V-Sorb 2800TP™

Turbo Vacuum Pumped Surface Area & Porosity Analyzer

Gold APP Instruments China

Lead You to Particle World Better

Turbo Molecular Vacuum Pumped

Surface Area & Porosity Analyzer <u>**V-SORB 2800TP**</u> *Parameters*

Analysis Method: Static volumetric nitrogen adsorption principle

Versatility: Adsorption and desorption isotherms, Single and multi-point BET surface area, Langmuir surface area, Average particle diameter estimation, T-plot external surface area, True density analysis, BJH mesopore total pore volume and pore size distribution, T-plot micropore, Horvath-Kawazoe (HK) micropore, Saito-Foley (SF) micropore, Dubinin-Radushkevich (DR) micropore, Dubinin-Astakhov (DA) micropore, carbon black STSA etc.

Vacuum System: V-Sorb unique *stainless steel micro welding vacuum manifolds system, metal-to-metal (VCR) fittings*, reduce dead space in maximum degree and also keep long duration high vacuum; the *VCR metal fittings' vacuum leak rate can reach $1x10^{-10}$ (Pa*m³/s)*, absolutely without usage of any O-ring sealing which will release gas to affect vacuum purity when under high vacuum condition

Vacuum Cavity: V-Sorb unique *monolithic manifolds and pneumatic valve control system*, greatly reduce the dead volume; improve the adsorbate micro-change sensitivity; enhance pore size distribution analysis resolution; decrease connecting points; strengthen sealing performance and prolonged instrument life

Measuring Ranges: $0.01 m^2/g$ (Nitrogen)/ $0.005\ m^2/g$ (Krypton) to no known upper limit (surface area); 0.35 to 500nm (pore size)

Accuracy: repeatability errors ≤1.0%

Coolant Level Controller: V-Sorb original *coolant level control system with temperature probe*, ensure the coolant level unchanged when compares with sample cells in the whole analysis process, completely eliminate the analysis errors caused by dead volume change

Data Acquisition: high-precision and high integration data acquisition and archiving system, minimal error, strong anti-interference ability

Sample Ports: two samples' analyzing and two samples' degassing concurrently

Control System: programmable pneumatic valve system with high integration and strong anti-interference ability, enhance instrument's stability and life

Pressure Measurement: imported *sectional measuring dual pressure transducer*, notably improve the measuring accuracy at low P/P_o point, 0-1000Torr, 0-1Torr and 0-0.1Torr equipped.

Transducer Accuracy: imported *silicon thin film pressure transducer*, accuracy can reach 0.1% of real reading, better than 0.1% of F.S.(full-scale), far accurate than Pirani resistance vacuum gauge (general error is 10%-15%)

Vacuum Pump: built-in *bipolar Atlas Copco vacuum pump* controlled by patented software which can auto control pump's start/stop

Dewar Vessel: Japan brand *4 liter stainless steel Dewar* can provide at least 72 hours of unattended measurement without refilling the Dewar
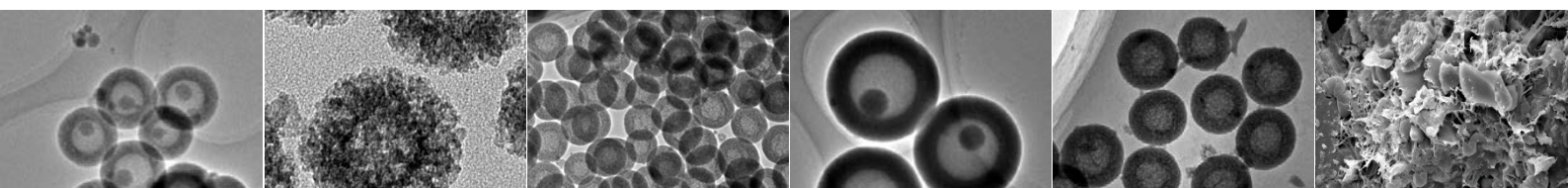
Partial Pressure: P/P_o controllable accuracy range is $5x10^{-8}$-0.998

