G-DenPyc 2900™

Gas Pycnometer Analyzer

真密度测定仪
G-DenPyc 2900

APP 金奥谱科技
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Gas Displacement Pycnometer

G-DenPyc 2900

Measurement for Foams, Powders, Solids, Films, Slurries, Coatings, Polymers, Calcination etc.

A gas pycnometer is a laboratory device used for measuring the density—or more accurately the volume—of solids, be they regularly shaped, porous or non-porous, monolithic, powdered, granular or in some way comminuted, employing some method of gas displacement and the volume. A gas pycnometer is also sometimes referred to as a helium pycnometer.

Gas expansion pycnometer is also known as constant volume gas pycnometer. The simplest type of gas pycnometer (due to its relative lack of moving parts) consists of two chambers, one (with a removable gas-tight lid) to hold the sample and a second chamber of fixed, known (via calibration) internal volume – referred to as the reference volume or added volume. The device additionally comprises a valve to admit a gas under pressure to one of the chambers, a pressure measuring device – usually a transducer – connected to the first chamber, a valved pathway connecting the two chambers, and a valved vent from the second of the chambers. In practice the sample may occupy either chamber that is gas pycnometers can be constructed such that the sample chamber is pressurized first, or such that it is the reference chamber that starts at the higher pressure.

Unmatchable Features

- *Programmable logic controller (PLC) system* obtains high integration and strong anti-interference, software operated fully automated analysis enables freely choose of multi experiment modes.
- Patented V-Sorb *monolithic manifolds* system can improve sealing performance and reduce dead space largely, enhance system temperature's uniformity and anti-interference ability, all lead to a high accuracy and repeatability data.
- Installed with a detachable filter in sample cell's bottom, can prevent samples be suctioned into manifolds; inputting gas from cavity bottom can avoid samples splash and software controlled H-Sorb two-stage-stepping mode further ends splash happening.
- Provided standard 3ml, 10ml, 11ml and 65ml sample cells, also can customize any volume sample cell from 1ml to 180ml. *Exclusive G-DenPyc filling technology* supports to choose different volumetric aluminum blocks to fill into cells instead changing other sizes cells according to samples' volume, this innovative method realizes minimal free space in cells and improve experiment accuracy.
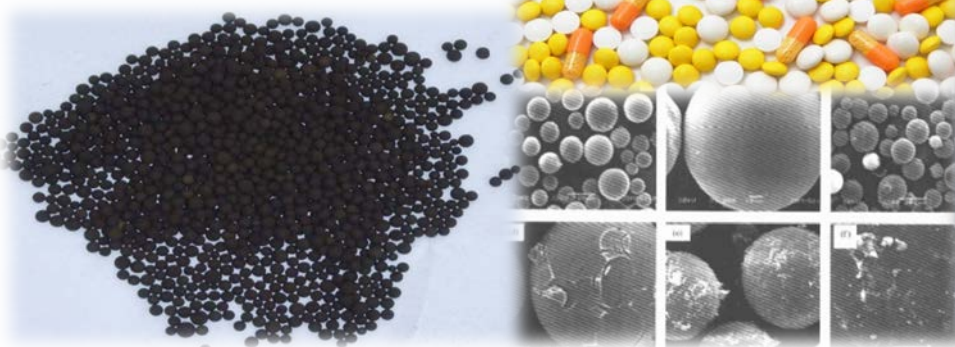
- Programmable built-in mini win7 PC system, 7" color display, USB type external keyboard and mouse, RJ45 port is available for accessing to internet, also supports external display by RS232.

