F-Sorb 2400CE™

Flowing Gas Principle
BET Surface Area Analyzer

GOLD APP INSTRUMENTS

Lead You to Particle World Better

The flowing gas technique to determine BET surface area has been used for over 60 years. Many facts of the technology make it a very attractive alternative to the static volumetric principle analyzers. The speed of analysis, higher cost performance and the resulting high sample throughput is also quite attractive. As a result, for routine QA/QC analysis, there has been a renewal of interest in this technique.

The analytical technique is very easy to understand to its great similarity to chromatographic determinations. The change in the nitrogen to helium ratio of the gas after going over the sample is measured by a thermal conductivity detector.

The simple hardware, plus the lack of any waiting time following dosing as happens in the static volumetric case, makes this a very popular tool in a product manufacturing environment.

For speed, a single point measurement is typically completed within 5 minutes. For greater accuracy, a multi-point determination can be completed in less than 13 minutes.

F-Sorb 2400CE adopts speed and efficient continuous flowing gas (nitrogen) adsorption principle, is an expert for contrast reference materials method, single and multi-point BET method and Langmuir method analysis. BET method is universally recognized and the most commonly used way for nitrogen adsorption surface area analysis. No need of reference materials (RM) and utilizes sorption with incorporates multilayer coverage to calculate surface area. Speedy testing, high cost performances and easy operation make F-Sorb 2400CE be a desirable assistant for quality control in production field, research institutes and universities.

Built-in mini PC inside, Win7 system, dual core; high sensitive 7 inch true color touch screen; no need to equip external PC; USB port is reserved for external peripheral; also equipped with an internet port which can turn analyzer access to WWW.

Power on/off

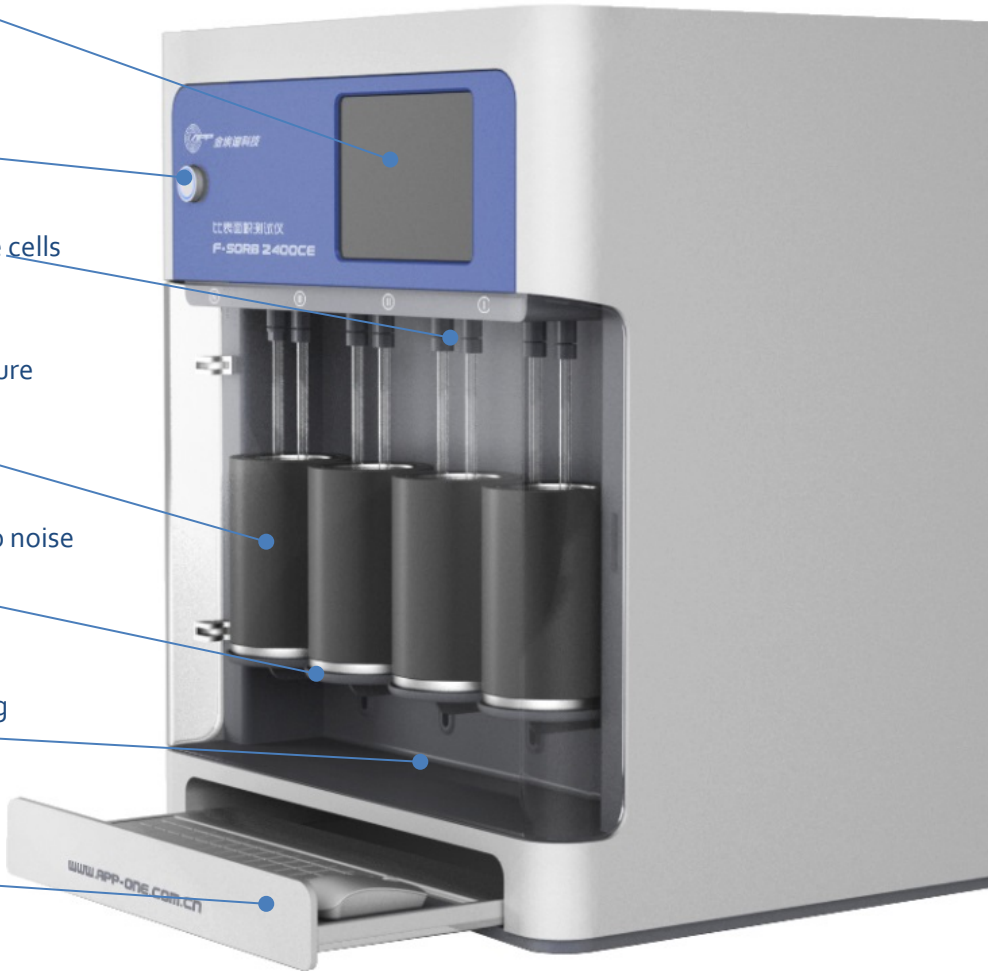
Four analyzing ports, with U shape sample cells

