minocycline and the spot mentioned above is not more than 2.0%.

Operating conditions—

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

Flow rate: Adjust the flow rate so that the retention time of minocycline is about 12 minutes. The retention time of epiminocycline is about 10 minutes under this condition.

Time span of measurement: About 2.5 times as long as the retention time of minocycline after the solvent peak.

System suitability—

Test for required detection: Dissolve 0.02 g of Minocycline Hydrochloride Reference Standard in the mobile phase to make exactly 100 mL, then pipet 10 mL of this solution, and add the mobile phase to make exactly 100 mL. Adjust that the peak height of minocycline obtained from 20 μL of this solution is about 20 mm.

System performance: Proceed as directed in the system suitability in the Assay.

System repeatability: Dissolve 0.02 g of Minocycline Hydrochloride Reference Standard in the mobile phase to make exactly 100 mL, then pipet 10 mL of this solution, and add the mobile phase to make exactly 100 mL. When the test is repeated 6 times with 20 μL of this solution under the above operating conditions, the relative standard deviation of the peak areas of minocycline is not more than 2%.

Water Not less than 4.3% and not more than 8.0% (0.3 g, volumetric titration, direct titration).

Residue on ignition Not more than 0.5% (1 g).

Assay Weigh accurately an amount of Minocycline Hydrochloride and Minocycline Hydrochloride Reference Standard, equivalent to about 0.05 g (potency), dissolve each in the mobile phase to make exactly 100 mL, and use these solutions as the sample solution and the standard solution. Perform the test with exactly 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 peak areas, A_T and A_S, of minocycline of these solutions.

Amount [μg (potency)] of minocycline ($C_{23}H_{27}N_3O_7$) = amount [mg (potency)] of Minocycline Hydrochloride Reference Standard $\times \frac{A_T}{A_S} \times 1000$

Operating conditions—

Detector: An ultraviolet absorption photometer (wavelength: 280 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 μm in particle diameter).

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

Mobile phase: Adjust the pH of a mixture of a solution of ammonium oxalate monohydrate (7 in 250), *N,N*-dimethylformamide and 0.1 mol/L disodium dihydrogen ethylenediamine tetraacetate TS (11:5:4) to 6.2 with tetrabutylammonium hydroxide TS.

Flow rate: Adjust the flow rate so that the retention time of minocycline is about 12 minutes.

System suitability—

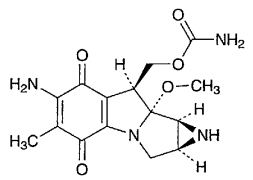
System performance: Dissolve 0.05 g (potency) of Minocycline Hydrochloride Reference Standard in 25 mL of water. Heat 5 mL of this solution on a water bath for 60 minutes, then add water to make 25 mL. When the procedure is run with 20 μL of this solution under the above operating conditions, epiminocycline and minocycline are eluted in this order with the resolution between these peaks being not less than 2.0.

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 peak areas of minocycline is not more than 2.0%.

Containers and storage Containers—Tight containers.
Storage—Light-resistant.

Mitomycin C

マイトマイシン C



$C_{15}H_{18}N_4O_5$: 334.33
(1a*S*,8*S*,8a*R*,8b*S*)-6-Amino-4,7-dioxo-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methylazirino[2′,3′:3,4]pyrrolo-[1,2-*a*]indol-8-ylmethyl carbamate [*50-07-7*]

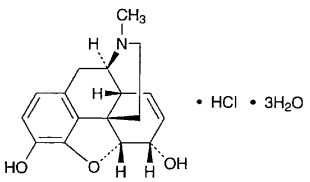
Mitomycin C conforms to the requirements of Mitomycin C in the Requirements for Antibiotic Products of Japan.

Description Mitomycin C occurs as blue-purple crystals or crystalline powder.

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

Morphine Hydrochloride

塩酸モルヒネ



$C_{17}H_{19}NO_3.HCl.3H_2O$: 375.84
(5*R*,6*S*)-7,8-Didehydro-4,5-epoxy-17-methylmorphinan-3,6-diol monohydrochloride trihydrate [*6055-06-7*]

Morphine Hydrochloride contains not less than 98.0% and not more than 102.0% of $C_{17}H_{19}NO_3.HCl$: 321.80, calculated on the anhydrous basis.

Description Morphine Hydrochloride occurs as white crystals or crystalline powder.

It is freely soluble in formic acid, soluble in water, sparingly soluble in methanol, and slightly soluble in ethanol (95).

It dissolves in dilute sodium hydroxide TS.

It is affected by light.

Identification (1) Determine the absorption spectrum of a solution of Morphine Hydrochloride (1 in 10,000) as directed under the Ultraviolet-visible Spectrophotometry, and compare the spectrum with the Reference Spectrum 1: both spectra exhibit similar intensities of absorption at the same wavelengths. Separately, determine the absorption spectrum of a solution of Morphine Hydrochloride in dilute sodium hydroxide TS (1 in 10,000) as directed under the Ultraviolet-visible Spectrophotometry, and compare the spectrum with the Reference Spectrum 2: both spectra exhibit similar intensities of absorption at the same wavelengths.