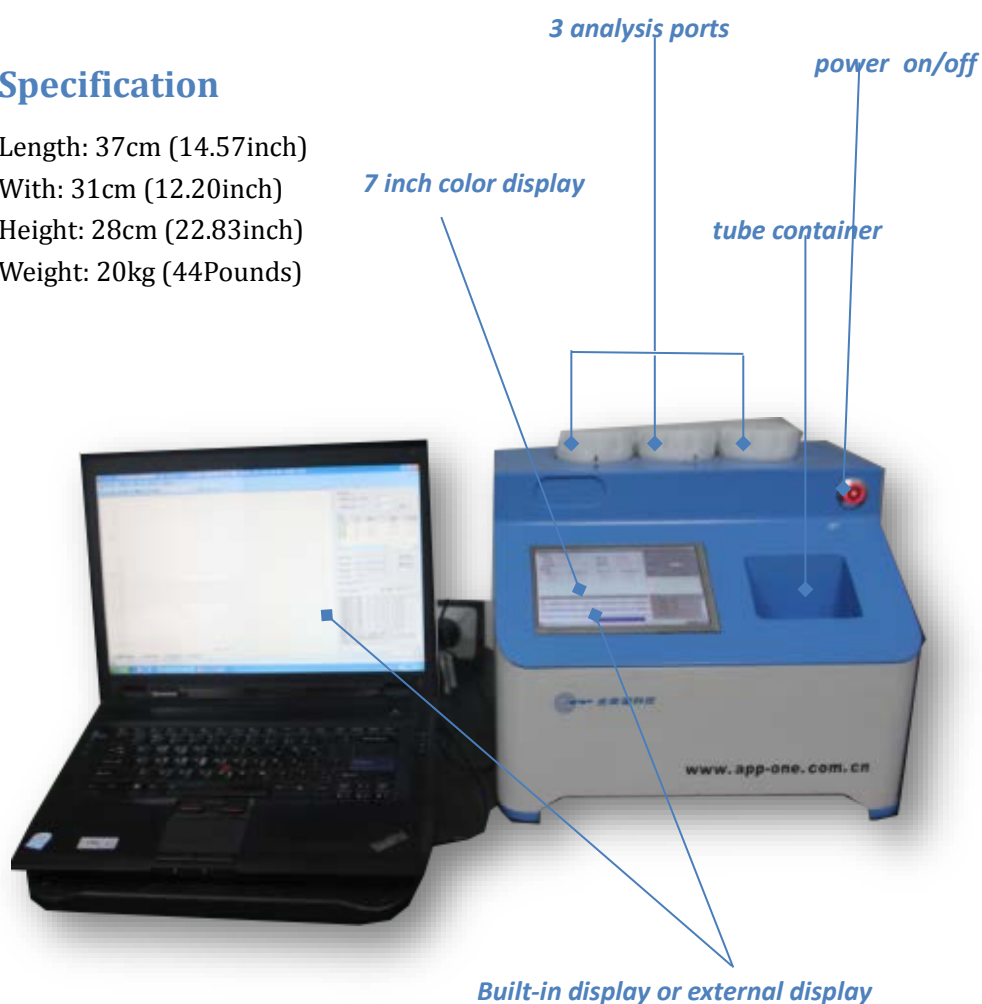## A world of applications
G-DenPyc 2900

Gas pycnometers are used extensively for characterizing a wide variety of solids such as
ceramic, catalysts, filter medium, nuclear fuel, oil & chemical industry, soil, fertilizer, carbon black, hard coke, fiber, minerals, pharmacy, cosmetics, cement, powdered foodstuff, desiccant (drying agent), powdered metal, ion exchange resin, silicon gel, alumina, titanium dioxide, solid foam etc.

➤ Analysis Method: gas displacement method, volume expansion method
➤ Versatility: true density analysis, rigid foam materials' percentage of open/closed space analysis
➤ Experimental Pressure: external vacuum pump is option, can adopt negative pressure (0-1Bar) or positive pressure (1-2Bar) two modes to analysis
➤ Accuracy: ±0.02% of reading, repeatability ±0.01%, resolution can reach 0.0001g/ml
➤ Sample Ports: three samples analysis
➤ Pressure Accuracy: imported high-precision pressure transducer, accuracy can reach 0.04% F.S., stability 0.025% F.S.
➤ Adsorbate Gas: high purity He or N_2 (99.999%)

Specification

Length: 37cm (14.57inch)
With: 31cm (12.20inch)
Height: 28cm (22.83inch)
Weight: 20kg (44Pounds)

3 analysis ports

power on/off

7 inch color display

tube container

Built-in display or external display

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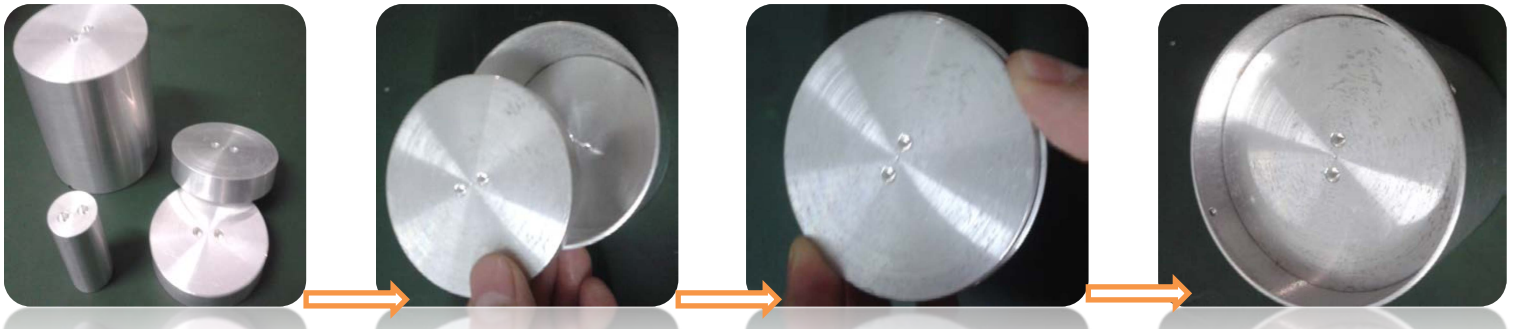
Hardware Advantages

Different sample cells to match different shapes/mass samples

Big sample container can fill in various sorts of samples; easy for sample's loading and unloading; convenient for container's cleaning.

