,000 and not more than 2, respectively.

System repeatability: When the test is repeated 6 times with 20 μ L of the standard solution under the above operating conditions, the relative standard deviation of peak areas of bacampicillin is not more than 2.0%.

Containers and storage Containers—Tight containers.

Baclofen

バクロフェン



$C_{10}H_{12}ClNO_2$: 213.66
(*RS*)-4-Amino-3-(4-chlorophenyl)butanoic acid
[1134-47-0]

Baclofen contains not less than 98.5% of $C_{10}H_{12}ClNO_2$, calculated on the anhydrous basis.