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HACH 1425249

Hach 1425249 Sulfate Standard Solution User Manual

2500 mg/L as SO4 (NIST), 500 mL

1. Introduction

The Hach 1425249 Sulfate Standard Solution is a precisely formulated reagent designed for analytical testing in laboratory environments. Standard solutions are critical for verifying instrument operation, assessing reagent performance, and ensuring consistency in operator technique, thereby increasing confidence in laboratory processes and test results.

This manual provides comprehensive instructions for the safe and effective use of this standard solution, aligning with best laboratory practices.

2. Product Overview



The image displays five different Hach laboratory solutions in clear plastic bottles with white screw caps. From left to right, the labels identify them as Chloride Reference Standard Solution, Buffer Solution, ORP Standard Solution (ZoBell's Solution), SPADNS Reagent for Fluoride, and Bromcresol Green-Methyl Red Indicator Solution. Each bottle is 500 mL. The Hach 1425249 Sulfate

Standard Solution, which is the subject of this manual, comes in a similar 500 mL bottle.

The Hach 1425249 Sulfate Standard Solution contains a defined concentration of sulfate (SO4) at 2500 mg/L, traceable to NIST standards. This solution is provided in a 500 mL bottle, suitable for various laboratory applications requiring a known concentration of sulfate for calibration or verification.

3. Setup and Storage

3.1 Initial Inspection

Upon receipt, inspect the bottle for any signs of damage or leakage. Ensure the cap is securely fastened. Verify that the product label matches the intended order (Hach 1425249 Sulfate Standard Solution, 2500 mg/L as SO4, 500 mL).

3.2 Storage Conditions

For optimal stability and to maintain the integrity of the solution, store the Hach 1425249 Sulfate Standard Solution at a temperature between 10°C and 30°C (50°F and 86°F). Keep the bottle tightly capped when not in use to prevent contamination and evaporation. Store in a cool, dry place, away from direct sunlight and incompatible materials.

3.3 Safety Precautions

- **CAUTION: DO NOT INGEST.** This product is for laboratory use only and is not intended for consumption.
- In case of contact with eyes, immediately flush with plenty of water for at least 15 minutes. Seek medical attention if irritation persists.
- In case of skin contact, wash thoroughly with soap and water.
- Always wear appropriate personal protective equipment (PPE), including safety glasses, gloves, and a lab coat, when handling chemical solutions.
- Keep away from children.

4. Operating Instructions

4.1 General Use

The Hach 1425249 Sulfate Standard Solution is used to verify the accuracy and performance of analytical instruments and methods for sulfate determination. It can be used for:

- **Calibration Verification:** Use the standard solution to confirm the accuracy of calibration curves for sulfate analysis.
- **Reagent Performance Checks:** Verify that reagents used in sulfate tests are performing correctly by analyzing the standard solution.
- **Operator Technique Assessment:** Evaluate consistency in operator technique by having different operators analyze the standard solution and compare results.
- **Standard Additions (Spikes):** Use as a spiking solution to assess matrix effects in complex samples.

4.2 Procedure

1. Ensure all glassware and equipment are clean and dry before use.
2. Carefully open the bottle and dispense the required volume of standard solution into a clean container. Avoid direct contact with the solution.
3. Follow the specific instructions of your analytical method for sulfate determination (e.g., spectrophotometric, turbidimetric).
4. Analyze the standard solution as if it were a sample.

5. Compare the obtained result with the certified concentration of 2500 mg/L as SO4.
6. Record all results for quality control purposes.

Standard Methods recommends using solutions of known concentration in place of your sample 5% of the time for quality assurance.

5. Maintenance

5.1 Proper Handling

To maintain the integrity and shelf-life of the standard solution:

- Always replace the cap immediately after dispensing to prevent contamination and evaporation.
- Avoid introducing foreign substances into the bottle. Do not return dispensed solution to the original bottle.
- Use clean, dedicated pipettes or dispensing equipment for the solution.

5.2 Expiration Date

The expiration date is printed on the product label. The solution is valid for use until this date, provided it has been stored correctly and handled properly. Do not use the solution past its expiration date, as its concentration may no longer be accurate.

6. Troubleshooting

If analytical results obtained using the Hach 1425249 Sulfate Standard Solution are outside expected ranges, consider the following:

- **Instrument Calibration:** Re-calibrate the analytical instrument according to the manufacturer's instructions.
- **Reagent Integrity:** Check the expiration dates and storage conditions of all reagents used in the analytical method. Replace any expired or improperly stored reagents.
- **Glassware Cleanliness:** Ensure all glassware is thoroughly cleaned and free from residues that could interfere with the analysis.
- **Technique:** Review and re-evaluate the analytical technique. Ensure precise measurements and proper handling procedures are followed.
- **Standard Solution Integrity:** Verify the standard solution's expiration date and ensure it has been stored and handled correctly. If in doubt, use a fresh bottle of standard solution.
- **Environmental Factors:** Consider if temperature fluctuations or other environmental factors are impacting the analysis.

Standard solutions are essential tools for troubleshooting isolated problems in your laboratory process, helping to pinpoint the source of discrepancies.

7. Specifications

Model Number	1425249
Analyte	Sulfate (SO4)
Concentration	2500 mg/L as SO4
Traceability	NIST Traceable
Volume	500 mL

Form	Liquid
Package Information	Bottle
Storage Temperature	10-30°C (50-86°F)
Manufacturer	Hach
Other Components	Demineralized Water

8. Warranty and Support

Specific warranty information for the Hach 1425249 Sulfate Standard Solution is not provided within this manual. For details regarding product warranty, technical support, or safety data sheets (SDS), please refer to the official Hach website or contact Hach customer service directly.

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