Edition: BP 2025 (Ph. Eur. 11.6 update)

Phenylmercuric Nitrate

General Notices

(Ph. Eur. monograph 0783)

Action and use

Antiseptic; antimicrobial preservative.

Ph Eur

DEFINITION

Mixture of phenylmercuric nitrate ($C_6H_5HgNO_3$; M_r 339.7) and phenylmercuric hydroxide (C_6H_5HgOH; M_r 294.7).

Content

62.5 per cent to 64.0 per cent of Hg (A_r 200.6) (dried substance).

CHARACTERS

Appearance

White or pale yellow powder.

Solubility

Very slightly soluble in water and in ethanol (96 per cent), slightly soluble in hot water. It dissolves in glycerol and in fatty oils.

IDENTIFICATION

A. To 5 mL of solution S (see Tests) add 8 mL of *water R* and 0.1 mL of *sodium sulfide solution R*. A white precipitate is formed that darkens slowly on heating.
B. To 1 mL of a saturated solution of the substance to be examined add 1 mL of *dilute hydrochloric acid R*. A white, flocculent precipitate is formed.
C. To 5 mL of solution S add 1 mL of *dilute hydrochloric acid R*, 2 mL of *methylene chloride R* and 0.2 mL of *dithizone solution R*. Shake. The lower layer is orange-yellow.
D. About 10 mg gives the reaction of nitrates (*2.3.1*).

TESTS

Solution S

To 0.1 g add 45 mL of *water R* and heat to boiling with shaking. Cool, filter and dilute to 50 mL with *water R*.

Appearance of solution

Solution S is colourless (*2.2.2, Method II*).

Inorganic mercuric compounds

Maximum 0.1 per cent.

To 10 mL of solution S add 2 mL of *potassium iodide solution R* and 3 mL of *dilute hydrochloric acid R*. Filter. The filtrate is colourless. Wash the precipitate with 2 mL of *water R*. Combine the filtrate and washings, add 2 mL of *dilute sodium hydroxide solution R* and dilute to 20 mL with *water R*. 12 mL of the solution complies with test A for heavy metals (*2.4.8*). Prepare the reference solution using *lead standard solution (1 ppm Pb) R*.

Loss on drying (*2.2.32*)

Maximum 1.0 per cent, determined on 1.000 g by drying *in vacuo* for 24 h.

ASSAY

Dissolve 0.150 g in a mixture of 10 mL of *dilute nitric acid R* and 90 mL of *water R*, heating to boiling. Cool to 15-20 °C. Titrate with *0.1 M ammonium thiocyanate* using 2 mL of *ferric ammonium sulfate solution R2* as indicator, until a persistent reddish-yellow colour is obtained. Carry out a blank titration.

1 mL of *0.1 M ammonium thiocyanate* is equivalent to 20.06 mg of Hg.

STORAGE

Protected from light.
