

retention time of dydrogesterone after the solvent peak.

Loss on drying Not more than 0.5% (0.5 g, in vacuum, phosphorus (V) oxide, 24 hours).

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

Assay Weigh accurately about 0.05 g of Dydrogesterone, previously dried, and dissolve in methanol to make exactly 100 mL. Pipet 1 mL of this solution, and add methanol to make exactly 100 mL. Determine the absorbance A of this solution at the wavelength of maximum absorption at about 286 nm as directed under the Ultraviolet-visible Spectrophotometry.

$$\text{Amount (mg) of } C_{21}H_{28}O_2 = \frac{A}{845} \times 100,000$$

Containers and storage Containers—Tight containers.

Dydrogesterone Tablets

ジドロゲステロン錠

Dydrogesterone Tablets contain not less than 95% and not more than 105% of the labeled amount of dydrogesterone ($C_{21}H_{28}O_2$; 312.45).

Method of preparation Prepare as directed under Tablets, with Dydrogesterone.

Identification (1) To a quantity of powdered Dydrogesterone Tablets, equivalent to 0.05 g of Dydrogesterone according to the labeled amount, add 50 mL of methanol, shake well, and filter. Evaporate 5 mL of the filtrate on a water bath to dryness. Proceed with the residue as directed in the Identification (1) under Dydrogesterone.

(2) To 1 mL of the filtrate obtained in (1) add methanol to make 200 mL. Determine the absorption spectrum of this solution as directed under the Ultraviolet-visible Spectrophotometry: it exhibits a maximum between 284 nm and 288 nm.

Dissolution test Perform the test with 1 tablet of Dydrogesterone Tablets at 50 revolutions per minute according to Method 2 under the Dissolution Test, using 900 mL of water as the test solution. Take 20 mL or more of the dissolved solution 30 minutes after starting the test, and filter. Discard the first 10 mL of the filtrate, and use the subsequent as the sample solution. Separately, weigh accurately about 0.05 g of dydrogesterone for assay, previously dried in a desiccator (in vacuum, phosphorus (V) oxide) for 24 hours, and dissolve in methanol to make exactly 100 mL. Pipet 1 mL of this solution, add water to make exactly 100 mL, and use this solution as the standard solution. Determine the absorbances, A_T and A_S , of the sample solution and the standard solution at 296 nm as directed under the Ultraviolet-visible Spectrophotometry.

The dissolution rate of Dydrogesterone Tablets in 30 minutes is not less than 80%.

Dissolution rate (%) with respect to the labeled amount of dydrogesterone ($C_{21}H_{28}O_2$)

$$= W_S \times \frac{A_T}{A_S} \times \frac{1}{C} \times 9$$

W_S : Amount (mg) of dydrogesterone for assay.

C : Labeled amount (mg) of dydrogesterone ($C_{21}H_{28}O_2$) in 1 tablet.

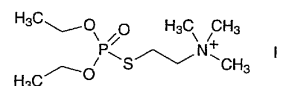
Assay Weigh accurately and powder not less than 20 Dydrogesterone Tablets. Weigh accurately a portion of the powder, equivalent to about 0.01 g of dydrogesterone ($C_{21}H_{28}O_2$), shake well with 50 mL of methanol, and add methanol to make exactly 100 mL. Filter this solution, discard the first 20 mL of the filtrate, pipet the subsequent 5 mL, add methanol to make exactly 100 mL, and use this solution as the sample solution. Separately, weigh accurately about 0.01 g of dydrogesterone for assay, previously dried in a desiccator (in vacuum, phosphorus (V) oxide) for 24 hours, proceed in the same manner as the preparation of the sample solution, and use the solution as the standard solution. Determine the absorbances, A_T and A_S , of the sample solution and the standard solution at 286 nm as directed under the Ultraviolet-visible Spectrophotometry.

$$\begin{aligned} &\text{Amount (mg) of dydrogesterone } (C_{21}H_{28}O_2) \\ &= \text{amount (mg) of dydrogesterone for assay} \\ &\quad \times \frac{A_T}{A_S} \end{aligned}$$

Containers and storage Containers—Tight containers.

Ecothiopate Iodide

ヨウ化エコチオパート



$C_9H_{23}INO_3PS$: 383.23

N-[2-(Diethoxyphosphorylsulfanyl)ethyl]-*N,N,N*-trimethylammonium iodide [513-10-0]

Ecothiopate Iodide contains not less than 95.0% of $C_9H_{23}INO_3PS$, calculated on the dried basis.

Description Ecothiopate Iodide occurs as white crystals or crystalline powder.

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

Identification (1) Dissolve 0.1 g of Ecothiopate Iodide in 2 mL of water, and add 1 mL of nitric acid: a brown precipitate is formed. To 1 drop of the turbid solution containing this precipitate add 1 mL of hexane, and shake: a light red color develops in the hexane layer.

(2) Heat the suspension of the precipitate obtained in (1) until it becomes colorless, cool, add 10 mL of water, and use this solution as the sample solution. Two mL of the sample solution responds to the Qualitative Tests (2) for phosphate.

(3) Two mL of the sample solution obtained in (2) responds to the Qualitative Tests for sulfate.

pH Dissolve 0.1 g of Ecothiopate Iodide in 40 mL of water: the pH of this solution is between 3.0 and 5.0.

