Cefixime Fine Granules

セフィキシム細粒

Cefixime Fine Granules contain not less than 90.0% and not more than 105.0% of the labeled potency of cefixime ($C_{16}H_{15}N_5O_7S_2$: 453.45).

Method of preparation Prepare as directed under Granules, with Cefixime Hydrate.

Identification To a quantity of powdered Cefixime Fine Granules, equivalent to 2 mg (potency) of Cefixime Hydrate, add 150 mL of 0.1 mol/L phosphate buffer solution (pH 7.0), and shake. If it is necessary, filter or centrifuge. Determine the absorption spectrum of this solution as directed under Ultraviolet-visible Spectrophotometry <*2.24*>: it exhibits maximum between 286 nm and 290 nm.

Purity Related substances—To a quantity of powdered Cefixime Fine Granules, equivalent to 0.1 g (potency) of Cefixime Hydrate, add 100 mL of 0.1 mol/L phosphate buffer solution (pH 7.0), shake, filter through a membrane filter with a pore size not exceeding 0.45 μm, and use the filtrate as the sample solution. Perform the test with 10 μL of the sample solution as directed under Liquid Chromatography <*2.01*> according to the following conditions. Determine each peak area by the automatic integration method, and calculate their amounts by the area percentage method: the amount of the peak other than cefixime is not more than 1.0%, and the total amount 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 under Cefixime Hydrate.

Time span of measurement: Proceed as directed in the operating conditions in the Purity under Cefixime Hydrate.

System suitability—

Test for required detectability: To 1 mL of the sample solution add 0.1 mol/L phosphate buffer solution (pH 7.0) to make 100 mL, and use this solution as the solution for system suitability test. Pipet 1 mL of the solution for system suitability test, and add 0.1 mol/L phosphate buffer solution (pH 7.0) to make exactly 10 mL. Confirm that the peak area of cefixime obtained with 10 μL of this solution is equivalent to 7 to 13% of that with 10 μL of the solution for system suitability test.

System performance: When the procedure is run with 10 μL of the solution for system suitability test under the above operating conditions, the number of theoretical plates and the symmetry factor 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 area of cefixime is not more than 2.0%.

Water <*2.48*> Not more than 3.0% (1 g, volumetric titration, direct titration. Use a mixture of formamide for water determination and methanol for water determination (2:1) instead of methanol for water determination).

Uniformity of dosage units <*6.02*> Perform the test according to the following method: Cefixime Fine Granules in single-dose packages meet the requirement of the Content uniformity test.

To the total content of 1 package of Cefixime Fine Granules add 7*V*/10 mL of 0.1 mol/L phosphate buffer solution (pH 7.0), shake, add 0.1 mol/L phosphate buffer solution (pH 7.0) to make exactly *V* mL so that each mL contains about 1 mg (potency) of Cefixime Hydrate. Centrifuge this solution, pipet 10 mL of the supernatant liquid, add 0.1 mol/L phosphate buffer solution (pH 7.0) to make exactly 50 mL, and use this solution as the sample solution. Separately, weigh accurately an amount of Cefixime RS, equivalent to about 20 mg (potency), dissolve in 0.1 mol/L phosphate buffer solution (pH 7.0) to make exactly 100 mL, and use this solution as the standard solution. Then proceed as directed in the Assay under Cefixime Hydrate.

Amount [mg (potency)] of cefixime ($C_{16}H_{15}N_5O_7S_2$)
$= M_S \times A_T / A_S \times V / 20$

M_S: Amount [mg (potency)] of Cefixime RS taken

Dissolution <*6.10*> When the test is performed at 50 revolutions per minute according to the Paddle method, using 900 mL of 2nd fluid for dissolution test as the dissolution medium, the dissolution rates in 30 minutes of Cefixime Fine Granules is not less than 75%.

Start the test with an accurately weighed amount of Cefixime Fine Granules, equivalent to about 0.1 g (potency) of Cefixime Hydrate, withdraw not less than 20 mL of the medium at the specified minute after starting the test, and filter through a membrane filter with a pore size not exceeding 0.45 μm. Discard the first 10 mL or more of the filtrate, and use the subsequent filtrate as the sample solution. Separately, weigh accurately an amount of Cefixime RS, equivalent to about 28 mg (potency), and dissolve in the dissolution medium to make exactly 50 mL. Pipet 4 mL of this solution, add the dissolution medium to make exactly 20 mL, and use this solution as the standard solution. Perform the test with exactly 20 μL each of the sample solution and standard solution as directed under Liquid Chromatography <*2.01*> according to the following conditions,

and determine the peak areas, A_T and A_S, of cefixime in each solution.

Dissolution rate (%) with respect to the labeled amount of cefixime ($C_{16}H_{15}N_5O_7S_2$)

$$= M_S / M_T \times A_T / A_S \times 1 / C \times 360$$

M_S: Amount [mg (potency)] of Cefixime RS taken
M_T: Amount (g) of Cefixime Fine Granules taken
C: Labeled amount [mg (potency)] of cefixime ($C_{16}H_{15}N_5O_7S_2$) in 1 g

Operating conditions—
Proceed as directed in the operating conditions in the Assay under Cefixime Hydrate.
System suitability—
System performance: When the procedure is run with 20 μL of the standard solution under the above conditions, the number of theoretical plates and the symmetry factor 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 20 μL of the standard solution under the above operating conditions, the relative standard deviation of the peak area of cefixime is not more than 2.0%.

Assay Weigh accurately an amount of powdered Cefixime Fine Granules, equivalent to about 0.1 g (potency) of Cefixime Hydrate, add 70 mL of 0.1 mol/L phosphate buffer solution (pH 7.0), shake, and add 0.1 mol/L phosphate buffer solution (pH 7.0) to make exactly 100 mL. Centrifuge this solution, pipet 10 mL of the supernatant liquid, add 0.1 mol/L phosphate buffer solution (pH 7.0) to make exactly 50 mL, and use this solution as the sample solution. Separately, weigh accurately an amount of Cefixime RS, equivalent to about 20 mg (potency), dissolve in 0.1 mol/L phosphate buffer solution (pH 7.0) to make exactly 100 mL, and use this solution as the standard solution. Then, proceed as directed in the Assay under Cefixime Hydrate.

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

$$= M_S \times A_T / A_S \times 5$$

M_S: Amount [mg (potency)] of Cefixime RS taken

Containers and storage Containers—Tight containers.