



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

Barium Sulfate



[General Notices](#)

(Ph. Eur. monograph 0010)

BaSO₄ 233.4 7727-43-7

Action and use

Radio-opaque substance used in the investigation of the gastro-intestinal tract.

Preparation

[Barium Sulfate for Suspension](#)

Ph Eur

CHARACTERS

Appearance

Fine, white or almost white powder, free from gritty particles.

Solubility

Practically insoluble in water and in organic solvents. It is very slightly soluble in acids and in solutions of alkali hydroxides.

IDENTIFICATION

- A. Boil a suspension of 0.2 g with 5 mL of a 500 g/L solution of [sodium carbonate R](#) for 5 min, add 10 mL of [water R](#), filter and acidify a part of the filtrate with [dilute hydrochloric acid R](#). The solution gives the reactions of sulfates ([2.3.1](#)).
- B. Wash the residue collected in the preceding test with 3 successive small quantities of [water R](#). To the residue add 5 mL of [dilute hydrochloric acid R](#), filter and add to the filtrate 0.3 mL of [dilute sulfuric acid R](#). A white precipitate is formed that is insoluble in [dilute sodium hydroxide solution R](#).

TESTS

Solution S

To 20.0 g add 40 mL of [distilled water R](#) and 60 mL of [dilute acetic acid R](#). Boil for 5 min, filter and dilute the cooled filtrate to 100 mL with [distilled water R](#).

Acidity or alkalinity

Heat 5.0 g with 20 mL of [carbon dioxide-free water R](#) on a water-bath for 5 min and filter. To 10 mL of the filtrate add 0.05 mL of [bromothymol blue solution R1](#). Not more than 0.5 mL of [0.01 M hydrochloric acid](#) or [0.01 M sodium hydroxide](#) is required to change the colour of the indicator.

Acid-soluble substances

Maximum 0.3 per cent.

Evaporate 25 mL of solution S to dryness on a water-bath and dry to constant mass at 100-105 °C. The residue weighs a maximum of 15 mg.

Oxidisable sulfur compounds

Shake 1.0 g with 5 mL of [water R](#) for 30 s and filter. To the filtrate add 0.1 mL of [starch solution R](#), dissolve 0.1 g of [potassium iodide R](#) in the mixture, add 1.0 mL of a freshly prepared 3.6 mg/L solution of [potassium iodate R](#) and 1 mL of [1 M hydrochloric acid](#) and shake well. The colour of the solution is more intense than that of a standard prepared at the same time and in the same manner, but omitting the potassium iodate.

Soluble barium salts

Maximum 10 ppm.

To 2.5 mL of a 0.2 mg/L solution of [barium nitrate R](#) in a mixture of 30 volumes of [ethanol \(96 per cent\) R](#) and 70 volumes of [water R](#), add 10 mL of [dilute sulfuric acid R](#). Shake and allow to stand for 5 min. To 1 mL of this solution add 10 mL of solution S. Prepare a standard in the same manner using 10 mL of [barium standard solution \(2 ppm Ba\) R](#) instead of solution S.

After 10 min, any opalescence in the test solution is not more intense than that in the standard.

Loss on ignition

Maximum 2.0 per cent, determined on 1.0 g at 600 ± 50 °C.

Ph Eur