



# V-Sorb 2800<sup>TM</sup>

Surface Area and Porosimetry System

**Gold APP Instruments China**

**Lead You to Particle World Better**



## High Throughput Surface Area & Porosity Analyzer V-Sorb 2800<sup>TM</sup>

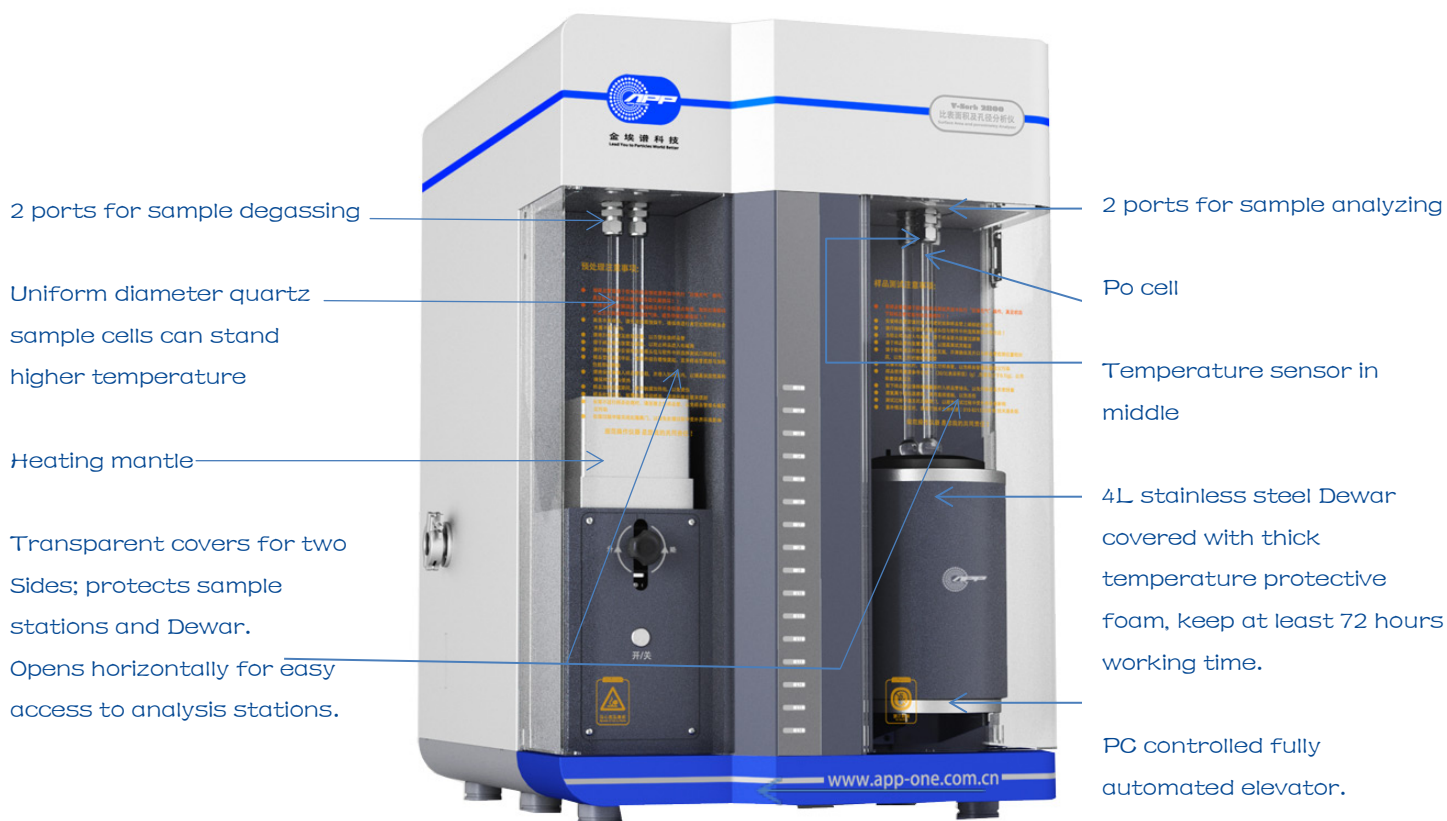
**V-Sorb 2800** is Gold APP Instruments self-developed surface area and porosity analyzer which utilizes static volumetric. Compared with other companies' analyzers, multi pioneered techs make instrument's performance much better, heighten accuracy and consistence of results, enhance measurement stability, all these lead to a leading level in world market competitors. Analyzer designed from the user perspective and equipped with fully automated operation, user-friendly interface makes it easy to learn, imported accessories assure stability and prolong life. Perfect design, sophisticated production and strict testing guarantee to meet customers' real demands. The high cost performance of V-Sorb 2800 easily ensure your investment profits and flexible equipped peripheral can satisfy different users' requests.

