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Sodium Sulfide

$\text{Na}_2\text{S} \cdot 9\text{H}_2\text{O}$ 240.18

Sodium sulfide nonahydrate;

Disodium sulfide nonahydrate CAS RN®: 1313-84-4; UNII: C02T02993U.

DEFINITION

Sodium Sulfide contains NLT 98.0% and NMT 103.0% of sodium sulfide ($\text{Na}_2\text{S} \cdot 9\text{H}_2\text{O}$).

IDENTIFICATION

- A.

Conduct this test in a fume hood.

Sample: 100 mg

Analysis: To the *Sample* add 10 mL of 3 N hydrochloric acid, and cover the top of the container with filter paper saturated with a 0.2 M lead acetate solution.

Acceptance criteria: A brownish or silvery-black color forms on the paper.

ASSAY

- PROCEDURE

Sample solution: Dissolve 275 mg of Sodium Sulfide in 30 mL of filtered and degassed water. Add 50.0 mL of 0.1 N iodine while mixing, add 2 mL of hydrochloric acid, and allow to stand for 15 min in a dark place.

Titrimetric system

Mode: Direct titration

Titrant: 0.1 N sodium thiosulfate VS

Endpoint detection: Visual

Analysis: Titrate the *Sample solution* with *Titrant* to a pale yellow color. Add 5 mL of starch TS, and titrate with *Titrant* to a clear endpoint.

Perform a blank determination, and make any necessary correction. Each mL of 0.1 N sodium thiosulfate is equivalent to 12.01 mg of sodium sulfide ($\text{Na}_2\text{S} \cdot 9\text{H}_2\text{O}$).

Acceptance criteria: 98.0%–103.0%

IMPURITIES

- LIMIT OF IRON

Sample solution: 50 mg/mL in water

Acceptance criteria: The solution is clear and colorless.

- LIMIT OF SULFITE AND THIOSULFATE

Sample solution: Dissolve 3.0 g of Sodium Sulfide in 200.0 mL of filtered and degassed water. Add 100.0 mL of 0.2 N zinc sulfate, and allow to stand for 30 min. Filter, and add 1 mL of starch TS.

Titrimetric system

Mode: Direct titration

Titrant: 0.01 N iodine VS

Endpoint detection: Visual

Analysis: Titrate 100.0 mL of the filtrate from the *Sample solution* with *Titrant*.

Acceptance criteria: NMT 3.0 mL of *Titrant* is required.

ADDITIONAL REQUIREMENTS

- PACKAGING AND STORAGE: Preserve in tight containers, and store in a cool place.

Auxiliary Information - Please [check for your question in the FAQs](#) before contacting USP.

Topic/Question	Contact	Expert Committee
SODIUM SULFIDE	Documentary Standards Support	SM12020 Small Molecules 1

Topic/Question	Contact	Expert Committee
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SM12020 Small Molecules 1

Chromatographic Database Information: [Chromatographic Database](#)

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