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

(3) A solution of Morphine Hydrochloride (1 in 50) responds to the Qualitative Tests (2) for chloride.

Optical rotation $[\alpha]_D^{20}$: -111 - $-116°$ (0.5 g calculated on the anhydrous basis, water, 25 mL, 100 mm).

Purity (1) Clarity and color of solution—Dissolve 0.10 g of Morphine Hydrochloride in 10 mL of water: the solution is clear and colorless.

(2) Acid—Dissolve 0.5 g of Morphine Hydrochloride in 15 mL of water, add 2 drops of methyl red TS, and neutralize with 0.02 mol/L sodium hydroxide VS: the consumed volume is not more than 0.50 mL.

(3) Ammonium—Warm 0.20 g of Morphine Hydrochloride with 5 mL of sodium hydroxide TS: the gas evolved does not turn moistened red litmus paper blue.

(4) Sulfate—Dissolve 0.20 g of Morphine Hydrochloride in 5 mL of water, and add 2 to 3 drops of barium chloride TS: no turbidity is produced.

(5) Meconic acid—Dissolve 0.20 g of Morphine Hydrochloride in 5 mL of water, and add 5 mL of dilute hydrochloric acid and 2 drops of iron (III) chloride TS: no red color develops.

(6) Other alkaloids—Dissolve 0.1 g of Morphine Hydrochloride in 10 mL of diluted ethanol (95) (1 in 2), and use this solution as the sample solution. Pipet 1 mL of the sample solution, add diluted ethanol (95) (1 in 2) to make exactly 200 mL, and use this solution as the standard solution. Perform the test with these solutions as directed under the Thin-layer Chromatography. Spot 10 μL each of the sample solution and the standard solution on a plate of silica gel with fluorescent indicator for thin-layer chromatography. Develop the plate with a mixture of ethanol (99.5), toluene, acetone and ammonia solution (28) (14:14:7:1) to a distance of about 15 cm, and air-dry the plate. Examine under ultraviolet light (main wavelength: 254 nm): the spots other than the principal spot from the sample solution are not more intense than the spot from the standard solution.

Water 13 - 15% (0.1 g, direct titration).

Residue on ignition Not more than 0.1% (0.5 g).

Assay Weigh accurately about 0.5 g of Morphine Hydrochloride, dissolve in 3.0 mL of formic acid, add 100 mL of a mixture of acetic anhydride and acetic acid (100) (7:3), mix, and titrate with 0.1 mol/L perchloric acid VS (potentiometric titration). Perform a blank determination, and make any necessary correction.

Each mL of 0.1 mol/L perchloric acid VS
= 32.180 mg of $C_{17}H_{19}NO_3.HCl$

Containers and storage Containers—Tight containers.
Storage—Light-resistant.

Morphine Hydrochloride Injection

塩酸モルヒネ注射液

Morphine Hydrochloride Injection is an aqueous solution for injection. It contains not less than 93% and not more than 107% of the labeled amount of morphine hydrochloride ($C_{17}H_{19}NO_3.HCl.3H_2O$: 375.84).

Method of preparation Prepare as directed under Injections, with Morphine Hydrochloride.

Description Morphine Hydrochloride Injection is a clear, colorless liquid.

It is affected by light.

pH: 2.5 - 5.0

Identification Take a volume of Morphine Hydrochloride Injection, equivalent to 0.04 g of Morphine Hydrochloride according to the labeled amount, add water to make 20 mL, and use this solution as the sample solution. To 5 mL of the sample solution add water to make 100 mL, and determine the absorption spectrum as directed under the Ultraviolet-visible Spectrophotometry: it exhibits a maximum between 283 nm and 287 nm. And to 5 mL of the sample solution add dilute sodium hydroxide TS to make 100 mL, and determine the absorption spectrum: it exhibits a maximum between 296 nm and 300 nm.

Assay Take exactly a volume of Morphine Hydrochloride Injection, equivalent to about 0.08 g of morphine hydrochloride ($C_{17}H_{19}NO_3.HCl.3H_2O$), and add water to make exactly 20 mL. Pipet 5 mL of this solution, add exactly 10 mL of the internal standard solution and water to make 50 mL, and use this solution as the sample solution. Separately, weigh accurately about 0.025 g of morphine hydrochloride for assay, dissolve in exactly 10 mL of the internal standard solution, add water to make 50 mL, and use this solution 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 morphine to that of the internal standard.

Amount (mg) of morphine hydrochloride ($C_{17}H_{19}NO_3.HCl.3H_2O$)
= amount (mg) of morphine hydrochloride for assay, calculated on the anhydrous basis

$$\times 1.1680 \times \frac{Q_T}{Q_S} \times 4$$