

Higher Accuracy Plus Faster Results When Measuring the Density of Commercial Items

Density measurements have proven their value in a number of industries on a wide variety of materials. The AccuPyc 1330 can analyze organic or inorganic samples with a vapor pressure of less than 25 mmHg. Using helium gas, volumes of these materials can be measured to a precision of $\pm 0.02\%$ with relative ease.

As a demonstration, the AccuPyc 1330 was used to measure the density of a wide variety of materials. The temperature of measurement was $28\text{ }^{\circ}\text{C} \pm 0.5\text{ }^{\circ}\text{C}$. Results of these measurements are shown below.

Measured Densities of Some Commercial Items

Material	Density (Standard Deviation) (g/cm ³)	
Lipstick	0.9895	± 0.0002
Toothpaste	1.5178	± 0.0002
Chocolate Candy		
Milk	1.2908	± 0.0003
Nut	1.1988	± 0.0002
Dark	1.3083	± 0.0005
Crisped Rice	1.1840	± 0.0002
Petroleum Jelly	0.8767	± 0.0000
Peanut Butter		
Creamy	1.1176	± 0.0000
Crunchy	1.1046	± 0.0001
Bath Soap		
Floating	0.9348	± 0.0001
Other	1.0400	± 0.0001
Peanuts		
Salted	1.0872	± 0.0001
Unsalted	1.0934	± 0.0003

Material	Density (Standard Deviation) (g/cm ³)	
Oil Vacuum Pump Motor Diffusion Pump	0.8634	± 0.0000
	0.8837	± 0.0000
	1.0593	± 0.0001
Mercury, 28 °C	13.5268	± 0.0012
Putty		
Play-Doh	1.2979	± 0.0002
Glazing compound	2.1303	± 0.0003
Paint		
Rust preventative	0.9666	± 0.0000
Latex, white, indoor	1.2362	± 0.0002
Oil-based, outdoor	1.0034	± 0.0001
Mayonnaise		
Hellmans	1.0228	± 0.0002
Miracle Whip	1.0628	± 0.0002
Mustard		
English	1.2213	± 0.0003
Dijon	1.0934	± 0.0002

CONCLUSIONS

The AccuPyc 1330 is capable of rapid measurements of organic or inorganic densities to a precision of 0.02%. This precision is sufficient to detect variability of organic and inorganic materials with a given lot and to estimate the purity of the samples.