

roform. Filter the combined chloroform extracts into a conical flask, and wash the filter paper with three 5-mL portions of chloroform. Combine the filtrate and the washings, and add 10 mL of ethanol (95). Titrate with 0.1 mol/L potassium hydroxide-ethanol VS until the color of the solution changes from yellow through light blue to purple (indicator: 2 mL of alizarin yellow GG-thymolphthalein TS). Perform a blank determination with a mixture of 160 mL of chloroform and 30 mL of ethanol (95), and make any necessary correction.

Each mL of 0.1 mol/L potassium hydroxide-ethanol VS = 26.432 mg of  $C_{11}H_{17}N_2NaO_2S$

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

## Thiopental Sodium for Injeciton

注射用チオペンタールナトリウム

Thiopental Sodium for Injection is a preparation for injection which is dissolved before use. It contains not less than 93% and not more than 107% of the labeled amount of thiopental sodium ( $C_{11}H_{17}N_2NaO_2S$ ; 264.32).

**Method of preparation** Prepare as directed under Injections, with 100 parts of Thiopental Sodium and 6 parts of Dried Sodium Carbonate in mass.

**Description** Thiopental Sodium for Injection is a light yellow powder or mass, and has a slight, characteristic odor.

It is very soluble in water, and practically insoluble in dehydrated diethyl ether.

It is hygroscopic.

**Identification** (1) Dissolve 0.1 g of Thiopental Sodium for Injection in 10 mL of water, and add 0.5 mL of barium chloride TS: a white precipitate is formed. Collect the precipitate, and add dilute hydrochloric acid dropwise: the precipitate dissolves with effervescence.

(2) Proceed as directed in the Identification under Thiopental Sodium.

**pH** Dissolve 1 g of Thiopental Sodium for Injection in 40 mL of water: the pH of this solution is between 10.2 and 11.2.

**Purity** Proceed as directed in the Purity under Thiopental Sodium.

**Loss on drying** Not more than 2.0% (1 g, in vacuum, 80°C, 4 hours).

**Sterility** Perform the test according to the Membrane filtration method: it meets the requirements of the Sterility Test.

**Assay** Take 10 samples of Thiopental Sodium for Injection, and open each container carefully. Dissolve each content with water, wash each container with water, combine the washings with the former solution, and add water to make exactly 1000 mL. Pipet 10 mL of this solution, and add water to make exactly 100 mL. Measure exactly a volume ( $V$  mL) of this solution, equivalent to about 0.015 g of thiopental sodium ( $C_{11}H_{17}N_2NaO_2S$ ), and add water to

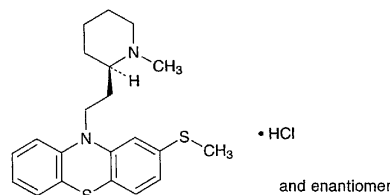
make exactly 1000 mL. Pipet 10 mL of this solution, add 15 mL of diluted dilute sodium hydroxide TS (1 in 100), add water to make exactly 30 mL, and use this solution as the sample solution. Separately, weigh accurately about 0.046 g of thiopental for assay, previously dried at 105°C for 3 hours, dissolve in 50 mL of dilute sodium hydroxide TS, and add water to make exactly 200 mL. Pipet 2 mL of this solution, add water to make exactly 100 mL, and use this solution as the standard solution. Perform the test with the sample solution and the standard solution as directed under the Ultraviolet-visible Spectrophotometry, and determine the absorbances,  $A_T$  and  $A_S$ , at 304 nm.

$$\begin{aligned} & \text{Amount (mg) of thiopental sodium (C}_{11}\text{H}_{17}\text{N}_2\text{NaO}_2\text{S)} \\ & \text{in each sample of Thiopental Sodium for Injection} \\ & = \text{amount (mg) of thiopental sodium for assay} \\ & \times \frac{A_T}{A_S} \times \frac{300}{V} \times 1.0907 \end{aligned}$$

**Containers and storage** Containers—Hermetic containers. Storage—Light-resistant.

## Thioridazine Hydrochloride

塩酸チオリダジン



$C_{21}H_{26}N_2S_2 \cdot HCl$ : 407.04  
10-{2-[(*RS*)-1-Methylpiperidin-2-yl]ethyl}-2-methylsulfonylphenothiazine monohydrochloride  
[130-61-0]

Thioridazine Hydrochloride, when dried, contains not less than 99.0% of  $C_{21}H_{26}N_2S_2 \cdot HCl$ .

**Description** Thioridazine Hydrochloride occurs as a white to pale yellow, crystalline powder. It is odorless, and has a bitter taste.

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

The pH of a solution of Thioridazine Hydrochloride (1 in 100) is between 4.2 and 5.2.

It is gradually colored by light.

