intensity of each signal, A:B:C:D, is about 9:3:3:1.

(5) Dissolve 0.05 g of Cefetamet Pivoxil Hydrochloride in 2 mL of methanol, add 3 mL of dilute nitric acid and 1 mL of silver nitrate TS, and mix: a white precipitate is formed.

Absorbance $E^{1\%}_{1\,cm}$ (263 nm): 327 - 347 (0.02 g calculated on the anhydrous basis, 0.1 mol/L hydrochloric acid TS, 1000 mL).

Optical rotation $[\alpha]_D^{20}$: +76 - +84° (0.25 g calculated on the anhydrous basis, ethanol (95), 25 mL, 100 mm).

Purity **(1)** Heavy metals—Proceed with 1.0 g of Cefetamet Pivoxil Hydrochloride according to Method 4, and perform the test. Prepare the control solution with 2.0 mL of Standard Lead Solution (not more than 20 ppm).

(2) Arsenic—Being specified separately.

(3) Related substances—Being specified separately.

Water Not more than 1.0% (1 g, volumetric titration, direct titration).

Residue on ignition Being specified separately.

Assay Weigh accurately an amount of Cefetamet Pivoxil Hydrochloride and Cefetamet Pivoxil Hydrochloride Reference Standard, equivalent to about 0.019 g (potency), and dissolve in a mixture of water and acetonitrile (11:9) to make exactly 50 mL. Pipet 5 mL each of these solutions, add exactly 6 mL of the internal standard solution and a solution of tetra-*n*-heptylammonium bromide in a mixture of water, acetonitrile and methanol (137:90:23) (2 in 625) to make 50 mL, and use these solutions as the sample solution and the standard solution, respectively. Perform the test with 10 μL each of the sample solution and the standard solution 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 cefetamet pivoxil to that of the internal standard of each solution.

$$\text{Amount [}\mu\text{g (potency)] of cefetamet } (C_{14}H_{15}N_5O_5S_2) = \text{amount [mg (potency)] of Cefetamet Pivoxil Hydrochloride Reference Standard} \times \frac{Q_T}{Q_S} \times 1000$$

Internal standard solution—Dissolve 1 g of diethyl phthalate in a solution of tetra-*n*-heptylammonium bromide in a mixture of water, acetonitrile and methanol (137:90:23) (2 in 625) to make 500 mL.

Operating conditions—

Detector: An ultraviolet absorption photometer (wavelength: 263 nm).

Column: A stainless steel column 6.0 mm in inside diameter and 15 cm in length, packed with octadecylsilanized silica gel for liquid chromatography (5 μm in particle diameter).

Column temperature: A constant temperature of about 20°C.

Mobile phase: Dissolve 5.796 g of anhydrous disodium hydrogenphosphate and 3.522 g of potassium dihydrogenphosphate in water to make exactly 1000 mL, and use as Solution A. Dissolve 20.256 g of citric acid monohydrate and 7.840 g of sodium hydroxide in water to make exactly 1000 mL, and use as Solution B. Dissolve 3.20 g of tetra-*n*-heptylammonium bromide in 360 mL of acetonitrile for liquid chromatography, and add 92 mL of methanol, 500 mL of water, 44 mL of the solution A and 4 mL of the solution B.

Flow rate: Adjust the flow rate so that the retention time of cefetamet pivoxil is about 10 minutes.

System suitability—

System performance: When the procedure is run with 10 μL of the standard solution under the above operating conditions, cefetamet pivoxil and the internal standard are eluted in this order with the resolution between these peaks being not less than 6.

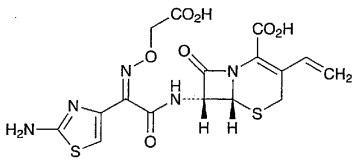
System repeatability: When the test is repeated 6 times with 10 μL of the standard solution under the above operating conditions, the relative standard deviation of the ratios of the peak area of cefetamet pivoxil to that of the internal standard is not more than 1.0%.

Containers and storage Containers—Tight containers.

Storage—Light-resistant.

Cefixime

セフィキシム



$C_{16}H_{15}N_5O_7S_2$: 453.45

(6*R*,7*R*)-7-{2-(2-Aminothiazol-4-yl)-2-[(*Z*)-carboxymethoxyimino]acetylamino}-8-oxo-3-vinyl-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid

[*79350-37-1*]

Cefixime contains not less than 930 μg (potency) per mg, calculated on the anhydrous basis. The potency of Cefixime is expressed as mass (potency) of cefixime ($C_{16}H_{15}N_5O_7S_2$: 453.46).

Description Cefixime occurs as a white to light yellow crystalline powder.

It is freely soluble in methanol and in dimethylsulfoxide, sparingly soluble in ethanol (99.5), and practically insoluble in water.

Identification **(1)** Determine the absorption spectrum of a solution of Cefixime in 0.1 mol/L phosphate buffer solution, pH 7.0 (1 in 62,500) as directed under the Ultraviolet-visible Spectrophotometry, and compare the spectrum with the Reference Spectrum or the spectrum of Cefixime Reference Standard: both spectra exhibit similar intensities of absorption at the same wavelength.