Ultimate Vacuum: bipolar pump: $4x10^{-2}$Pa ($3x10^{-4}$Torr), molecular pump: $5x10^{-8}$ mbar

Sample Types: powders, particle, fiber, flakes and other materials

Adsorbate Gas: high purity nitrogen (≥99.999%), Ar, Kr, CO, CO_2, etc. non-corrosive gases are optional

Data Reduction: Windows®-based independent developed Gold APP Instruments software™, perfect versatility, produced full featured and multi-model reports

Turbo Molecular Vacuum Pumped
Surface Area & Porosity Analyzer V-SORB 2800TP Features

1. *Stainless steel micro welding vacuum manifolds* system can reduce the leak rate apparently, improve ultimate vacuum, without daily maintenance and enhance stability.

2. Micro welding vacuum system can decrease manifolds' volume, increases measuring sensitivity and raise accuracy.

3. Imported with *original packaging turbo molecular vacuum pump*, ultimate vacuum can reach 5×10^{-8}-0.998 mbar, maintenance free, convenient to use, reduce latter utilization cost.

4. Micro welding vacuum system, *high vacuum pneumatic valve* and high ultimate vacuum molecular pump unite perfectly, bring each accessories performance into full play, precision degree can reach until 5×10^{-8}.

5. Imported high vacuum pneumatic valve's sealing performance is up to 5×10^{-12} (Pa * m^3/s), can completely remove analyzed gas temperature change caused by valve heat.

6. Fully *metal-to-metal VCR* connecting can eliminate O-ring self gas release problem when under high vacuum circumstance, efficiently improve ultimate vacuum and analysis reliability.

7. Imported high-precision silicon thin film capacitive transducer, the core part, can realize auto zero by software; the *0.1 Torr full-scale (F.S.) transducer* assists micropore to achieve a more accuracy data for low P/P_o points.

8. *Monolithic design* can configure as customer requests, benefits future functions extension and instrument maintenance.

9. Programmable pneumatic valve system with high integration and strong anti-interference ability, speed and easy for upgrade and maintenance.

10. *Fully auto and modularity design*, equipped with dedicated software, can realize unattended operation at night.

11. Multi calculating methods for data reduction provides all-round sample analysis options; powerful data archiving and searching system helps a lot for data management.

2 pretreatment ports
2 analysis ports
quartz sample cells
transparen covers with printed notes
heating mantle
coolant level prober
fully automated Dewar elevator
4L stainless steel Dewar flask can support more than 72 hrs

Japan Fujinkin brand pneumatic valve

Inficon brand pressure transducers

Testing Reports

Reports formats PDF+Excel+TXT+Word
Data cover BET/Langmuir/BJH/SF/T-plot/HK/DR/DA...
Selective P/Po points over 1000
Detailed adsorption & desorption points are available
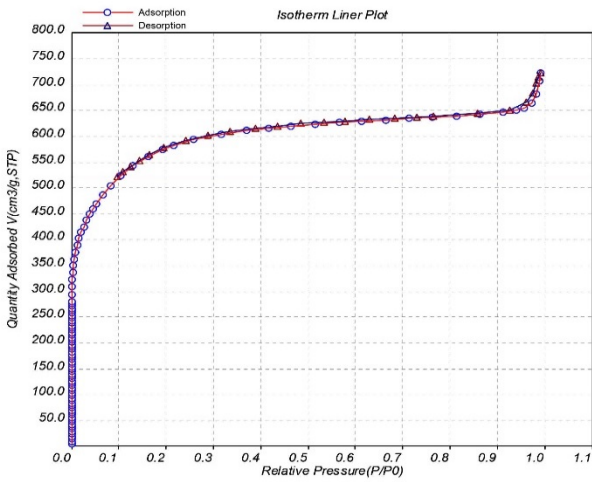
Surface Area and Pore Analysis Report
V-Sorb 2800TP Surface Area and Porosimetry Analyzer

