

Test Procedure Manual
Research Center, Premier Magnesia, LLC

Title: SCREEN ANALYSIS BY ALPINE AIR JET SIEVE	No: TP-44	Rev: 0	
Cancels & Supersedes No: None	Page No.: 1 of 2	Effective Date: 5-22-14	

1. SCOPE

- 1.1 This method of test is intended for measuring the grain size distribution of finely ground materials using an Alpine Air Jet Sieve.

2. APPARATUS

- 2.1 Alpine Air Jet Sieve, Type 200.
- 2.2 Sieves, 8" Alpine, U.S. Sieve Series.
- 2.3 Vacuum source, 1400 ft³/hr capacity at a vacuum of 10" water.
- 2.4 Balance and pans, capacity 200 grams, sensitivity 0.05 g.
- 2.5 Plastic hammer.
- 2.6 Nylon brush, 2 in.
- 2.7 Manometer, 10 in.
- 2.8 Vacuum hose, 6 ft.

3. METHOD

- 3.1 Screening on an Alpine Air Jet Sieve is done with but one screen at a time. Since the sample portion that passes through the screen is lost into a vacuum system, tests must begin with the finest screen to be used.
- 3.2 Place the desired screen on the Alpine making certain that the Alpine's rotating nozzle does not touch the screen and that the air seal gasket on the screen frame is in contact with the Alpine base.
- 3.3 Weigh to the nearest 0.05 g a sample of approximately 50 g.
- 3.4 Spread the sample over the screen.
- 3.5 Place the plastic cover over the screen making certain that the cover does not come in contact with the sample material thereby forcing the sample onto the screen cloth.
- 3.6 Set the timer switch on the Alpine and, by adjusting the air slide, set the vacuum as indicated below.
 - 3.6.1 Sieve 5 minutes for U.S.S. #325, U.S.S. #400, and 32 micron using 6"-10" vacuum, water.
 - 3.6.2 Sieve 4 minutes for U.S.S. #200, using 6"-10" vacuum, water.
 - 3.6.3 Sieve 3 minutes for U.S.S. #150 and larger, using 5"-10" vacuum, water.
- 3.7 Observe the screening through the plastic lid. If necessary, dislodge material clinging to the lid by tapping the knob of the lid with a plastic hammer. If agglomerates in the sample do not disintegrate, lift the lid and crush them carefully with a soft brush.
- 3.8 After screening is complete, remove the lid and brush any material adhering to it onto the screen.

Written by (Print):	Title:
Signature:	Date:
Reviewed by (Print):	Title:
Signature:	Date:

Test Procedure Manual
Research Center, Premier Magnesia, LLC

Title: SCREEN ANALYSIS BY ALPINE AIR JET SIEVE	No: TP-44	Rev: 0	
Cancels & Supersedes No: None	Page No.: 2 of 2	Effective Date:	

3. METHOD

- 3.9 Remove the screen from the Alpine and pour its contents into the balance pan. Tap the screen frame lightly with the plastic hammer to remove material that remains in the screen, or brush the screen lightly from the underside with a nylon brush. Do not apply sufficient pressure on the brush to stretch the screen cloth. Do not clean the screen with compressed air.
- 3.10 Weigh to the nearest 0.05 g the material that was retained on the screen and record the weight.
- 3.11 If more than one grain size measurement is desired, place the next larger screen on the Alpine and repeat Steps 3.4 through 3.11.
- 3.12 Finally, clean the Alpine by removing the screen and rotating nozzle. Turn the timer switch to 2 or 3 minutes and brush all the material remaining in the Alpine base into the suction tube.

4. CALCULATIONS

- 4.1 Calculate the screen analysis as follows:

$$\frac{\text{Weight of material retained on screen, g} \times 100}{\text{Original sample weight, g}} = \% + \text{_____ mesh}$$

$$100 - (\% + \text{_____ mesh}) = \% - \text{_____ mesh.}$$

Written by (Print):	Title:
Signature:	Date:
Reviewed by (Print):	Title:
Signature:	Date: