

Status: Currently Official on 18-Feb-2025
Official Date: Official Prior to 2013
Document Type: USP Monographs
DocId: GUID-571D0B79-5DBA-4A95-8655-D35021CED166_1_en-US
DOI: https://doi.org/10.31003/USPNF_M77410_01_01
DOI Ref: 1cs5d

© 2025 USPC
Do not distribute

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](#)

Most Recently Appeared In:

Pharmacopeial Forum: Volume No. PF 27(1)

Current DocID: GUID-571D0B79-5DBA-4A95-8655-D35021CED166_1_en-US

DOI: https://doi.org/10.31003/USPNF_M77410_01_01

DOI ref: [1cs5d](#)

<https://trungtamthuoc.com/>

OFFICIAL