If analyzed sample mass is too little, can fill in aluminum blocks (speedy thermal conductivity) which can reduce space in sample cells, further, eliminate analysis errors and improve accuracy.
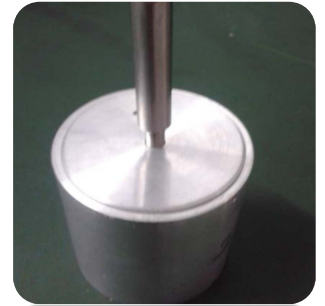

An aluminum lid can seal sample cells perfectly. Three functions for the sample cells' lid:

- Can completely eliminate sample splash, which may cause cells contamination, when vacuum pumping;
- Prevent samples pumped into electromagnetic valve which is a fragile and important part for analysis system;
- Can reduce pressure impact.

A delicate aluminum stick can help operators to screw the lid tightly and easily.

Double seals lead to a sound sealing performance; guarantee a highly accurate, repeatability and reproducibility data.

Software Advantages

Software Advantages
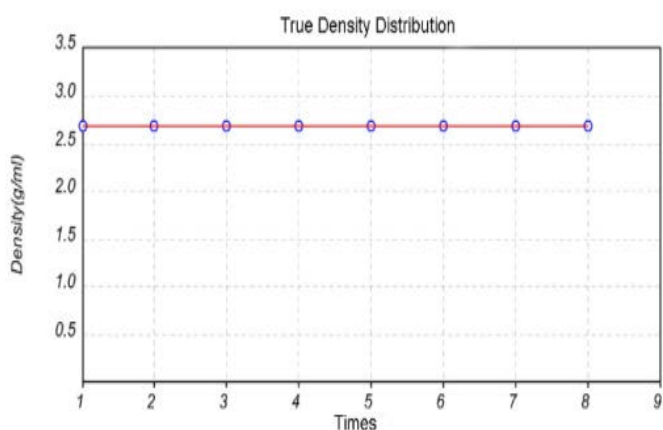
G-DenPyc 2900 can be controlled by a built-in keypad or an external computer system. The whole analysis status can be continuously displayed in the 7 inch touchable display.

Monoblock aluminum and thermostatic system can produce a minimal temperature floating (±0.1℃), help a lot for big mass samples whose density change dramatically with temperature.
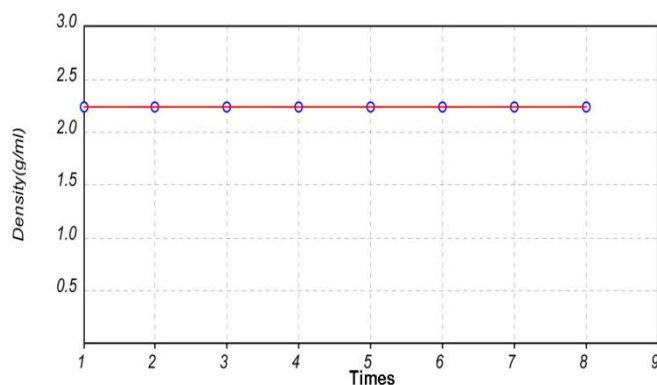
G-DenPyc 2900 system not only support multiple analyses in a fixed pressure but also provide target pressure analysis within a select range.

Offered user selected reports:
- ✓ True density
- ✓ True volume
- ✓ Total pore volume,
- ✓ Foams' percentage of open/closed space
- ✓ Summary report
- ✓ Sample log
- ✓ User defined tabular reports
- ✓ Equilibration report etc.

Data Reports

Equilibrium Pressure	Empty Cell Volume (ml)	Free Volume (ml)	True Density (g/ml)
51118.04	52.901100	37.744344	2.221099
47134.81	52.901100	37.800652	2.229382
45549.39	52.901100	37.802056	2.229589
46767.28	52.901100	37.791990	2.228103
50934.95	52.901100	37.791131	2.227977
47014.11	52.901100	37.798511	2.229065
51084.13	52.901100	37.786677	2.227320
47065.65	52.901100	37.793106	2.228268

True density distribution reports

Data Report Tabular for Battery Materials

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SR No.		Parts	Quantity
1	Manufacturer Supplied	G-DenPyc 2900 Analyzer	1 set
2		Analysis Software (English)	1 set
3		Rubber O-rings for Sample Cells Sealing	10
4		Sample Cells (container)	4
5		Filling Aluminum Blocks (for sample cells)	5
6		Copper Gas Pipeline	2 m
7		RJ 45 Cable	2
8		Data Switch	1 set
9		Calibration Ball	1 pc
10		User Manual(English)	1 copy
11		Software CD (English)	1 copy
12	Optional	0.0001 accuracy balance	1 set
13		High Purity He (99.999%)	1 cylinder
14	Customer Prepared	3 Pins Power Cable	1 pc
15		Gas Regulator *(should fit 1/8''NPT gas pipe, max reading value larger than 0.6 Mpa)*	1 set
16		Computer (not a must)	1 set
17		Printer (not a must)	1 set

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