(14:14:7:1) to a distance of about 10 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 8.0 - 10.0% (0.25 g, direct titration).

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

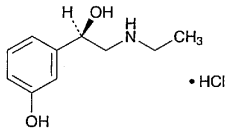
Assay Weigh accurately about 0.5 g of Ethylmorphine Hydrochloride, and dissolve in 50 mL of a mixture of acetic anhydride and acetic acid (100) (7:3), and titrate with 0.1 mol/L perchloric acid VS (potentiometric titration). Perform a blank determination, and make any necessary correction.

Each mL of 0.1 mol/L perchloric acid VS
= 34.986 mg of $C_{19}H_{23}NO_3$.HCl

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

Etilefrine Hydrochloride

塩酸エチレフリン



and enantiomer

$C_{10}H_{15}NO_2$.HCl: 217.69
(*RS*)-2-Ethylamino-1-(3-hydroxyphenyl)ethanol monohydrochloride [*943-17-9*]

Etilefrine Hydrochloride, when dried, contains not less than 98.0% of $C_{10}H_{15}NO_2$.HCl.

Description Etilefrine Hydrochloride occurs as white crystals or crystalline powder. It is odorless and has a bitter taste.

It is very soluble in water, freely soluble in ethanol (95), sparingly soluble in acetic acid (100), and practically insoluble in diethyl ether.

The pH of a solution of Etilefrine Hydrochloride (1 in 10) is between 3.8 and 5.8.

It is gradually colored by light.

Identification **(1)** To 1 mL of a solution of Etilefrine Hydrochloride (1 in 5000) add 1 mL of a freshly prepared solution of 2,6-dibromoquinonechlorimide in ethanol (95) (1 in 4000) and 5 drops of ammonia TS: a blue color develops.

(2) To 5 mL of a solution of Etilefrine Hydrochloride (1 in 20,000) add 2 mL of a solution of 4-nitrobenzenediazonium fluoroborate (1 in 2000), 5 mL of boric acid-potassium chloride-sodium hydroxide buffer solution, pH 9.2, and 5 mL of acetone: a red color develops.

(3) Dissolve 5 mg of Etilefrine Hydrochloride in 100 mL of diluted hydrochloric acid (1 in 1000). Determine the absorption spectrum of the solution as directed under the Ultraviolet-visible Spectrophotometry, and compare the spectrum with the Reference Spectrum: both spectra exhibit similar intensities of absorption at the same wavelengths.

(4) A solution of Etilefrine Hydrochloride (1 in 1000) responds to the Qualitative Tests for chloride.

Melting point 119 - 124°C

Purity **(1)** Clarity and color of solution—Dissolve 0.5 g of Etilefrine Hydrochloride in 50 mL of water: the solution is clear and colorless.

(2) Sulfate—Perform the test with 0.6 g of Etilefrine Hydrochloride. Prepare the control solution with 0.35 mL of 0.005 mol/L sulfuric acid VS (not more than 0.028%).

(3) Heavy metals—Dissolve 1.0 g of Etilefrine Hydrochloride in 30 mL of water and 2 mL of acetic acid (100), adjust with sodium hydroxide TS to a pH of 3.3, add water to make 50 mL, and perform the test. Prepare the control solution with 2.0 mL of Standard Lead Solution (not more than 20 ppm).

(4) Arsenic—Prepare the test solution with 1.0 g of Etilefrine Hydrochloride, according to Method 1, and perform the test using Apparatus B (not more than 2 ppm).

Loss on drying Not more than 1.0% (1 g, 105°C, 4 hours).

Residue on ignition Not more than 0.10% (1 g).

Assay Weigh accurately about 0.3 g of Etilefrine Hydrochloride, previously dried, dissolve in 25 mL of acetic acid (100), add 40 mL of acetic anhydride, and titrate with 0.1 mol/L perchloric acid VS (potentiometric titration). Perform a blank determination.

Each mL of 0.1 mol/L perchloric acid VS
= 21.770 mg of $C_{10}H_{15}NO_2$.HCl

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

Etilefrine Hydrochloride Tablets

塩酸エチレフリン錠

Etilefrine Hydrochloride Tablets contain not less than 93% and not more than 107% of the labeled amount of etilefrine hydrochloride ($C_{10}H_{15}NO_2$.HCl: 217.69).

Method of preparation Prepare as directed under Tablets, with Etilefrine Hydrochloride.

Identification **(1)** To a quantity of powdered Etilefrine Hydrochloride Tablets, equivalent to 5 mg of Etilefrine Hydrochloride according to the labeled amount, add 25 mL of water, and filter. Proceed with 1 mL of the filtrate as directed in the Identification (1) under Etilefrine Hydrochloride.

(2) Dilute 5 mL of the filtrate obtained in (1) with water to make 20 mL. Proceed with 5 mL of this solution as directed in the Identification (2) under Etilefrine Hydrochloride.

(3) To a quantity of powdered Etilefrine Hydrochloride Tablets, equivalent to 5 mg of Etilefrine Hydrochloride according to the labeled amount, add 60 mL of diluted hydrochloric acid (1 in 1000), shake well, add 40 mL of diluted hydrochloric acid (1 in 1000), and filter. Determine the absorption spectrum of the filtrate as directed under the Ultraviolet-visible Spectrophotometry, using diluted hydrochloric

acid (1 in 1000) as the blank: it exhibits a maximum between 271 nm and 275 nm.

