

QUALITY WORK INSTRUCTIONS (QWI) SULFUR ANALYSIS PROCEDURE SPECIFIC GRAVITY - TM 8

Document #: QWI-28
Revision #: 1
Effective Date: 12/2/09

1.0 EQUIPMENT NEEDED

50 ml pycnometer
Analytical balance readable to 0.1 milligrams
100 ml volumetric flask

2.0 PROCEDURE

- (1) Weigh empty dry pycnometer with thermometer and stopper in place. Record weight to the nearest 0.1 mg.
- (2) Remove thermometer and stopper. Fill pycnometer with liquid to be tested. Fill to overflowing.
- (3) Insert thermometer and stopper. Wipe off pycnometer.
- (4) Weigh pycnometer with solution, thermometer, and stopper. Record weight to nearest 0.1 mg.

SOLIDS

- (5) Weigh empty pycnometer with thermometer and stopper. Record weight to nearest 0.1 mg.
- (6) Choose a liquid that the solid will be wetted by but will not dissolve.
- (7) Determine the specific gravity of the liquid by itself (steps 1-4).
- (8) Fill the pycnometer about half full with the solid. With the thermometer and stopper in place record the weight to the nearest 0.1 mg.
- (9) Fill the pycnometer with the liquid solution chosen in step 6. Put the thermometer and stopper back in place and record the weight of pycnometer, solid and liquid to the nearest 0.1 mg.

LIQUIDS

- (10) Tare the volumetric flask on the electronic balance.
- (11) Using the syringe add the liquid to the flask taking care to minimize the amount of liquid contacting the inside neck of the flask.
- (12) Fill the flask up to fill line and weigh.

3.0 CALCULATIONS

LIQUID

- (1) Let W1 be the weight of the empty pycnometer
- (2) Let W2 be the weight of the pycnometer and the liquid.

- (3) Specific Gravity =
$$\frac{W2 - W1}{50}$$

- (1) Let W1 be the weight of the empty pycnometer
- (2) Repeat per above.