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

# Heavy Bismuth Subnitrate

General Notices

*(Ph. Eur. monograph 1494)*

$4[BiNO_3(OH)_2],BiO(OH)$ 1462 *1304-85-4*

Ph Eur

## DEFINITION

Bismuth hydroxide nitrate oxide.

### Content

71.0 per cent to 74.0 per cent of Bi ($A_r$ 209.0) (dried substance).

## CHARACTERS

### Appearance

White or almost white powder.

### Solubility

Practically insoluble in water and in ethanol (96 per cent). It dissolves in mineral acids with decomposition.

## IDENTIFICATION

A. Dilute 1 mL of solution S (see Tests) to 5 mL with *water R* and add 0.3 mL of *potassium iodide solution R*. A black precipitate is formed which dissolves into an orange solution with the addition of 2 mL of *potassium iodide solution R*.
B. It gives reaction (b) of bismuth (*2.3.1*).
C. It gives the reaction of nitrates (*2.3.1*).
D. pH (*2.2.3*): maximum 2.0.

Place 1.00 g in a 20 mL volumetric flask and add 2.0 mL of *lead-free nitric acid R*. Allow acid attack to take place without heating and if necessary warm slightly at the end to completely dissolve the test sample. Add 10 mL of *water R*, shake and add, in small fractions, 4.5 mL of *lead-free ammonia R*; shake and allow to cool. Dilute to 20.0 mL with *water R*, shake again and allow the solids to settle. Use the supernatant.

## TESTS

### Solution S

Shake 5.0 g with gentle heating in 10 mL of *water R* and add 20 mL of *nitric acid R*. Heat until dissolution, cool and dilute to 100 mL with *water R*.

**Acidity**

Suspend 1.0 g in 15 mL of *water R* and shake several times. Allow to stand for 5 min and filter. To 10 mL of the filtrate, add 0.5 mL of *phenolphthalein solution R1*. Not more than 0.5 mL of *0.1 M sodium hydroxide* is required to change the colour of the indicator to pink.

**Chlorides** (*2.4.4*)

Maximum 200 ppm.

To 5.0 mL of solution S, add 3 mL of *nitric acid R* and dilute to 15 mL with *water R*.

**Substances not precipitated by ammonia**

Maximum 1.0 per cent.

To 20 mL of solution S, add *concentrated ammonia R* until an alkaline reaction is produced and filter. Wash the residue with *water R*, and evaporate the combined filtrate and washings to dryness on a water-bath. To the residue, add 0.3 mL of *dilute sulfuric acid R* and ignite. The residue weighs a maximum of 10 mg.

**Loss on drying** (*2.2.32*)

Maximum 3.0 per cent, determined on 1.000 g by drying in an oven at 105 °C.

## ASSAY

Dissolve with heating 0.250 g in 10 mL of a mixture of 2 volumes of *perchloric acid R* and 5 volumes of *water R*. To the hot solution, add 200 mL of *water R* and 50 mg of *xylenol orange triturate R*. Titrate with *0.1 M sodium edetate* until a yellow colour is obtained.

1 mL of *0.1 M sodium edetate* is equivalent to 20.90 mg of Bi.

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