Sulfate Assay Kit

Sulfate Assay Kit is a detection kit for the quantification of Sulfate in serum, urine and food.

Catalog number: ARG82195

Package: 200 tests

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INTRODUCTION

The sulfate or sulphate ion is a polyatomic anion with the empirical formula SO_4^{2-}. Salts, acid derivatives, and peroxides of sulfate are widely used in industry. Sulfates occur widely in everyday life. Sulfates are salts of sulfuric acid and many are prepared from that acid. [Provide by Wikipedia: Sulfate]

PRINCIPLE OF THE ASSAY

This Sulfate Assay Kit is a simple colorimetric assay that measures the amount of sulfate in serum, urine, and food. This assay improved method utilizes the quantitative formation of insoluble barium sulfate in polyethylene glycol. The turbidity measured between O.D. 540-610 nm is proportional to sulfate level in the sample.

MATERIALS PROVIDED & STORAGE INFORMATION

The kit is shipped at room temperature. Store all components at room temperature upon receiving. Shelf life: 12 months after receipt.

Component	Quantity	Storage information
Reagent A	25 mL	room temperature
Reagent B (Lyophilized)	1 vial (2.4 g)	room temperature
TCA Reagent	25 mL	room temperature
Standard (60 mM sulfate)	1 mL	room temperature

MATERIALS REQUIRED BUT NOT PROVIDED

- Microplate reader capable of reading at O.D. 540-610 nm
- Clear flat-bottom 96 well microplate
- Centrifuge and centrifuge tube
- Deionized or Distilled water
- Pipettes, pipette tips and Multichannel micropipette reservoir

TECHNICAL NOTES AND PRECAUTIONS

- Wear protective gloves, clothing, eye, and face protection especially while handling blood or body fluid samples.
- Reagents are for research use only. Normal precautions for laboratory reagents should be exercised while using the reagents. Please refer to Material Safety Data Sheet for detailed information.
- The following compounds have been tested and do not interfere: 400 mM sodium chloride, 500 mM urea, 5 mM sodium phosphate, 4 mM sodium citrate, 1.5 mM sodium EDTA.
- All reagents should be mixed by gentle inversion or swirling prior to use. Do not induce foaming.
- Before using the kit, spin tubes and bring down all components to the bottom of tubes.
- It is highly recommended assaying the Standards and samples in duplicates.
- Change pipette tips between the addition of different reagent or samples.

SAMPLE COLLECTION & STORAGE INFORMATION

The sample collection and storage conditions listed below are intended as general guidelines. Sample stability has not been evaluated.

Urine: Urine samples should be diluted 10-fold in distilled water prior to assay.

Serum and Plasma: Fresh serum or plasma (non-hemolyzed) samples can be either assayed immediately, or frozen for future tests. Samples should be deproteinated as follows: mix 200 µL of sample and 100 µL of TCA Reagent in a 1.5 mL Eppendorf. Spin down protein precipitates for 5 minutes at 14,000 rpm. Transfer 200 µL of supernatant for assay.

REAGENT PREPARATION

- **Working Reagent:** for 10 assay wells, mixing 95 mg of Reagent B and 1 mL of Reagent A. Vortex for at least 1 minute to ensure complete dissolution of the power and incubate the reconstituted Working Reagent for 10 minutes before use.

  Note: The Working Reagent must be prepared fresh and used within 1 hour after reconstitution.

- **Standard:** prepare a 2 mM Premix by mixing 20 µL of 60 mM Sulfate Standard with 580 µL of distilled water. Dilute as follow:

Standard tube	Sulfate (mM)	Distilled water (µL)	Standard Premix, 2 mM (µL)
S1	2	0	200
S2	1	100	100
S3	0.5	150	50
S4	0	200	0

ASSAY PROCEDURE

Equilibrate all components to room temperature. Briefly centrifuge tubes before use.

	Standard well	Sample well
Standards	200 µL	
Each Sample		200 µL
Note: when deproteination is required (E.g., serum or plasma), treat the standards by adding **100 µL** of **TCA Reagent** to **200 µL** of **each standard**, mix and transfer 200 µL of the resulting standard into separate wells.		
Working Reagent	100 µL	100 µL
Note: If TCA precipitation was required, mixing the samples and standards with the WR can be improved by pipetting up and down once.		
Tap plate to mix immediately. Incubate for **5 minutes** at **room temperature**.		
Read the absorbance at **O.D. 600 nm**. (**540-610 nm**)		

CALCULATION OF RESULTS

1. Sulfate concentration (mM) of a sample is calculated as follow:

   Sulfate (mM) = [(OD_{Sample} – OD_{Blank}) / Slope] x n

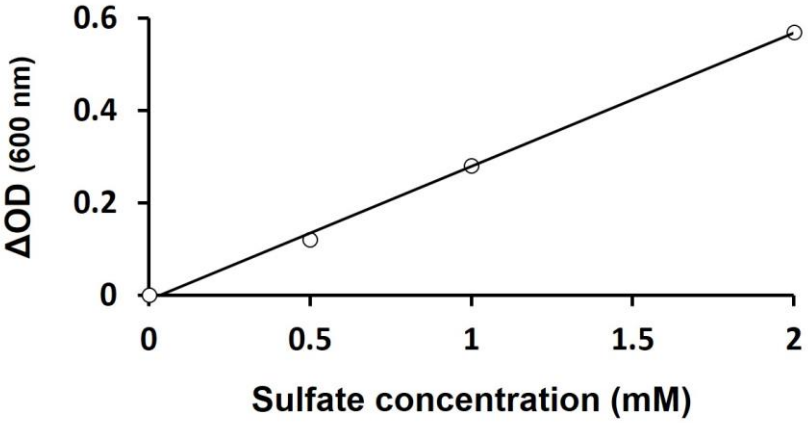
   Note:

   - OD_{Sample} and OD_{Blank}: the O.D. 600 nm values of the Sample well and the distilled water only (Standard, S4).
   - n: the sample dilution factor. (n = 10 for urine)

2. Conversions: 1 mM sulfate equals 9.61 mg/dL or 96.1 ppm.

EXAMPLE OF TYPICAL STANDARD CURVE

The following figures demonstrate typical results with the Sulfate Assay Kit. One should use the data below for reference only. This data should not be used to interpret actual results.



QUALITY ASSURANCE

Sensitivity

20 µM