Sample Information

Sample ID: NO1	Model: V-Sorb 2800TP Surface Area and Poros
Submitter: micropore	Company: Gold APP Instruments China
Operator: Qiaoyun.Qin	Report Time: 2014-07-28

Analysis Information

Mass : 0.13170 (g)	
Method: Pore size	Pretreatment: 200 degree 2hrs
Room Temp.: 25 degree	
Analysis Time:	

Isotherm Liner Plot

www.app-one.com.cn   No.:

Manufacturer: APP Instrument   V-Sorb 2800TP Surface Area and Porosimetry Analyzer   Support: (8610)88099139
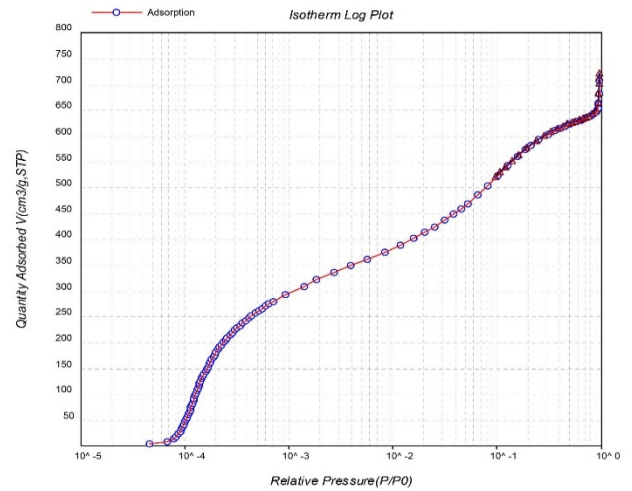
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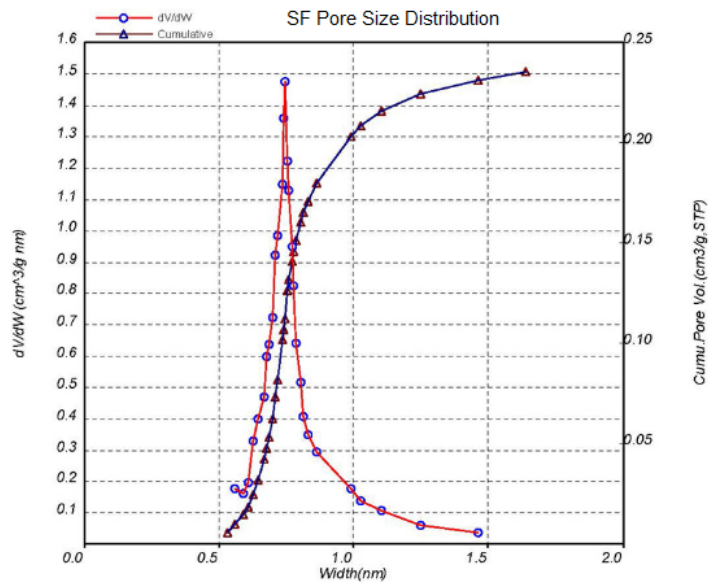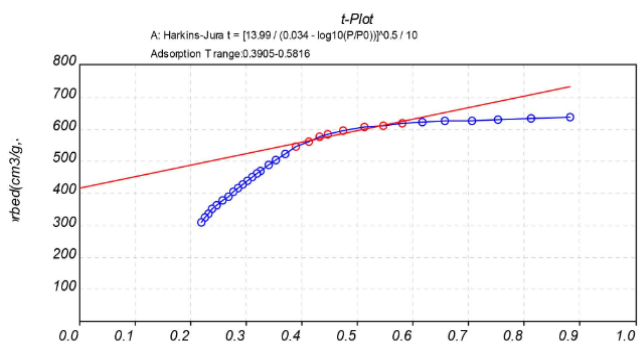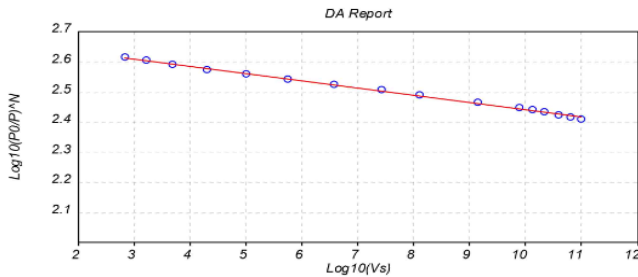| Mass : 0.13170 (g)	
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Isotherm Log Plot

