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Barium Sulfate Tablets

DEFINITION

Barium Sulfate Tablets are flat-sided disks between 11.5 mm and 13.5 mm in diameter and contain NLT 90.0% and NMT 110.0% of the labeled amount of barium sulfate ($BaSO_4$).

IDENTIFICATION

• **A. Identification Tests—General, *Sulfate*⟨191⟩**

Sample: A portion of powdered Tablets equivalent to 0.6 g of barium sulfate

Analysis: Mix the *Sample* with 2 g each of anhydrous sodium carbonate and anhydrous potassium carbonate, heat the mixture in a crucible until fusion is complete, treat the resulting fused mass with hot water, and filter. Proceed as directed in the chapter.

Acceptance criteria: The filtrate, acidified with hydrochloric acid, meets the requirements.

• **B. Identification Tests—General, *Barium*⟨191⟩**

Sample solution: Dissolve a portion of the well-washed residue from *Identification* test *A* in 6 N acetic acid.

Acceptance criteria: The solution meets the requirements.

ASSAY

• **Procedure**

Sample: A portion of powdered Tablets, equivalent to 0.6 g of barium sulfate, weighed in a tared platinum crucible

Analysis: Add 10 g of anhydrous sodium carbonate to the crucible, and mix by rotating the crucible. Fuse over a blast burner until a clear melt is obtained, and heat for an additional 30 min. Cool, place the crucible in a 400-mL beaker, add 250 mL of water, stir with a glass rod, and heat to dislodge the melt. Remove the crucible from the beaker, and wash with water, collecting the washings in the beaker. Rinse the inside of the crucible with 2 mL of 6 N acetic acid and then with water, again collecting the washings in the beaker, and continue heating and stirring until the melt is disintegrated. Cool the beaker in an ice bath until the precipitate settles, and decant the clear liquid through filter paper (Whatman No. 40, or equivalent), taking care to transfer as little precipitate as possible to the paper.

Wash twice by decantation as follows. Wash down the inside of the beaker with 10 mL of cold sodium carbonate solution (1 in 50), swirl the contents of the beaker, allow the precipitate to settle, and decant the supernatant through the same filter paper as before, transferring as little precipitate as possible to the paper. Place the beaker containing the bulk of the barium carbonate precipitate under the funnel, wash the filter paper with five 1-mL portions of 3 N hydrochloric acid, and wash the paper with water. [Note—The solution may be slightly hazy.]

Add 100 mL of water, 5.0 mL of hydrochloric acid, 10.0 mL of ammonium acetate solution (2 in 5), 25 mL of potassium dichromate solution (1 in 10), and 10.0 g of urea. Cover the beaker with a watch glass, and digest at 80°–85° for NLT 16 h. Filter while hot through a tared, fine-porosity, sintered-glass crucible, transferring all of the precipitate with the aid of a rubber-tipped stirring rod. Wash the precipitate with potassium dichromate solution (1 in 200), and finally with 20 mL of water. Dry at 105° for 2 h, cool, and weigh. The weight of the barium chromate so obtained, multiplied by 0.9213, represents the weight of barium sulfate ($BaSO_4$).

Acceptance criteria: 90.0%–110.0%

PERFORMANCE TESTS

• **Disintegration ⟨701⟩:** NLT 10 min and NMT 30 min

• **Uniformity of Dosage Units ⟨905⟩:** Meet the requirements

ADDITIONAL REQUIREMENTS

• **Packaging and Storage:** Preserve in well-closed containers.

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

Topic/Question	Contact	Expert Committee
BARIUM SULFATE TABLETS	Documentary Standards Support	SM42020 Small Molecules 4
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM42020 Small Molecules 4

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