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Nitromersol Topical Solution

DEFINITION
Nitromersol Topical Solution yields NLT 180.0 mg and NMT 220.0 mg of nitromersol ($C_7H_5HgNO_3$) in each 100 mL.

Nitromersol	2 g
Sodium Hydroxide	0.4 g
Sodium Carbonate, Monohydrate	4.25 g
Purified Water, a sufficient quantity to make	1000 mL

Dissolve the *Sodium Hydroxide* and the *Sodium Carbonate, Monohydrate* in 50 mL of *Purified Water*. Add the *Nitromersol*, and stir until dissolved. Gradually add *Purified Water* to make 1000 mL.

[NOTE—Prepare dilutions of Nitromersol Topical Solution as needed, because they tend to precipitate upon standing.]

IDENTIFICATION

- **A.**

  Sample: 100 mL

  Analysis: Add 3 mL of 3 N hydrochloric acid to the *Sample*.

  Acceptance criteria: A yellowish precipitate is formed. Filter, and retain both the filtrate and the precipitate.

- **B.**

  Sample: The precipitate obtained from *Identification* test *A*

  Analysis: Add the *Sample* to 20 mL of water and 2.5 mL of 1 N sodium hydroxide. Add 500 mg of sodium hydrosulfite, and heat to boiling.

  Acceptance criteria: A heavy deposit of metallic mercury is formed.

ASSAY

- **PROCEDURE**

  Sample: 50.0 mL of Topical Solution

  Titrimetric system

  Mode: Direct titration

  Titrant: 0.1 N ammonium thiocyanate VS

  Endpoint detection: Visual

  Analysis: Transfer the *Sample* to a 500-mL Kjeldahl flask, add a few glass beads, and evaporate to 5 mL. Add 15 mL of sulfuric acid, digest cautiously with occasional swirling over a flame until the solution becomes a clear, light yellowish brown. Cool, and add, dropwise, enough 30% hydrogen peroxide to decolorize the solution. Digest for 2–3 min, adding more hydrogen peroxide, if necessary, to produce a colorless solution. Cool, dilute with water to 100 mL, and add potassium permanganate TS until a permanent pink color persists on heating. Then add hydrogen peroxide TS, dropwise, until the color is completely discharged. Cool, and add 5 mL of nitric acid that has been diluted with 10 mL of water. Add 5 mL of ferric ammonium sulfate TS, and titrate with *Titrant*. Each mL of *Titrant* is equivalent to 17.59 mg of nitromersol ($C_7H_5HgNO_3$).

  Acceptance criteria: 180.0–220.0 mg of nitromersol ($C_7H_5HgNO_3$) in each 100 mL

SPECIFIC TESTS

- **SPECIFIC GRAVITY ⟨841⟩:** 1.005–1.010
- **MERCURY IONS**

  Sample: The filtrate obtained from *Identification* test *A*

Analysis: To the *Sample* add an equal volume of hydrogen sulfide TS.

Acceptance criteria: No darkening in color is produced, although a small amount of a flocculent, light yellow precipitate may be formed.

ADDITIONAL REQUIREMENTS

• **Packaging and Storage:** Package in tight, light-resistant containers.

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

Topic/Question	Contact	Expert Committee
NITROMERSOL TOPICAL SOLUTION	Brian Serumaga Science Program Manager	CMP2020 Compounding 2020
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	CMP2020 Compounding 2020

Chromatographic Database Information: Chromatographic Database

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