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Selenium Sulfide

SeS_2 143.09

Selenium sulfide (SeS_2).

Selenium sulfide (SeS_2) CAS RN®: 7488-56-4; UNII: Z69D9E381Q.

» Selenium Sulfide contains not less than 52.0 percent and not more than 55.5 percent of selenium (Se).

Packaging and storage—Preserve in well-closed containers.

Identification—

A: Filter 20 mL of the solution of Selenium Sulfide prepared as directed in the *Assay*, and to 10 mL of the filtrate add 5 mL of water and 5 g of urea. Heat to boiling, cool, and add 2 mL of potassium iodide solution (1 in 10): a yellowish orange to orange color is produced, and it darkens rapidly (*presence of selenium*).

B: Allow the solution obtained in *Identification* test *A* to stand for 10 minutes, filter, and to the filtrate add 10 mL of barium chloride TS: the solution becomes turbid (*presence of sulfur*).

RESIDUE ON IGNITION ⟨281⟩: not more than 0.2%.

Soluble selenium compounds—

Test solution—Mix 10.0 g of Selenium Sulfide with 100.0 mL of water in a 250-mL flask, allow to stand for 1 hour, with frequent agitation, and filter. To 10.0 mL of the filtrate add 2 mL of 2.5 M formic acid, dilute with water to 50 mL, mix, and adjust, if necessary, to a pH of 2.5 ± 0.5. Add 2 mL of freshly prepared 3,3'-diaminobenzidine hydrochloride solution (1 in 200), mix, allow to stand for 45 minutes, and adjust with 6 N ammonium hydroxide to a pH of 6.5 ± 0.5. Transfer to a separator, add 10.0 mL of toluene, shake vigorously for 1 minute, allow the layers to separate, and discard the aqueous phase.

Standard solution—Using 10.0 mL of a solution of selenious acid containing 0.5 µg of selenium per mL, prepare a solution as directed under *Test solution*, beginning with “add 2 mL of 2.5 M formic acid.”

Procedure—Concomitantly determine the absorbances of the toluene layers of the *Test solution* and the *Standard solution* in 1-cm cells at 420 nm, with a suitable spectrophotometer, using a blank consisting of the same quantities of the same reagents treated in the same manner as the *Test solution:* the absorbance of the *Test solution* is not greater than that of the *Standard solution* (5 ppm).

Assay—Place about 100 mg of Selenium Sulfide, accurately weighed, in a suitable container, add 25 mL of fuming nitric acid, and digest over gentle heat until no further solution occurs. Cool, transfer the solution to a 250-mL volumetric flask containing 100 mL of water, cool again, dilute with water to volume, and mix. Pipet 50 mL of the solution into a suitable flask, add 25 mL of water and 10 g of urea, and heat to boiling. Cool, add 3 mL of starch TS, then add 10 mL of potassium iodide solution (1 in 10), and immediately titrate with 0.05 N sodium thiosulfate VS. Perform a blank determination, and make any necessary correction. Each mL of 0.05 N sodium thiosulfate is equivalent to 987.0 µg of Se.

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

Topic/Question	Contact	Expert Committee
SELENIUM SULFIDE	Documentary Standards Support	SM32020 Small Molecules 3
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM32020 Small Molecules 3

Chromatographic Database Information: Chromatographic Database

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