

QUALITY WORK INSTRUCTIONS (QWI) SULFUR ANALYSIS PROCEDURE ACIDITY – TM 1

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1.0 EQUIPMENT NEEDED

Analytical balance readable to 0.1 milligrams
24.0 cm Whatman 1 Qualitative filter paper
Stirring hot plate and magnetic stir bar
500 ml Erlenmeyer flask
0.01 Normal Sodium Hydrochloric standard
0.01 Normal Hydrochloric Acid standard
1% Phenolphthalein in alcohol

2.0 PROCEDURE

- (1) Weigh out 10.00 grams +/- 0.01 grams of sulphur and record the weight to nearest 0.1 milligrams
- (2) Transfer the sample to a 260 ml flask. Add 150 ml of water and a magnetic stir bar. Place on the hot plate at low heat for one hour with moderate stirring.
- (3) After one hour filter the solution through a Whatman 1 Qualitative 24.0 filter paper into a 500 ml flask. Add three drops of phenolphthalein solution.
- (4) Use burettes, slowly drop into the solution 0.01 normal sodium hydroxide (NaOH) until a pink color persists. Swirl the flask to insure thorough mixing. Record the number of ml of NaOH added.
- (5) Drop into the solution 0.01 normal hydrochloric acid (HCL) until the pink color just disappears. Again swirl the flask to insure mixing. Record the number of ml of HCL added.
- (6) Perform an acid blank by repeating steps 2 through 5 with water only, no sulphur.

3.0 CALCULATIONS

- (1) Acidity of the sample is calculated by the following formula:

$$\text{Acid (uncorrected)} = \frac{(\text{ ml Naoh } - \text{ ml HCL }) \times 0.049}{\text{sample weight}}$$

- (2) Calculate acidity of the blank using the above formula and 10.0000 grams as the sample weight.
- (3) The % corrected acidity (% wt as sulphuric acid) of the sample = % acidity sample - % acidity blank