



# Particle Size by Wet Sieve Analysis

Part No. 169-00

## Instruction Manual

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Ver. 1.4

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# Components

- #169-01 Spray Cup
- #169-02 Screen, 200 Mesh, 75  $\mu\text{m}$
- #169-03 Gauge, 60 PSI, 2" Face, 1/4" NPT Connection
- #169-04 Screen, 325 Mesh, 45  $\mu\text{m}$
- #169-08 Pressure Regulator

## Optional:

- #155-25 Digital Stopwatch
- #205-30 Dispersant Solution, 32 oz
- #206-04 Deionized Water, 32 oz
- #169-00-SP Spare Part Kit
  - #169-02 Screen, 200 Mesh, 75  $\mu\text{m}$ , Qty: 12
  - #169-03 Gauge, 60 PSI, 2" Face, 1/4" NPT Connection

## Procedure

1. Weigh 10 g  $\pm$  .01 g of barite obtained by tube sampling and quartering.
2. Place the barite in a mixing container with 44 mL of dispersant solution.
3. Hand-stir the sample and dilute it to approximately 350 mL with deionized water. Stir for five minutes with a mixer.
4. Wash the sample with the diluted dispersant solution onto a 75  $\mu$ m mesh sieve.
5. With a wash bottle, continue to wash the sample with approximately 400 mL of dilute dispersant solution.
6. Wash the material on the screen using tap water from a spray nozzle at 10 PSI (70 kPa) for two minutes. While washing, allow the bend of the nozzle to rest on the rim of the sieve and move the spray of water repeatedly over the surface of the screen.
7. After washing the sample with tap water, wash it at least twice with deionized water.
8. Transfer the residue from the screen to a tared evaporating dish. Use deionized water to remove the residue from the screen.
9. Dry the residue in an oven and then cool it in a dessicator. Weigh the residue to the nearest .01 g.
10. Repeat steps 1 - 9 above using 45  $\mu$ m and 30  $\mu$ m mesh screens with separate barite samples.

## Calculations

Calculate  $m_d$ ,  $w_r$ , and  $w_f$  from the equations below:

$$m_d = m_o \times \frac{100 - w_h}{100}$$

$$w_r = 100 \times \frac{m_r}{m_d}$$

$$w_f = 100 - w_r$$

Where:

- $w_h$  = moisture content (%)
- $m_o$  = mass of the original sample (g)
- $m_d$  = mass of the dry sample (g)
- $m_r$  = mass of the residue (g)
- $w_r$  = residue remaining on the sieve (%)
- $w_f$  = part of the material finer than the sieve (%)