METTLER TOLEDO iNORGANIC VENTURES

Turbidimetric Method for Measuring Sulfate

TURBIDIMETRIC METHOD (ISO 15923-1)

Method Description

Sulfate ion is converted to a barium suspension under controlled conditions. The resulting turbidity is determined photometrically and compared to a curve prepared from standard sulfate solutions.

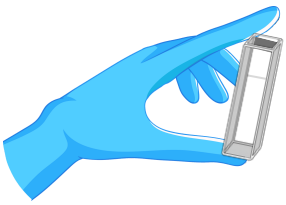
Test Procedure

1. Pipette 2000 µL* of the sample into the cuvette.

** µL = microliter*

2. Pipette 2000 µL of **RGT-SULFATE-SO4-BTL-1-OF-1** into the cuvette.

3. Cap cuvette, and shake 10-15 times to mix reagent & sample within.



4. Wait duration of reaction time: 4.5 minutes. **Note:** Solution should turn cloudy during reaction time.

5. Insert cuvette into the UV-Vis and record absorbance of sample.

Be sure to use a new pipette tip for every addition. Replace the pipette tip between every step. Always dispose of all waste properly.

Expected Limits of Detection

Path Length (mm)	Method Detection Limit (mg SO_4/L)
10	10
50	5.7

Detection limits were calculated to be equal to three times the standard deviation of a series of 10 replicate measurements of the calibration blank.

Preparation of Calibration Standards

Use the following volumes to prepare a Calibration Curve using a stock standard containing 100 mg/L of Sulfate. Select at least 3-4 calibration standards that bracket your expected concentration range. Dilute all standards in DI H2O or a matrix most suited to your sample type.

Concentration (mg SO_4/L)	Volume of Standard Aliquot (mL)	Final Volume (mL)
0	0.0	50
5	2.5	50
10	5.0	50
15	7.5	50
20	10.0	50
30	15.0	50
40	20.0	50

Calibration Tip:

If using different calibration standards to construct your calibration curve, ensure that the concentrations of neighboring standards do not exceed a ten fold difference.