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

(3) Dissolve 0.05 g of Cefixime in 0.5 mL of a mixture of deuterated dimethylsulfoxide for nuclear magnetic resonance spectroscopy and heavy water for nuclear magnetic resonance spectroscopy (4:1). Determine the spectrum of

this solution, using tetramethylsilane for nuclear magnetic resonance spectroscopy as an internal reference compound, as directed under the Nuclear Magnetic Resonance Spectroscopy (^{1}H): it exhibits a single signal A at around δ 4.7 ppm, and a multiple signal B between δ 6.5 ppm and δ 7.4 ppm. The ratio of integrated intensity of these signals, A:B, is about 1:1.

Optical rotation $[\alpha]_D^{20}$: -75 – $-88°$ (0.45 g calculated on the anhydrous bases, a solution of sodium hydrogen carbonate (1 in 50), 50 mL, 100 mm).

Purity Dissolve 0.1 g of Cefixime in 100 mL of 0.1 mol/L phosphate buffer solution, pH 7.0, and use this solution as the sample solution. Perform the test with 10 μL of the sample solution as directed under the Liquid Chromatography according to the following conditions, measure the areas of the peaks by the automatic integration method, and calculate the amounts of these peak areas by the area percentage method: the amount of each peak area other than cefixime is not more than 1.0%, and the total area of the peaks other than cefixime is not more than 2.5%.

Operating conditions—

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

Time span of measurement: About 3 times as long as the retention time of cefixime after the solvent peak.

System suitability—

Test for required detection: Pipet 1 mL of the sample solution, and add 0.1 mol/L phosphate buffer solution, pH 7.0 to make exactly 100 mL. Confirm that the peak height of cefixime obtained from 10 μL of this solution is equivalent to 20 to 60 mm.

System performance: Dissolve about 2 mg of Cefixime Reference Standard in 200 mL of 0.1 mol/L phosphate buffer solution, pH 7.0, and use this solution as the solution for system suitability test. When the procedure is run with 10 μL of the solution according to the above operating conditions, the number of theoretical steps and the symmetry coefficient of the peak of cefixime are not less than 4000 and not more than 2.0, respectively.

System repeatability: When the test is repeated 6 times with 10 μL of the solution for system suitability test under the above operating conditions, the relative standard deviation of the peak areas of cefixime is not more than 2.0%.

Water Not less than 9.0 and not more than 12.0% (0.1 g, volumetric titration, direct titration).

Residue on ignition Not more than 0.10% (1.0 g).

Assay Weigh accurately an amount of Cefixime and Cefixime Reference Standard, equivalent to about 0.1 g (potency), and dissolve in 0.1 mol/L phosphate buffer solution, pH 7.0 to make exactly 100 mL each. Pipet 10 mL each of these solutions, add 0.1 mol/L phosphate buffer solution, pH 7.0 to make exactly 50 mL each, and use these solutions as the sample solution and the standard solution, respectively. Perform the test with exactly 10 μL 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 cefixime of these solutions.

Amount [μg (potency)] of cefixime ($C_{16}H_{15}N_5O_7S_2$)

= amount [mg (potency)] of Cefixime Reference Standard $\times \frac{A_T}{A_S} \times 1000$

Operating conditions—

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

Column: A stainless steel column 4.6 mm in inside diameter and 125 mm in length, packed with octadecylsilanized silica gel for liquid chromatography (4 μm in particle diameter).

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

Mobile phase: To 25 mL of a solution of tetrabutylammonium hydroxide TS (10 in 13) add water to make 1000 mL, adjust to pH 6.5 with diluted phosphoric acid (1 in 10). To 300 mL of this solution add 100 mL of acetonitrile.

Flow rate: Adjust the flow rate so that the retention time of cefixime is about 10 minutes.

System suitability—

System performance: When the procedure is run with 10 μL of the standard solution under the above operating conditions, the number of theoretical steps and the symmetry coefficient of the peak of cefixime are not less than 4000 and not more than 2.0, respectively.

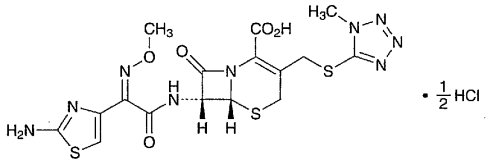
System repeatability: When the test is repeated 6 times with 10 μL of the standard solution under the above operating conditions, the relative standard deviation of peak areas of cefixime is not more than 2.0%.

Containers and storage Containers—Tight containers.

Storage—Light-resistant.

Cefmenoxime Hydrochloride

塩酸セフメノキシム



$C_{16}H_{17}N_9O_5S_3.\frac{1}{2}HCl$: 529.79

(6*R*,7*R*)-7-[(*Z*)-2-(2-Aminothiazol-4-yl)-2-methoxyiminoacetylamino]-3-(1-methyl-1*H*-tetrazol-5-ylsulfanylmethyl)-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid hemihydrochloride [*75738-58-8*]

Cefmenoxime Hydrochloride conforms to the requirements of Cefmenoxime Hydrochloride in the Requirements for Antibiotic Products of Japan.

Description Cefmenoxime Hydrochloride occurs as white to light orange-yellow crystals or crystalline powder.

It is freely soluble in formamide, slightly soluble in methanol, very slightly soluble in water, and practically insoluble in ethanol (95) and in diethyl ether.