Indometacin Suppositories

インドメタシン坐剤

Indometacin Suppositories contain not less than 90% and not more than 110% of the labeled amount of indometacin ($C_{19}H_{16}ClNO_4$: 357.79).

Method of preparation Prepare as directed under Suppositories, with Indometacin.

Identification Dissolve a quantity of Indometacin Suppositories, equivalent to 0.05 g of Indometacin according to the labeled amount, in 20 mL of methanol by warming, add methanol to make 50 mL, and filter if necessary. To 2 mL of this solution add methanol to make 100 mL, and use this solution as the sample solution. Determine the absorption spectrum of the sample solution as directed under the Ultraviolet-visible Spectrophotometry: it exhibits a maximum between 317 nm and 321 nm.

Assay Weigh accurately not less than 20 Indometacin Suppositories, cut into small pieces carefully, and mix well. Weigh accurately a portion of the mass, equivalent to about 0.05 g of indometacin ($C_{19}H_{16}ClNO_4$), add 40 mL of tetrahydrofuran, warm at 40°C, dissolve by shaking, cool, and add tetrahydrofuran to make exactly 50 mL. Filter the solution, discard the first 10 mL of the filtrate, pipet the subsequent 5 mL of the filtrate, add exactly 3 mL of the internal standard solution, and add the mobile phase to make 100 mL. Allow the solution to stand for 30 minutes, filter through a membrane filter (0.5 μm pore size), discard the first 10 mL of the filtrate, and use the subsequent filtrate as the sample solution. Separately, weigh accurately about 0.05 g of Indometacin Reference Standard, previously dried at 105°C for 4 hours, and dissolve in tetrahydrofuran to make exactly 50 mL. Pipet 5 mL of the solution, proceed in the same manner as the sample solution, and use as the standard solution. Perform the test with 20 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 indometacin to that of the internal standard, respectively.

$$\text{Amount (mg) of indometacin } (C_{19}H_{16}ClNO_4) = \text{amount (mg) of Indometacin Reference Standard} \times \frac{Q_T}{Q_S}$$

Internal standard solution—A solution of butyl parahydroxybenzoate in methanol (1 in 1000).

Operating conditions—

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

Column: A stainless steel column about 4 mm in inside diameter and 10 to 30 cm in length, packed with octadecylsilanized silica gel for liquid chromatography (5 to 10 μm in particle diameter).

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

Mobile phase: A mixture of methanol and diluted phosphoric acid (1 in 1000) (7:3).

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

Selection of column: Dissolve 0.050 g of 4-chlorobenzoic acid, 0.030 g of butyl parahydroxybenzoate and 0.050 g of indometacin in 50 mL of methanol. To 5 mL of this solution add 95 mL of the mobile phase, and proceed with 20 μL of this solution under the above operating conditions, and calculate the resolution. Use a column giving elution of 4-chlorobenzoic acid, butyl parahydroxybenzoate and indometacin in this order with the resolution between the peaks of 4-chlorobenzoic acid and butyl parahydroxybenzoate being not less than 2.0 and between the peaks of parahydroxybenzoate and indometacin being not less than 5.

Containers and storage Containers—Well-closed containers.

Storage—Light-resistant, and in a cold place.

Insulin

インスリン

Insulin is obtained from the pancreas of healthy bovine or porcine, that has blood sugar-decreasing activity. Its potency, calculated on the dried basis, is not less than 26 Insulin Units in each mg.

It is labeled to indicate the animal species from which it is derived.

Description Insulin occurs as a white, crystalline powder. It is odorless.

It is practically insoluble in water, in ethanol (95) and in diethyl ether.

It dissolves in diluted hydrochloric acid (1 in 360) and in dilute sodium hydroxide TS.

It is hygroscopic.

Identification Dissolve 0.01 g of Insulin in 10 mL of 0.1 mol/L hydrochloric acid TS, and use this solution as the sample solution. Adjust the pH of the sample solution to between 5.1 and 5.3 with a solution of sodium hydroxide (1 in 100): a precipitate is produced. Adjust the solution to a pH between 2.5 and 3.5 with dilute hydrochloric acid: the precipitate dissolves.

Purity Clarity and color of solution—Dissolve 0.10 g of Insulin in 10 mL of diluted hydrochloric acid (1 in 360): the solution is clear and colorless to light yellow.

Zinc content Weigh accurately about 0.01 g of Insulin, dissolve in 5 mL of 0.1 mol/L hydrochloric acid TS and water to make exactly 50 mL. If necessary, dilute the solution with water so as to contain 0.4 to 1.0 μg of zinc (Zn: 65.39) per mL, and use as the sample solution. Add water to an accurately measured volume of Standard Zinc Solution for atomic absorption spectrophotometry to make a solution containing 0.3 to 1.2 μg of zinc (Zn: 65.39) per mL, and use as the standard solution. Perform the test with the sample solution and the standard solution as directed under the Atomic Absorption Spectrophotometry according to the following conditions, and determine the amount of zinc in the sample solution using the calibration curve obtained from the absorbance of the standard solution: the amount of zinc is not less than 0.27% and not more than 1.08%, calculated

on the dried basis.