**Identification** (1) Dissolve 0.01 g of Thioridazine Hydrochloride in 2 mL of sulfuric acid: a deep blue color develops.

(2) Dissolve 0.01 g of Thioridazine Hydrochloride in 2 mL of water, and add 1 drop of cerium (IV) tetraammonium sulfate TS: a blue color develops, and the color disappears on the addition of excess of the reagent.

(3) Determine the infrared absorption spectrum of Thioridazine Hydrochloride, previously dried, as directed in the potassium chloride disk method under the Infrared Spectrophotometry, and compare the spectrum with the Refer-

ence Spectrum: both spectra exhibit similar intensities of absorption at the same wave numbers.

(4) To 5 mL of a solution of Thioridazine Hydrochloride (1 in 100) add 2 mL of ammonia TS, and heat on a water bath for 5 minutes. After cooling, filter, and acidify the filtrate with dilute nitric acid: the solution responds to the Qualitative Tests (2) for chloride.

**Melting point** 159 – 164°C

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

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

(3) Related substances—Conduct this procedure under the protection from the sunlight. Dissolve 0.10 g of Thioridazine Hydrochloride in 10 mL of methanol, and use this solution as the sample solution. Pipet 1 mL of the sample solution, and add methanol to make exactly 20 mL. Pipet 2 mL of this solution, add methanol 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 5 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 chloroform, 2-propanol and ammonia solution (28) (74:25:1) to a distance of about 10 cm, and air-dry the plate. Examine the plate 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 0.5% (1 g, 105°C, 4 hours).

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

**Assay** Weigh accurately about 0.35 g of Thioridazine Hydrochloride, previously dried, dissolve in 80 mL of a mixture of acetic anhydride and acetic acid (100) (1:1), and titrate with 0.1 mol/L perchloric acid VS (potentiometric titration). Perform a blank determination, and make any necessary correction.

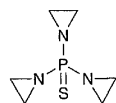
Each mL of 0.1 mol/L perchloric acid VS  
= 40.70 mg of C<sub>21</sub>H<sub>26</sub>N<sub>2</sub>S<sub>2</sub>·HCl

**Containers and storage** Containers—Tight containers.

Storage—Light-resistant.

## Thiotepa

チオテパ



C<sub>6</sub>H<sub>12</sub>N<sub>3</sub>PS: 189.22

Tris(aziridin-1-yl)phosphine sulfate [52-24-4]

Thiotepa, when dried, contains not less than 98.0% of C<sub>6</sub>H<sub>12</sub>N<sub>3</sub>PS.

**Description** Thiotepa occurs as colorless or white crystals, or white, crystalline powder. It is odorless.

It is freely soluble in water, in ethanol (95) and in diethyl ether.

A solution of Thiotepa (1 in 10) is neutral.

**Identification (1)** To 5 mL of a solution of Thiotepa (1 in 100) add 1 mL of hexaammonium heptamolybdate TS, and allow to stand: a dark blue color develops slowly when the solution is cold, or quickly when warm.

(2) To 5 mL of a solution of Thiotepa (1 in 100) add 1 mL of nitric acid: this solution responds to the Qualitative Tests (2) for phosphate.

(3) Dissolve 0.1 g of Thiotepa in a mixture of 1 mL of lead (II) acetate TS and 10 mL of sodium hydroxide TS, and boil: the gas evolved changes moistened red litmus paper to blue, and the solution shows a grayish red color.

**Melting point** 52 – 57°C

**Purity (1) Clarity and color of solution**—Dissolve 1.0 g of Thiotepa in 20 mL of water: the solution is clear and colorless.

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

(3) Arsenic—Dissolve 0.20 g of Thiotepa in 5 mL of water, and add 1 mL of nitric acid and 1 mL of sulfuric acid. Take this solution, prepare the test solution according to Method 2, and perform the test using Apparatus B (not more than 10 ppm).

**Loss on drying** Not more than 0.20% (1 g, in vacuum, silica gel, 4 hours).

**Residue on ignition** Not more than 0.10% (1 g, platinum crucible).

**Assay** Weigh accurately about 0.1 g of Thiotepa, previously dried, dissolve in 50 mL of a solution of potassium thiocyanate (3 in 20), add 25 mL of 0.05 mol/L sulfuric acid VS, exactly measured, and allow to stand for 20 minutes with occasional shaking. Titrate the excess sulfuric acid with 0.1 mol/L sodium hydroxide VS until the color of the solution changes from red to light yellow (indicator: 3 drops of methyl red TS). Perform a blank determination.

Each mL of 0.05 mol/L sulfuric acid VS  
= 6.307 mg of C<sub>6</sub>H<sub>12</sub>N<sub>3</sub>PS

**Containers and storage** Containers—Tight containers.

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

## L-Threonine

L-トレオニン