Assay Weigh accurately not less than 20 Etilefrine Hydrochloride Tablets, and powder. Weigh accurately a portion of the powder, equivalent to about 5 mg of etilefrine hydrochloride ($C_{10}H_{15}NO_2$.HCl), add 60 mL of diluted hydrochloric acid (1 in 1000), shake for 10 minutes, add diluted hydrochloric acid (1 in 1000) to make exactly 100 mL, and filter. Discard the first 20 mL of the filtrate, and use the subsequent filtrate as the sample solution. Separately, weigh accurately about 0.05 g of etilefrine hydrochloride for assay (previously determine the loss on drying at 105°C for 4 hours), dissolve in diluted hydrochloric acid (1 in 1000) to make exactly 1000 mL, and use this solution as the standard solution. Measure exactly 5 mL each of the sample solution and the standard solution, add exactly 5 mL of acetone and 25 mL of boric acid-potassium chloride-sodium hydroxide buffer solution, pH 9.2, to each solution, cool these solution in ice water below 5°C, add exactly 10 mL each of a solution of 4-nitrobenzenediazonium fluoroborate (1 in 2000) with shaking, and allow to stand for 2 minutes. Further, allow to stand at room temperature for 30 minutes, and add boric acid-potassium chloride-sodium hydroxide buffer solution, pH 9.2, to make exactly 50 mL. Determine the absorbances, A_T and A_S, of the subsequent solutions of the sample solution and the standard solution at 505 nm as directed under the Ultraviolet-visible Spectrophotometry, using a solution, prepared with 5 mL of diluted hydrochloric acid (1 in 1000) in the same manner as the sample solution, as the blank.

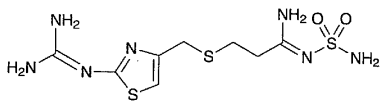
Amount (mg) of etilefrine hydrochloride ($C_{10}H_{15}NO_2$.HCl)
= amount (mg) of etilefrine hydrochloride for assay, calculated on the dried basis

$$\times \frac{A_T}{A_S} \times \frac{1}{10}$$

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

Famotidine

ファモチジン



$C_8H_{15}N_7O_2S_3$: 337.45
N-(1-Amino-3-{[2-(diaminomethyleneamino)-1,3-thiazol-4-yl]methylsulfanyl}propylidene)sulfamide
[*76824-35-6*]

Famotidine, when dried, contains not less than 98.5% of $C_8H_{15}N_7O_2S_3$.

Description Famotidine occurs as white to yellowish white crystals.

It is freely soluble in acetic acid (100), slightly soluble in ethanol (95), and very slightly soluble in water.

It dissolves in 0.5 mol/L hydrochloric acid TS.

It is gradually colored by light.

Melting point: about 164°C (with decomposition).

Identification (1) Determine the absorption spectrum of a solution of Famotidine in 0.05 mol/L potassium dihydrogenphosphate TS (1 in 50,000) as directed under the Ultraviolet-visible Spectrophotometry, and compare the spectrum with the Reference Spectrum: both spectra exhibit similar intensities of absorption at the same wavelengths.

(2) Determine the infrared absorption spectrum of Famotidine, previously dried, 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.

Purity (1) Clarity and color of solution—Dissolve 0.5 g of Famotidine in 10 mL of 0.5 mol/L hydrochloric acid TS: the solution is clear and colorless to pale yellow.

(2) Heavy metals—Proceed with 2.0 g of Famotidine 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) Related substances—Dissolve 0.20 g of Famotidine in 10 mL of acetic acid (100), and use this solution as the sample solution. Pipet 1 mL of the sample solution, and add acetic acid (100) to make exactly 100 mL. Pipet 1 mL, 2 mL and 3 mL of this solution, add acetic acid (100) to make exactly 10 mL, respectively, and use these solutions as the standard solution (1), the standard solution (2) and the standard solution (3). Perform the test with these solutions as directed under the Thin-layer Chromatography. Spot 5 μL each of the sample solution, the standard solutions (1), (2) and (3) on a plate of silica gel (5 to 7 μm) with fluorescent indicator for thin-layer chromatography, and dry in a stream of nitrogen.

Develop the plate with a mixture of ethyl acetate, methanol, toluene and ammonia solution (28) (40:25:20:2) to a distance of about 8 cm, and air-dry the plate. Examine under ultraviolet light (main wavelength: 254 nm): the spots other than the principal spot and other than the spot of the starting point from the sample solution are not more intense than the spot from the standard solution (3). Total intensity of the spots other than the principal spot and other than the spot of the starting point from the sample solution is not more than 0.5% calculated on the basis of intensities of the spots from the standard solution (1) and the standard solution (2) (each spot is equivalent to 0.1% and 0.2%, respectively).

Loss on drying Not more than 0.5% (1 g, in vacuum, phosphorus (V) oxide, 80°C, 4 hours).

Residue on ignition Not more than 0.10% (1 g).

Assay Weigh accurately about 0.3 g of Famotidine, previously dried, dissolve in 50 mL of acetic acid (100), 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
= 16.873 mg of $C_8H_{15}N_7O_2S_3$

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