nanometrix
ANALYTICAL INSTRUMENTS®

Densi 100A Series

Automatic True Density Analyzer

Making world-class products

Outline

True density is one of the important parameters in measuring physical property of solid materials, especially powder. Value of true density depends on material purity and compactness which affect the quality of sample. The traditional measuring true density of materials is based on Archimedes water displacement method. As the serious inaccuracy of manual operation and drainage exists, ISO (the International Standard Organization) officially implemented gas displacement method (ISO 12154) to test the true density in 2014.

Densi 100A True Density Analyzer can quickly and accurately produce true volume and true density of various solid materials such as powders and blocks. The sample chamber volume range is 1 cm^3 - 100 cm^3. It takes about 3 minutes to complete analyses without influencing accuracy.

Test Gas
Helium/Nitrogen

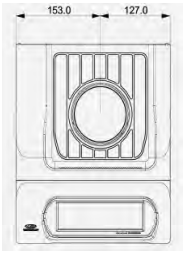
Characteristic
Nondestructive Test

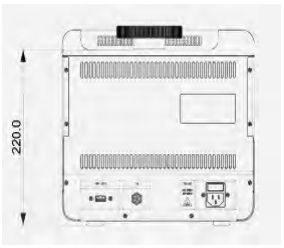
Repeatability
±1%

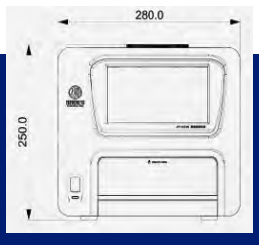
Resolution 0001
g/mL

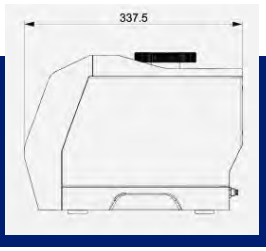
Features

Self-developed Kernel Module









- Setting sample chamber, expansion chamber, pressure sensor, control valve in one, ensuring homogeneity of test system temperature. Accuracy of true density test can be up to ± 0.03%, repeatability is less than ± 0.02%;.

- Pressure Sensor
  Densi 100A with 2 bar (F.S.) makes test has a good result in the true density measurements. Non Linearity of pressure sensor is better than ± 0.2% which benefits recording pressure.

- Standard Substances
  Standard substance is made by non-expanded alloy and calibrated by National Institute Metrology Volume precision is up to 10-4 cc.

- Density Measurement
  Densi 100A Automatic True Density Analyzer can accurately measure true density of powder over 1-1.3 bar pressure ranges.
  Do not use vacuum pumps during testing to avoid pumping samples to pollute analyzer.

- Unique Design
  Controlling and operating by ARM &Windows CE without configuring computer for Densi 100A.
  The instrument is equipped with intelligent self-test program, which can automatically judge sealing of the test system and eliminate personal error.

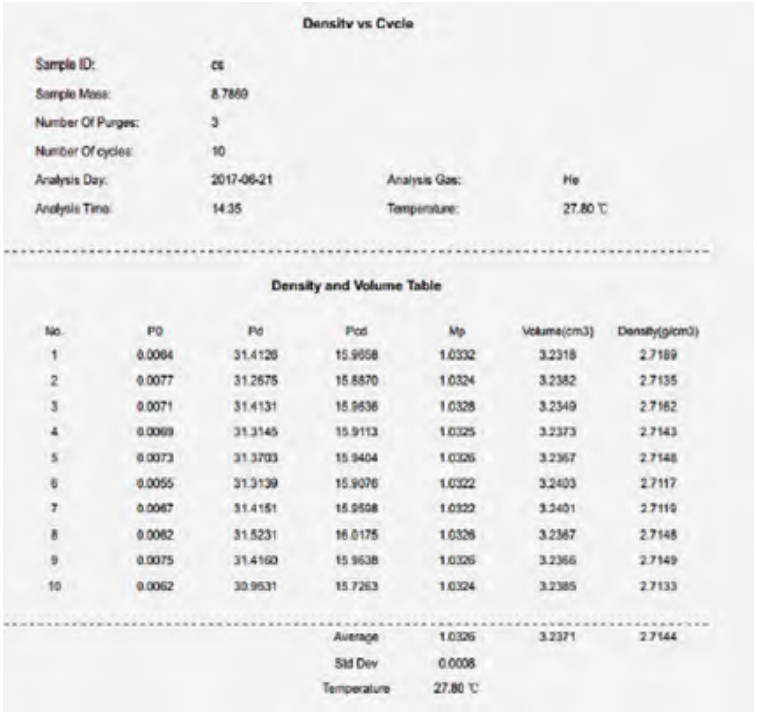
- Sample Test Chamber and Sample Cell

Sample test chamber	Sample cell	Conversion chamber
10mL	10mL	-----
100mL	100mL	10mL

Features

- Operating Software
  Densi 100A provides automatic tests for user. It takes about 3 minutes to complete a test. Users can free to set up repeat times, test data is automatically saved and displayed in txt files, results can be exported through USB port. Densi 100A is configured with PC-side standard test report generate and print software.

