Selenium disulfide (Selenii disulfidum)

SeS_2

Relative molecular mass. 143.1

Chemical name. Selenium sulfide; CAS Reg. No. 7488-56-4.

Description. A bright orange to reddish brown powder.

Solubility. Selenium disulfide is practically insoluble in water and organic solvents.

Category. Antifungal drug.

Storage. Selenium disulfide should be kept in a well-closed container.

Requirements

Selenium disulfide contains not less than **52.0%** and not more than **55.5%** of Se.

Identity tests

A. Gently boil 0.05 g with 5 mL of nitric acid (~1000 g/l) TS for 30 minutes, dilute to 50 mL with water, and filter. To 5 mL of the filtrate add 10 mL of water and 5g of urea R, boil, cool, and add 2.0 mL of potassium iodide (80 g/l) TS; a yellow to orange colour is produced which darkens rapidly on standing. (Keep this solution for test B.)

B. Allow the coloured solution obtained in test A to stand for 10 minutes, and filter through kieselguhr R1. The filtrate yields the reactions described under 2.1 General identification tests as characteristic of sulfates.

Sulfated ash. Not more than 2.0 mg/g.

Soluble selenium compounds. For solution A, use 10 g of Selenium disulfide, add 100 mL of water, mix well, allow to stand for 1 hour with frequent shaking, and filter. For solution B, use a solution of selenious acid R containing 5µg of selenium per mL. To 10 mL of each of solutions A and B, add 2 mL of a solution containing about 1 mL of formic acid (~1080 g/l) TS in 10ml of water, and dilute both solutions to 50 mL with water. If necessary, adjust the pH to 2.5 ± 0.5 with the diluted formic acid as prepared above. Then add 2.0 mL of freshly prepared 3,3'-diaminobenzidine tetrahydrochloride (5 g/l) TS, allow to stand for 45 minutes, and adjust the pH to 6.5 ± 0.5 with ammonia (~100 g/l) TS. Shake both solutions for 1 minute with 10 mL of toluene R, and allow to separate. Measure the absorbances of a 1-cm layer of the toluene layers at 420 nm against a solvent cell containing the same reagents treated as described above. The absorbance of solution A is not more than that of solution B (5µg of Se per g).

Assay. To about 0.1 g, accurately weighed, add 25 mL of fuming nitric acid R, heat on a water-bath for 1 hour, cool, and dilute to 100ml with water. To 25ml of this solution add 50 mL of water and 5 g of urea R, and heat to boiling. Cool, add 7ml of potassium iodide (80 g/l) TS, 3 mL of starch TS, and titrate immediately with sodium thiosulfate (0.1 mol/l) VS. Repeat the procedure without the Selenium disulfide being examined and make any necessary corrections.

Each mL of sodium thiosulfate (0.1 mol/l) VS is equivalent to 1.974 mg of Se.