Gas: Combustible gas—Acetylene gas
Supporting gas—Air
Lamp: Zinc hollow-cathode lamp
Wavelength: 213.9 nm

Loss on drying Not more than 10.0% (0.2 g, 105°C, 16 hours).

Residue on ignition Weigh accurately 0.02 to 0.04 g of Insulin in a tared platinum dish, add 2 drops of nitric acid, and heat the dish at first very gently and then strongly to incinerate. Place the dish in a muffle furnace, heat at 600°C for 15 minutes, cool in a desiccator (silica gel), and weigh: the mass of the residue is not more than 2.5%.

Nitrogen content Weigh accurately about 0.02 g of Insulin, dissolve in 10 mL of 0.1 mol/L hydrochloric acid TS, and perform the test as directed under the Nitrogen Determination: not less than 14.5% and not more than 16.5% of nitrogen (N: 14.01) is found, calculated on the dried basis.

Assay Proceed with Insulin as directed in the Assay under Insulin Injection with alterations in (v) Sample solution and (ix) Calculation as follows.

(v) Sample solution: Weigh accurately about 0.02 g of Insulin according to the labeled Units, dissolve with the diluent for insulin to make two different sample solutions, one to contain exactly 2.0 Units in each mL which is designated as the high-dose sample solution, T_H, and the other to contain exactly 1.0 Unit in each mL which is designated as the low-dose sample solution, T_L.

(ix) Calculation: Proceed as directed in the Assay (ix) Calculation under Insulin Injection, using the following equation,

$$\text{Units in each mg of Insulin} = \text{antilog } M \times \text{Units in each mL of the high-dosestandard solution} \times \frac{b}{a}$$

a: Mass (mg) of the sample,

instead of the following equation,

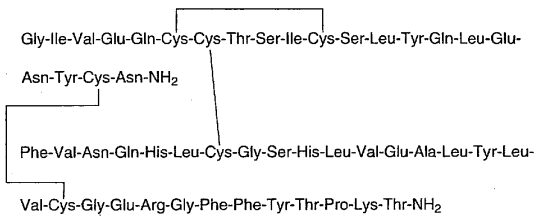
$$\text{Units in each mL of Insulin Injection} = \text{antilog } M \times \text{Units in each mL of the high-dose standard solution} \times \frac{b}{a}$$

a: Volume (mL) of the sample.

Contianers and storage Containers—Tight containers.
Storage—Not exceeding 8°C.

Insulin Human (Genetical Recombination)

ヒトインスリン(遺伝子組換え)



$C_{257}H_{383}N_{65}O_{77}S_6$: 5807.57
[11061-68-0]

Insulin Human (Genetical Recombination) is a human insulin prepared by genetical recombinant technology, and has an activity to reduce the blood sugar concentration. It contains not less than 27.5 Insulin Units per mg, calculated on the dried basis.

Description Insulin Human (Genetical Recombination) occurs as a white powder.

It is practically insoluble in water and in ethanol (95).

It dissolves in 0.01 mol/L hydrochloric acid TS and in sodium hydroxide TS with decomposition.

It is hygroscopic.

Identification Weigh accurately a suitable amount of Insulin Human (Genetical Recombination), and dissolve in 0.01 mol/L hydrochloric acid TS to make a solution so that each mL contains 2.0 mg. Transfer 500 μL of this solution into a clean test tube, add 2.0 mL of HEPES buffer solution, pH 7.5 and 400 μL of V8-protease TS, react at 25°C for 6 hours, then add 2.9 mL of ammonium sulfate buffer solution to stop the reaction, and use this solution as the sample solution. Separately, proceed with Human Insulin Reference Standard in the same manner as above, and use this solution as the standard solution. Perform the test with 50 μL each of the sample solution and the standard solution as directed under the Liquid Chromatography according to the following conditions, and compare the chromatograms obtained from these solutions: the peak appears just after the peak of the solvent and the succeeding three peaks with apparently higher peak height show the same retention time and similar peak height each other on both chromatograms.

Operating conditions—

Detector: An ultraviolet absorption photometer (wavelength: 214 nm).

Column: A stainless steel column 4.6 mm in inside diameter and 10 cm in length, packed with octadecylsilanized silica gel for liquid chromatography (3 μm in particle diameter).

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

Mobile phase: Solution A—A mixture of water, ammonium sulfate buffer solution and acetonitrile (7:2:1). Solution B—A mixture of water, acetonitrile and ammonium sulfate buffer solution (2:2:1).

Change the mixing ratio of the solutions A and B linearly from 9:1 to 3:7 in 60 minutes after sample injection, further