UltraFoam™ Automatic Gas Pycnometer

For the Characterization of Foams

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

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 %). Density is calculated from mass (weight)/volume and is reported as grams/cc.

The UltraFoam pynometer conforms to ASTM D6226 "Standard Test Method for Open Cell Content of Rigid Cellular Plastics."

Click here for method description, ordering and download information

UltraFoam Specifications

Specifications are based on clean, dry, thermally equilibrated samples and filled sample cells.

SAMPLE CELLS:	ACCURACY	REPRODUCIBILITY
Large, 135 cc:	better than ± 0.02%	better than ± 0.01%
Medium, 50 cc:	better than ± 0.03%	better than ± 0.015%
Small, 10 cc:	better than ± 0.03%	better than ± 0.015%

SAMPLE SIZE:	0.1 to 135 cm^3
PRECISION:	0.0001 g/cm^3
GAS:	High purity nitrogen, SF_6, helium or other non-corrosive gas
PRESSURE:	Programmable from 2 to 18 psig, fixed or stepwise
PURGE MODES:	Flow (adjustable time) pulse (programmable by number), or evacuations.
CALCULATIONS:	• Geometric volume (cc) from cube or cylinder dimensions • Open Cell%, Closed Cell% (raw or corrected by tri-section) • Solid Volume, Solid Density • Compression %, Fracture % versus pressure change
OUTPUT:	Printer and RS232 ports
MEMORY:	Long term retention of calibrations, run parameters and last run data
POWER:	100 - 240 VAC, 50/60 Hz
WEIGHT:	21.5 lbs. / 9.75 kg
DIMENSIONS:	Width: 31.1 cm (12.25") Height: 22.7 cm (8.9") Depth: 54.0 cm (21.25")