

# ULTRAFOAM™

Conforms to ASTM D6226

## AUTOMATIC GAS PYCNOMETER FOR THE CHARACTERIZATION OF FOAMS

### Added Capability

#### Correction For Cut Cells

Open cells % is estimated by remeasuring the volume of a cube after sectioning into eight parts. The UltraFoam's report gives both the open cell % and the corrected open cell % values.

#### Cell Compressibility

By automatically increasing pressure stepwise, the resulting series of compression % data extends the UltraFoam's range of usefulness to less rigid foams.

#### Cell Fracture

In a similar manner, the UltraFoam pycnometer has the important analytical ability for rigid foams that have fragile cell walls. In this mode, each step of increasing pressure is tested to see if the pressure change caused a permanent decrease in closed cell %. Results are presented as a series of fracture % versus pressure data.



The cell content of porous materials correlates with performance attributes such as strength, fluid exclusion (or inclusion) and insulating properties. Closed cells impart water resistance, thermal insulation, buoyancy and resilience. Open cells determine properties related to filtration, acoustics and wicking.

The analysis of this cellular structure is best performed by gas pycnometry. The gas, usually nitrogen or helium, quickly conditions the sample by carrying away blowing agents, moisture, air, etc. as it probes all cell cavities connected to the surface.

The standard technique used by the UltraFoam™ pycnometer is that of gas expansion from a calibrated sample chamber into a reference volume. The solid and closed cell volume of the sample is calculated from the relationship of the calibrated cell volumes and the pressures before and after expansion. The closed cell percentage is calculated from the solid volume and the measured geometric volume of a rectangular or cylindrical sample. Open cell % is calculated by difference (open cell % = 100% - closed cell %). Single or multiple measurements can be automatically performed, each taking but one or two minutes.

- Open Cell Content
- Closed Cell Content
- Correction for cut cells
- Cell Compressibility
- Cell Fracture
- Interchangeable sample cells
- Automatic reporting
- PC archiving of data.



#### Stereopycnometer™

Easily affordable, manual gas pycnometer. Easy to use, with results in just a few minutes. Ideal for rapid quality checks, field operation and teaching.

For more information:  
Tel (561) 731-4999 or email [qc.foams@quantachrome.com](mailto:qc.foams@quantachrome.com)

**Quantachrome**  
INSTRUMENTS





Quantachrome Instruments' corporate headquarters in Boynton Beach, Florida.

# Quantachrome®

Renowned innovator of ideas for today's porous materials community.

For more than 37 years, Quantachrome's scientists and engineers have revolutionized measurement techniques and designed instrumentation to enable the accurate, precise, and reliable characterization of powdered and porous materials:

- Adsorption/Desorption Isotherms
- Surface Area Measurement
- Pore Size Distribution
- Chemisorption Studies
- Water Sorption Behavior
- Mercury Porosimetry
- True Solid Density
- Tapped Density

Not only are Quantachrome products the instruments of choice in academia, but the technology conceived and developed by our expert staff is applied

in industrial laboratories worldwide, where research and engineering of new and improved porous materials is ongoing. Manufacturers also rely on porous materials characterization technology to more precisely specify bulk materials, to control quality, and to isolate the source of production problems with greater efficiency.



Quantachrome Instruments Application Laboratory.

Quantachrome is also recognized as an excellent resource for authoritative analysis of your samples in our fully equipped, state-of-the-art powder characterization laboratory.

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