

**IN FOCUS**

glass analysis

particle size

sieving

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## Air-jet sieve analysis

**Method Description**

Probably the simplest and most widely used method of determining particle size distributions is sieving. The air jet method is an effective single-sieve system for dry powders. The sieve is mounted in a sealed chamber, and air is drawn upwards through the sieve from a slowly-rotating slotted nozzle to fluidise the sample. Exit airflow carries undersized particles downward through the sieve to a collection canister. Starting with the finest sieve the amount of material passing is determined by weighing. The retained sample is transferred to next larger sieve size, and the procedure is repeated until sieving has been done on all required sieves in succession. Air jet action is gentle and effective - especially useful for fragile or low specific gravity materials.

**Measured Quantity**

Weight.

**Derived Quantity**

Weight fraction distribution.

**Measuring Range**

Particle size between 45-5600  $\mu\text{m}$ .

**Precision**

Depending on the weight percentages of the fractions 1 - 10%.

**Accuracy**

ISO defined mesh sizes are used.

**Detection Limit**

0.1 weight % of the amount used, generally 30 g.

**Possible Errors**

Inhomogeneity of the sample. Humidity effects. Large differences in particle size.

**Sampling**

2 x 30 g.

**Calibration**

Measurements are calibrated against Philips reference materials.

**Measuring Time**

1 day.

**Cost Aspect**

2 man hours.