### Capable of Handling:

Adsorption and desorption isothermal curve analysis,  
Single and multi-point BET surface area,  
T-plot external surface area,  
True density analysis,  
BJH mesopore analysis,  
BJH total pore volume and porosity,  
T-plot micropore analysis,  
Langmuir surface area analysis  
Average pore size,  
Dubinin-Radushkevich (DR)  
Dubinin-Astakhov (DA)  
micropore surface area,  
and so on...

### Typical Industries:

Textiles, nanotechnology, cosmetics, fuel cell technology, pharmaceuticals, dyes, paints, pigments, ceramics, environmental, filtration, toothpaste manufacture, healthcare, materials, medical devices, metal powder manufacture, soil, rare earth etc.



# V-Sorb 2800 Parameters

**Analysis Method:** static volumetric nitrogen adsorption

**Measuring Ranges:**  $0.005\text{m}^2/\text{g}$  to no known upper limit (specific surface area)  
2 to 500nm (pore size)

**Accuracy:** repeatability errors  $\leq 1\%$

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

**Ultimate Vacuum:**  $4 \times 10^{-2}\text{Pa}$  ( $3 \times 10^{-4}\text{Torr}$ )

**Adsorbate Gas:** high purity nitrogen ( $\geq 99.999\%$ ), Ar, Kr,  $\text{CO}_2$  etc. optional

**Vacuum System:** 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

**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

**Analysis Types:**  $\text{N}_2$  and  $\text{N}_2+\text{He}$  two types available

**Sample Pretreatment:** the whole pretreatment procedures are controlled by dedicated software, as well with a start time delay function which can realize unattended operation at night

**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  $P/P_0$  point, 0–1000Torr (0–133Kpa), 0–10Torr (0–1.33Kpa)

**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%)

**Partial Pressure:**  $P/P_0$  controllable accuracy range is  $5 \times 10^{-6} - 0.998$

**Sample Types:** powders, particle, fiber, flakes and other species

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

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



## Surface Area and Pore Analysis Report

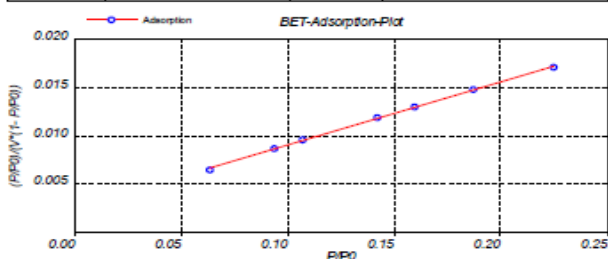
V-Sorb 2800 Surface Area and porosity Analyzer

### Sample Information

Sample ID: NI Powder	Model: V-Sorb 2800 Surface Area and porosity
Submitter: King saud University	Company: Gold APP Instrument China
Operator: Qiaoyun Qin	Report Time: 2013-03-11

### Analysis Information

Mass: 0.06490 (g)	Pretreatment: 50°C Vacuum heat treatment 5 hours
Method: Multi-Point BET	
Room Temp.: 25°C	
Analysis Time:	Multi-BET: 63.961357(m <sup>2</sup> /g)



### BET Tabular Report

P/P0	Quantity Adsorbed(ml/g)	(P/P0)/(V*(1-P/P0))	Single point BET
0.224770	16.961038	0.017034	57.223187
0.186866	15.611354	0.014721	55.244853
0.159637	14.631085	0.012983	53.509684
0.141860	13.956558	0.011845	52.122531
0.107202	12.632304	0.009605	49.082270
0.093751	11.992341	0.008626	47.297722
0.063358	10.414996	0.005496	42.453849
Slope	Intercept	Vm(ml)	C Value
0.065598	0.002450	14.696395	27.772545
R	Multi-BET Surf. Area	Lang. Sur. Area	
0.999782	63.961357(m <sup>2</sup> /g)	90.732239(m <sup>2</sup> /g)	

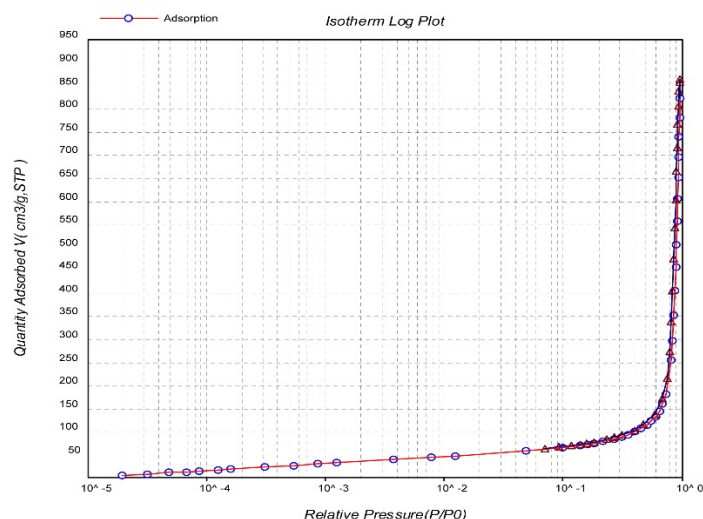
www.app-one.com.cn

No.:

Manufacturer: APP Instrument

V-Sorb 2800 Surface Area and porosity Analyzer

Support: (8610)88089138



# V-Sorb 2800 Advantages

## Measures for Improving Accuracy

- ⊕ *Imported silicon thin film capacitive pressure transducer*, accuracy can reach 0.1% of real reading, better than 0.1% of F.S. (full-scale).
- ⊕ *Inficon brand 0–10Torr and 0–1000Torr dual transducers*, sectional measurement in pressure range can reduce errors in low vacuum, 0–10Torr silicon thin film transducer is highly accurate than Pirani resistance vacuum gauge (general error is 10%–15%).
- ⊕ Unique *monolithic manifolds* system, decrease connecting points and reduce leak rate apparently.
- ⊕ Original *stepping coolant level control system*, 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.
- ⊕ Pioneered gas outlet and inlet control system can efficiently prevent sample splash in evacuation and gas inlet process, guarantee clean manifolds and sample weight unchanged, avoid zero and liner drifting caused by transducer's macro-change.

## Vacuum System

- ⊕ Unique integral manifolds system, decrease connecting points apparently, reduce leak rate, improve ultimate vacuum.
- ⊕ *Modularity design* can configure as customer requests, benefits future functions extension and instrument maintenance.
- ⊕ *Atlas Copco brand bipolar vacuum pump*, low noise, stable working, oil-return prevention; ultimate vacuum can reach  $4 \times 10^{-2}$  Pa ( $3 \times 10^{-4}$  Torr).

## Data Acquisition and Reduction

- ⊕ High precision and integration data acquisition module is easy to connect, minimal errors and strong anti-interference ability; standard RJ45 communication mode is good for analyzer's applications extension and interconnection, can also conveniently switched to RS232 and USB modes.
- ⊕ Multi calculating methods for data reduction provides all-round sample analysis options; powerful data archiving and searching system helps a lot for data management.

## Control System

- ⊕ Industry used *programmable pneumatic valve* system, strong anti-interference ability, convenient for installation and uninstallation.
- ⊕ *Separated analysis and pretreatment manifolds* can prevent foreign matter to contaminate manifolds in sample treatment.

## Regulator assembly

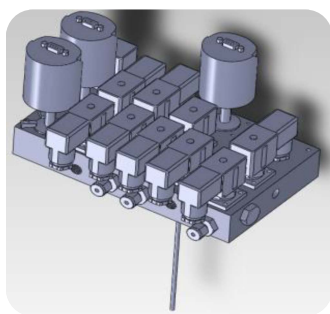
- ⊕ Two-stage regulators with dual gauges, cylinder connector, isolation valve and 1/8" gas line connector.
- ⊕ The stainless steel regulator, non-venting diaphragms and the appropriate CGA fitting for specific gases.
- ⊕ Different assemblies are available for nitrogen, hydrogen, carbon monoxide, oxidizing gases etc.

## Physical

- ⊕ Height 22.05 inches (56cm)
- ⊕ Width 20.87 inches (53cm)
- ⊕ Depth 23.62 inches (60cm)
- ⊕ 132 pound (60kg)



Pressure Transducer



Monolithic Installation



Atlas Copco Brand Pump



Japan Pneumatic Valves



# V-Sorb 2800 Accessories

Sr. No.	Supplier	Accessories	Qty.
1	Gold APP Instruments Supplied	V-Sorb 2800 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		Reference Material (large value)	10 g
6		Reference Material (medium value)	10 g
7		Reference Material (small value)	10 g
8		Copper Gas Pipe	2 m
9		Analysis Dewar (one 4L, one 520ml)	2 sets
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	Option	V-Sorb degasser	1 set
21	Customer Prepared	Computer (Window® 2000/2007/2008/ XP/Vista etc.)	1 set
22		0.0001 precision balance	1 set
23		Printer (not a must)	1 set
24		Gas Regulator (should fit 1/8" NPT gas pipe, max reading is upper than 0.6Mpa.)	2 sets
25		Liquid Nitrogen (purity upper 99.999%)	1 pot
26		Power Cable	1 pc
27		He Gas (Purity upper 99.999%)	1 cylinder
28		N2 Gas (Purity upper 99.999%)	1 cylinder

**Static volumetric principle analyzers:**

V-Sorb X800 series

**Gas pycnometer analyzers:**

G-DenPyc X900 series

**High pressure volumetric analyzers:**

H-Sorb X600 series

**Sample preparation degassers:**

F-Sorb & V-Sorb

**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.

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