

**Equipment Name: Micromeritics Accupyc**

**Category:**  
C. Particle Characterisation in and ex-situ and/or

**Institute:** University of Leeds

**Location:** ParticlesCIC, Engineering Building, Leeds. LS2 9JT. UK

**Contact Details of Technology Expert:**

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**Short technology description/Overview** (approx 300 words):

Using gas displacement (helium) the true or skeletal density of materials can be determined. As for specific surface area, particulate samples need to be dry in order to undertake the measurement

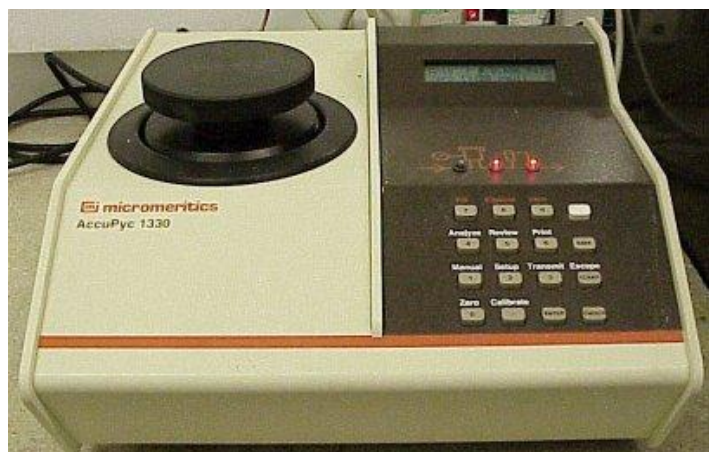
Pycnometry is used to measure the skeletal (or true) density of solids (and some liquids) by measuring changes in pressure with gas displacement. Helium is typically used as it is a small inert molecule that easily permeates the smallest of voids and open pores (but does not permeate any closed porosity). It is an ideal technique to measure particle density. A pycnometer contains two chambers. In the first chamber the volume is calibrated and then filled with a known weight of sample. Prior to analysis the sample chamber is purged with helium to remove any water and gases. During the analysis helium is filled into the second chamber (known as the reference chamber) to a specified pressure. From here the helium flows into the sample chamber and when the pressure has stabilised the change in pressure is recorded. The analysis is repeated until consistent results are obtained and the volume of the sample is then calculated. From the volume the density can then be determined.

**Main Features (Equipment Capabilities):**

- Highly accurate determination of true particle density
- Sample size is approximately 2/3 of the 10cc cup.
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**Typical Samples & Images:**

Wide range of particulates can be measured



*Any further Information:*