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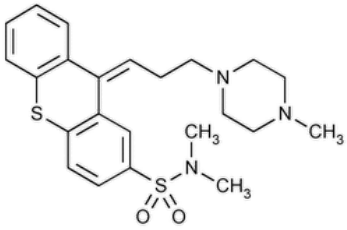
Thiothixene



$C_{23}H_{29}N_3O_2S_2$ 443.63

9*H*-Thioxanthene-2-sulfonamide, *N*,*N*-dimethyl-9-[3-(4-methyl-1-piperazinyl)propylidene]-, (*Z*)-.

N,*N*-Dimethyl-9-[3-(4-methyl-1-piperazinyl)propylidene]thioxanthene-2-sulfonamide CAS RN®: 5591-45-7; .3313-26-6.

» Thiothixene contains not less than 96.0 percent and not more than 101.5 percent of $C_{23}H_{29}N_3O_2S_2$, calculated on the dried basis.

Packaging and storage—Preserve in tight, light-resistant containers.

USP Reference standards ⟨11⟩—

USP Thiothixene RS
USP (*E*)-Thiothixene RS

Identification—

A: *Spectroscopic Identification Tests* ⟨197⟩*, Infrared Spectroscopy: 197S*—

Solution: 1 in 20.

Medium: chloroform.

B: *Spectroscopic Identification Tests* ⟨197⟩*, Ultraviolet-Visible Spectroscopy: 197U*—

Solution: 10 µg per mL.

Medium: methanol.

Absorptivities at about 230 nm and 307 nm, calculated on the dried basis, do not differ by more than 4.0%.

Melting range, *Class I* ⟨741⟩: between 147° and 153.5°.

Loss on drying ⟨731⟩—Dry it in vacuum at 100° for 3 hours: it loses not more than 2.0% of its weight.

Residue on ignition ⟨281⟩: not more than 0.2%.

Change to read:

▲**Selenium** ⟨291⟩*, Procedures, Procedure 1*▲ (CN 1-Jun-2023): 0.003%.

Limit of (*E*)-thiothixene—[Note—Prepare all solutions in low-actinic glassware.]

Mobile phase—Transfer 6.9 g of monobasic sodium phosphate to a 1-liter volumetric flask, dissolve in and dilute with deionized water to volume, and mix. Filter through a suitable membrane filter. Mix 4 volumes of this solution with 6 volumes of methanol. The concentration of methanol may be adjusted to meet the system suitability requirements.

Standard preparations—

A—Using accurately weighed quantities of USP (*E*)-Thiothixene RS and USP Thiothixene RS, prepare a solution in methanol containing, in each mL, 0.4 mg and 1.2 mg, respectively.

B—Transfer 5.0 mL of *Standard preparation A* to a 100-mL volumetric flask, dilute with methanol to volume, and mix.

C—Transfer about 200 mg of Thiothixene, accurately weighed, to a 100-mL volumetric flask. Transfer 5.0 mL of *Standard preparation A* to the same flask, dissolve in and dilute with methanol to volume, and mix.

Test preparation—Transfer about 200 mg of Thiothixene, accurately weighed, to a 100-mL volumetric flask. Dissolve in methanol, dilute with methanol to volume, and mix.

Procedure—Concomitantly introduce equal volumes (about 20 µL) of *Standard preparation C* and *Test preparation* into a high-pressure liquid chromatograph operated at room temperature and equipped with a suitable microsyringe or sampling valve, a column containing packing L9 (typically 25 cm × 4.6 mm), an UV detector capable of monitoring absorption at 254 nm, and a suitable recorder. The *Mobile phase* is maintained at a flow rate of about 1 to 1.5 mL per minute. In a suitable chromatographic system, three replicate injections of *Standard preparation B* show a resolution factor of not less than 2.2 between the thiothixene and (*E*)-thiothixene peaks, their retention times being 13 and 15 minutes, and between 16 and 18 minutes, respectively. Calculate the quantity, in mg, of (*E*)-thiothixene in the portion of Thiothixene taken by the formula:

$$5CH_U/(H_C - H_U)$$

in which *C* is the concentration of USP (*E*)-Thiothixene RS, in mg per mL, in *Standard preparation A;* and H_C and H_U are the peak responses of the (*E*)-thiothixene peaks corrected for the tailing of the main peak, obtained from *Standard preparation C* and the *Test preparation*, respectively: the limit of (*E*)-thiothixene is 1.0%.

Assay—[NOTE—Perform the dilution operations in low-actinic glassware.]

Mobile phase—Mix 0.5 mL of ethanolamine with 3780 mL of methanol, mix 1400 mL of this solution with 200 mL of water, filter, and degas. Make adjustments if necessary (see *System Suitability* under *Chromatography ⟨621⟩*).

Standard preparation—Using an accurately weighed quantity of USP Thiothixene RS, prepare a solution in methanol having a known concentration of about 0.02 mg per mL.

Assay preparation—Transfer about 100 mg of Thiothixene, accurately weighed, to a 100-mL volumetric flask, dissolve in and dilute with methanol to volume, and mix. Pipet 2 mL of the resulting solution into a 100-mL volumetric flask, dilute with methanol to volume, and mix.

Chromatographic system (see *Chromatography ⟨621⟩*)—The liquid chromatograph is equipped with a 254-nm detector and a 3.9-mm × 30-cm column that contains packing L3. The flow rate is about 0.5 mL per minute. Chromatograph the *Standard preparation*, and record the peak responses as directed for *Procedure:* the column efficiency determined from the analyte peak is not less than 2000 theoretical plates, and the relative standard deviation for replicate injections is not more than 1.5%.

Procedure—Separately inject equal volumes (about 20 µL) of the *Standard preparation* and the *Assay preparation* into the chromatograph, record the chromatograms, and measure the responses for the major peaks. Calculate the quantity, in mg, of $C_{23}H_{29}N_3O_2S_2$ in the portion of Thiothixene taken by the formula:

$$5000C(r_U/r_S)$$

in which *C* is the concentration, in mg per mL, of USP Thiothixene RS in the *Standard preparation*, and r_U and r_S are the peak responses obtained from the *Assay preparation* and the *Standard preparation*, respectively.

Auxiliary Information - Please check for your question in the FAQs before contacting USP.

Topic/Question	Contact	Expert Committee
THIOTHIXENE	Documentary Standards Support	SM42020 Small Molecules 4
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM42020 Small Molecules 4

Chromatographic Database Information: Chromatographic Database

Most Recently Appeared In:
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