

Zinc Sulfate

ZnSO₄ · 7H₂O

Mol. Wt. 287.56

zinc sulfate

Content Zinc Sulfate, when calculated on the anhydrous basis, contains not less than 98.0% of zinc sulfate (ZnSO₄ = 161.45).

Description Zinc Sulfate occurs as colorless crystals or as a white crystalline powder. It is odorless.

Identification Zinc Sulfate responds to all tests for Zinc Salt and for Sulfate as described in the Qualitative Tests.

Purity (1) Free acid Weigh 0.25 g of Zinc Sulfate, dissolve in 5 ml of water, and add 1 drop of methyl orange TS. No red color develops.

(2) Heavy metals Not more than 10 µg/g as Pb.

Test Solution Weigh 1.0 g of Zinc Sulfate, dissolve in 10 ml of water, add 20 ml of freshly prepared potassium cyanide (1 9), and shake.

Control Solution To 1.0 ml of Lead Standard Solution, add 20 ml of freshly prepared potassium cyanide (1 9) and water to make 30 ml.

(3) Alkali metal and alkali-earth metals Not more than 0.50%.

Weigh 2.0 g of Zinc Sulfate, dissolve in 150 ml of water, and add ammonium sulfide until the precipitate is no longer formed. Add water to make 200 ml, and filter through a dry filter paper. Discard 20 ml of the initial filtrate, take 100 ml of the subsequent filtrate, evaporate to dryness, ignite at 450 - 550 to constant weight, and weigh the residue.

(4) Arsenic Not more than 4.0 µg/g as As₂O₃ (0.50 g, Method 1, Apparatus B).

Water Content Not more than 43.5% (0.1 g, direct titration).

Assay Weigh accurately about 0.4 g of Zinc Sulfate, add 100 ml of water, and dissolve while warming if necessary. Add 5 ml of ammonia - ammonium chloride buffer (pH 10.7), and titrate with 0.05 mol/l EDTA (indicator: 0.1 ml of eriochrome black T TS) until the color of the solution changes to blue. Calculate on the anhydrous basis.

1 ml of 0.05 mol/l EDTA = 8.073 mg of ZnSO₄