Typical analysis examples

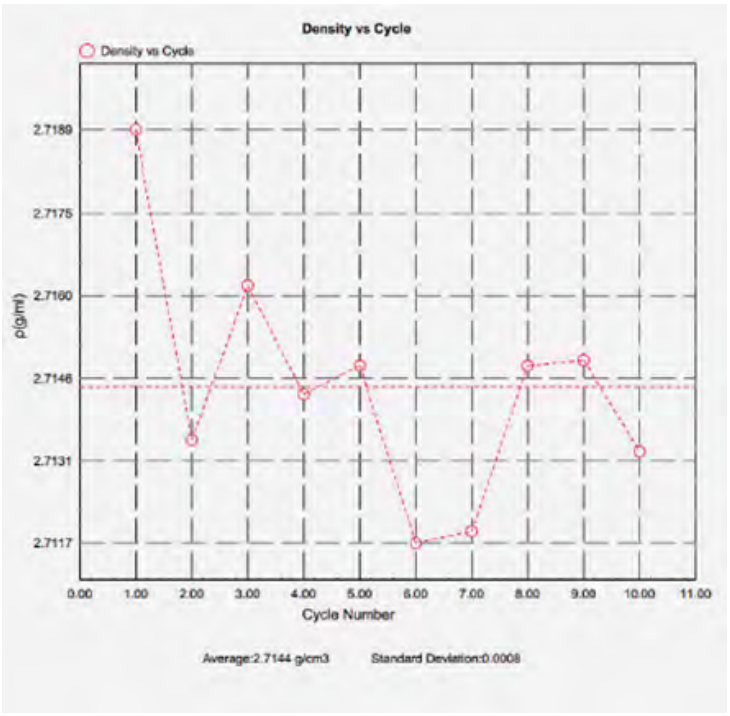


Density vs Cycle

Sample ID:	cs
Sample Mass:	8.7869
Number Of Purges:	3
Number Of cycles:	10
Analysis Day:	2017-06-21
Analysis Gas:	He
Analysis Time:	14:35
Temperature:	27.80 ℃

Density and Volume Table

No.	P0	Pd	Pcd	Mp	Volume(cm3)	Density(g/cm3)
1	0.0084	31.4126	15.9658	1.0332	3.2318	2.7189
2	0.0077	31.2675	15.8870	1.0324	3.2382	2.7135
3	0.0071	31.4131	15.9636	1.0328	3.2349	2.7162
4	0.0069	31.3145	15.9113	1.0325	3.2373	2.7143
5	0.0073	31.3703	15.9404	1.0326	3.2367	2.7148
6	0.0055	31.3139	15.9076	1.0322	3.2403	2.7117
7	0.0067	31.4151	15.9658	1.0322	3.2401	2.7119
8	0.0062	31.5231	16.0175	1.0326	3.2367	2.7148
9	0.0075	31.4160	15.9638	1.0326	3.2366	2.7149
10	0.0062	30.9531	15.7263	1.0324	3.2385	2.7133
			Average	1.0326	3.2371	2.7144
			Std Dev	0.0006		
			Temperature	27.80 ℃		



Densi 100A Series

Characteristics:

-Precise

-Requires no organic liquids

-Low user expense

-Automation

-Material Research

-Chemical Engineering

-New Energy

-Catalytic Technologies

Specification

Main Performance Parameters of the Instrument

Type	Densi 100A
Test Principle	Gas adsorption by static volumetric method
Application	True density, true volume, opening porosity of solid and foam materials.
Analytical bit	1
Range of test	0.0001 g/mL to infinity
Resolution	0.0001 g/mL
Accuracy	±0.03%
Repeatability	±0.02%
Efficiency	3 min per measurements
Tipical gas	N2, He
Test pattern	Positive pressure test in ambient temperature.
Sample form	Powder, particle, granule
Related Humidity	30%-60%
Machine specification	Depth: 380 mm; width: 280 mm; height: 280 mm; weight: 10 kg
Ambient temperature-ment	15-40°C
Electrical supply	AC220 V ± 20 V, 50/60 HZ, maximum power 100W;
Application fields	Graphite anode materials, carbon materials, ceramics, alumina, catalysts, filter media,nuclear fuel, petrochemicals, soils, fertilizers, carbon black, coke, fiber, minerals, pharmaceuticals, cosmetics, cement, powder foods, desiccants, powder metal , ion exchange resins, silica gel, titanium dioxide, solid foam, etc.