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Phenylmercuric Nitrate

Mercury, (nitrato-*O*)phenyl-;
Nitratophenylmercury
CAS RN®: 55-68-5.

DEFINITION

Phenylmercuric Nitrate is a mixture of phenylmercuric nitrate and phenylmercuric hydroxide containing NLT 87.0% and NMT 87.9% of phenylmercuric ion ($C_6H_5Hg^+$), and NLT 62.75% and NMT 63.50% of mercury (Hg).

IDENTIFICATION

- **A.**
  Sample: 0.1 g
  Analysis: To the *Sample* add 3 mL of sulfuric acid.
  Acceptance criteria: The mixture becomes yellow, and the characteristic odor of nitrobenzene is evolved.
- **B.**
  Sample solution: Saturated solution in water
  Analysis: To 5 mL of the *Sample solution* add 1 mL of 3 N hydrochloric acid.
  Acceptance criteria: A white precipitate is formed.
- **C.**
  Sample solution: Saturated solution in water
  Analysis: To 5 mL of the *Sample solution* add 5 mL of ammonium sulfide TS.
  Acceptance criteria: There is no reaction in the cold, but upon heating in a boiling water bath for 10 min, a black precipitate is formed.

ASSAY

- **Phenylmercuric Ions**
  Sample: 200 mg
  Analysis: Dissolve the *Sample* in 90 mL of water and 10 mL of nitric acid. Add 2 mL of ferric ammonium sulfate TS. Titrate with 0.05 N ammonium thiocyanate VS. Each mL of 0.05 N ammonium thiocyanate is equivalent to 13.88 mg of phenylmercuric ion ($C_6H_5Hg^+$).
  Acceptance criteria: 87.0%–87.9% of phenylmercuric ion
- **Mercury**
  Sample solution: Transfer 400 mg of Phenylmercuric Nitrate to a 100-mL flask. Add 15 mL of water, 5 mL of formic acid, and 1 g of zinc dust, and reflux for 30 min. Cool. Filter, and wash the filter paper and the amalgam with water until the washings are no longer acid to litmus. Dissolve the amalgam in 40 mL of 8 N nitric acid. Heat on a steam bath for 3 min, then add 0.5 g of urea and enough potassium permanganate TS to produce a permanent pink color. Cool. Decolorize the solution with hydrogen peroxide TS, and add 1 mL of ferric ammonium sulfate TS.
  Analysis: Titrate with 0.1 N ammonium thiocyanate VS. Each mL of 0.1 N ammonium thiocyanate is equivalent to 10.03 mg of Hg.
  Acceptance criteria: 62.75%–63.50% of mercury

IMPURITIES

- **Residue on Ignition (281):** NMT 0.1%

SPECIFIC TESTS

- **Mercury Ions**

Sample solution: Saturated solution in water

Analysis: To 5 mL of the *Sample solution* add 5 mL of 1 N sodium hydroxide.

Acceptance criteria: No yellow precipitate is formed (mercuric ions), and the solution does not darken (mercurous ions).

ADDITIONAL REQUIREMENTS

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

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

Topic/Question	Contact	Expert Committee
PHENYLMERCURIC NITRATE	Documentary Standards Support	SE2020 Simple Excipients
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SE2020 Simple Excipients

Chromatographic Database Information: Chromatographic Database

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