Melting point 116–122°C

Purity (1) Clarity and color of solution—Dissolve 0.5 g of Ecothiopate Iodide in 5 mL of water: the solution is clear and colorless.

(2) Heavy metals—To 1.0 g of Ecothiopate Iodide in a Kjeldahl flask add 5 mL of nitric acid and 2 mL of sulfuric acid, put a small funnel on the mouth of the flask, and heat carefully until white fumes are evolved. After cooling, add 2 mL of nitric acid, and heat. Repeat this procedure twice, add several 2-mL portions of hydrogen peroxide (30), and heat until the solution becomes colorless, and white fumes are evolved. After cooling, transfer the solution together with a small quantity of water to a Nessler tube, and add water to make about 20 mL. Adjust the solution with ammonia solution (28) and ammonia TS to a pH between 3.0 and 3.5, add water to make 50 mL, and use this solution as the test solution. Prepare the control solution as follows: proceed in the same manner as the preparation of the test solution, and add 2.0 mL of Standard Lead Solution and water to make 50 mL (not more than 20 ppm).

(3) Related substances—Dissolve 0.20 g of Ecothiopate Iodide in 10 mL of methanol, and use this solution as the sample solution. Pipet 3 mL of the sample solution, add methanol 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 μ L each of the sample solution and the standard solution on a plate of cellulose for thin-layer chromatography. Develop the plate with a mixture of 1-butanol, water and acetic acid (100) (4:2:1) to a distance of about 10 cm, and air-dry the plate. Spray evenly Dragendorff's TS for spraying on the plate: the spots other than the principal spot from the sample solution are not more intense than the spot from the standard solution.

Loss on drying Not more than 1.0% (1 g, in vacuum, phosphorus (V) oxide, 50°C, 3 hours).

Assay Weigh accurately about 0.125 g of Ecothiopate Iodide, and dissolve in water to make exactly 100 mL. Pipet 10 mL of this solution, add 30 mL of water, then add exactly 10 mL of phosphate buffer solution, pH 12, stopper the container, and allow to stand at $25 \pm 3^\circ\text{C}$ for 20 minutes. To this solution add quickly 2 mL of acetic acid (100), and titrate with 0.002 mol/L iodine VS (potentiometric titration). Perform the test in the same manner without phosphate buffer solution, pH 12, and make any necessary correction.

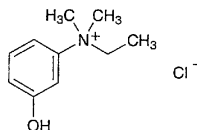
Each mL of 0.002 mol/L iodine VS
= 1.533 mg of $\text{C}_9\text{H}_{23}\text{INO}_3\text{PS}$

Containers and storage Containers—Tight containers.

Storage—Light-resistant, and not exceeding 0°C.

Edrophonium Chloride

塩化エドロホニウム



$\text{C}_{10}\text{H}_{16}\text{ClNO}$: 201.69

N-Ethyl-*N*-(3-hydroxyphenyl)-*N,N*-dimethylammonium chloride [116-38-1]

Edrophonium Chloride, when dried, contains not less than 98.0% of $\text{C}_{10}\text{H}_{16}\text{ClNO}$.

Description Edrophonium Chloride occurs as white crystals or crystalline powder. It is odorless.

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

It is hygroscopic.

It is gradually colored by light.

Identification (1) To 5 mL of a solution of Edrophonium Chloride (1 in 100) add 1 drop of iron (III) chloride TS: a light red-purple color develops.

(2) Determine the absorption spectrum of a solution of Edrophonium Chloride in 0.1 mol/L hydrochloric acid TS (1 in 20,000) as directed under the Ultraviolet-visible Spectrophotometry, and compare the spectrum with the Reference Spectrum or the spectrum of a solution of Edrophonium Chloride Reference Standard prepared in the same manner as the sample solution: both spectra exhibit similar intensities of absorption at the same wavelengths.

(3) A solution of Edrophonium Chloride (1 in 50) responds to the Qualitative Tests for chloride.

pH Dissolve 1.0 g of Edrophonium Chloride in 10 mL of water: the pH of this solution is between 3.5 and 5.0.

Melting point 166 – 171°C (with decomposition).

Purity (1) Clarity and color of solution—Dissolve 1.0 g of Edrophonium Chloride in 10 mL of water: the solution is clear and colorless.

(2) Heavy metals—Proceed with 1.0 g of Edrophonium Chloride according to Method 1, and perform the test. Prepare the control solution with 2.0 mL of Standard Lead Solution (not more than 20 ppm).

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

(4) Related substances—Dissolve 0.50 g of Edrophonium Chloride in 10 mL of ethanol (95), and use this solution as the sample solution. Pipet 1 mL of the sample solution, and add ethanol (95) to make exactly 100 mL. Pipet 3 mL of this solution, add ethanol (95) to make exactly 10 mL, and use this solution as the standard solution. Perform the test with these solutions as directed under the Thin-layer Chromatography. Spot 10 μ L 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 methanol, chloroform and ammonia solution (28) (16:4:1) 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.

Loss on drying Not more than 0.20% (1 g, in vacuum, phosphorus (V) oxide, 3 hours)

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

Assay Weigh accurately about 0.2 g of Edrophonium