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Manufacturer: APP Instrument   V-Sorb 2800TP Surface Area and Porosimetry Analyzer   Support: (8610)88099139

DA Report

t-Plot

A: Harkins-Jura t = [13.99 / (0.034 - log10(P/P0))]^0.5 / 10
Adsorption T range:0.3905-0.5816

SF Pore Size Distribution

Accessory List

Sr. No.	Supplier	Parts	Qty.
1	Manufacturer Supplied	V-Sorb 2800TP Analyzer (with vacuum pump)	1 set
2		Rubber O-rings for Sample Cells Sealing	10 pcs
3		Spherical Sample Cells	10 pcs
4		V-shape Sample Funnel	10 pcs
5		Certificated Reference Material (large value)	10 g
6		Certificated Reference Material (medium value)	10 g
7		Certificated Reference Material (small value)	10 g
8		Copper Gas Pipe	2 m
9		Analysis Dewar (one 4L + one 520ml)	2 pcs
10		Fuse	2 pcs
11		RJ 45 Cable	2 pcs
12		Protective Gloves	1 pair
13		User Manual (English)	1 copy
14		Software CD (English)	1 copy
15		Po Cell	4 pcs
16		Filling Rod	8 pcs
17		Sample Cell Cleaning Brush	1 pc
18		Funnel Cleaning Brush	1 pc
19		Sample Weighting Cup	1 pc
20	Customer Prepared	Computer (Window® 2000/07/08/XP/Vista etc)	1 set
21		0.0001 precision balance	1 set
22		Printer (not a must)	1 set
23		Gas Regulator (should fit 1/8" NPT gas pipe, max reading is larger than 0.6Mpa.)	2 sets
24		Liquid Nitrogen (purity upper 99.999%)	1 pot
25		Power Cable	1 pc
26		He Gas (purity upper 99.999%)	1 cylinder
27		N_2 Gas (purity upper 99.999%)	1 cylinder

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Static volumetric principle analyzers:
V-Sorb X800 series

Gas pycnometer true density analyzers:
G-DenPyc X900 series

High pressure volumetric analyzers:
H-Sorb X600 series

Sample preparation degassers:
F-Sorb & V-Sorb

Our policy of continuous development may cause the information and specifications contained herein to change without notice or liability.

A WORLD OF APPLICATION

activated carbon, silica gel, active alumina oxide, molecular sieve, sepiolite, zeolite, alumina oxide, silicates, quartz, silicon carbide, lithium cobalt oxide, lithium manganese oxide, black lead, lithium nickel and cobalt, cobaltous oxide, lithium iron phosphate, lithium titanate, polymer, corrosion resister, silica, nano-calcium carbonate, zinc oxide, magnesium oxide, barium oxide, iron oxide, copper oxide, ferroferric oxide, ferrite, silver/iron/copper/ tungsten/nickel/aluminate powder, filler, inorganic filler, calcium carbonate, silica, deposited matter, suspended matter, titanium dioxide, rare earth, coal, cement, energy storage materials, catalyst, diatomaceous earth, cleansing agent, filter aid, superfine fiber, porous fabric, composite material, methane, coalbed gas etc.