Stainless steel Dewar with thick temperature protective foam covered

PC controlled fully automated elevator, no noise produced during up and down

Transparent cover protect whole analyzing procedures, also safe to operators

Drawer for keyboard and mouse



F-Sorb 2400CE Parameters

Measuring Method:
Contrast reference materials method, single and multi-point BET method, Langmuir surface area method, adsorption and desorption isotherm, average particle size estimate, carbon black external surface (STSA), adsorption constant C analysis etc.

Measuring Ranges:
0.01 m^2/g to no known upper limit (surface area)

Accuracy:
Repeatability errors ≤1%

Flow Rate Adjust:
Gold APP Instruments patented F-Sorb micro stepping motor traffic can realize flow rate auto-adjust for every P/Po point in BET analysis; flow rate value auto-collected by software and real-time displayed in interface

Quantitative Dosing:
Patented F-Sorb quantitative pipe™ desorbs automatically, realized auto dosing for sample desorption isotherm, manual pipeline switch is not required

Manifolds Sealing:
High vacuum system with stainless steel (not plastic pipe) manifolds, sound sealing performance can eliminate errors caused by gas molecules permeation

Sample Types:
Powders, particle, fiber, flakes and other species

Sample Ports:
4 samples simultaneously

Analysis Gases:
high purity (99.99%) Helium as carrier; Nitrogen (99.99%) as adsorbate; Ar, Kr etc. are optional

Analysis Time:
Less than 5 minutes for every P/Po point's adsorption and desorption; analysis data will present automated by Gold APP software™

Pressure Required:
Atmospheric pressure, no need vacuum, save experiment time

Data Acquisition:
High precision and integration chip, minimal errors, strong anti-interference ability

Data Reduction:
Windows®-base independently developed Gold APP software™, perfect versatility, ease of use and multi-model data reduction reports

Operation System:
Multifunctional, fully automated, highly intelligent operation system

Faster, Easy to use, Increased sensitivity to low SSA materials, Higher throughput, Lower operation cost, Lower service cost.

F-Sorb 2400CE Advantages

A. Structure Design

1. Stainless manifolds system is much better than plastic manifolds, obviously enhances sealing performance, eliminates errors caused by gas molecules permeation, no ageing for manifolds, increase reliability and prolong life, more appropriate for humid environment.
2. Modularity structure satisfies customer required configuration and instrument maintenance.

B. Control System

1. Integrated multifunctional control system; motor screw rod lifting system ensures Dewar stability.
2. Innovated balanced bridge circuit greatly improves signal voltage sensitivity, as well as achieves auto balance of signal zero drift.
3. Fully-auto operation, minimal operator involvement and work efficiency improved.

C. Data Acquisition and Reduction

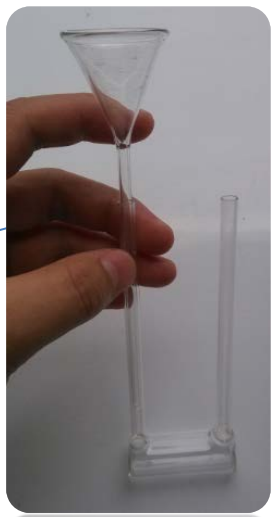
1. High precision data acquisition and signal amplification, high integrated A/D transformation system, strong anti-interference ability and high real time, can reduce environmental influence on analysis procedures.
2. Utilize super sensitive thermal conductivity detection and balance system can increase detectable signal range; zero drift auto calibration system enhances stability and accuracy.
3. Independently innovated Windows® compatible software, versatile applications, flexible customer-tailor interface, ease of use; self developed data reduction module can efficiently eliminate system errors and improve precision.
4. Customer made data reports and diversified data calculation models are convenient for data analyzing; powerful data archiving and searching capacity helps a lot for data management.

D. Analysis Optimize

1. Multi analysis methods, no need to convert operations frequently, all set in dedicated software.
2. Contrast reference materials method and BET method can switch freely, simplify operation steps and improve measurement efficiency.
3. Pioneered gas amount auto-adjust system brings extremely accurate, stable and no user intervention analysis.

520ml vacuum stainless steel Dewar plated with cooper which can buff liquid nitrogen volatilization . Can be used at least 5 years.

Adopting elaborated and smooth inner tank funnel for samples filling. Speedy and easy to prepare your samples.



F-Sorb 2400CE Reports

F-Sorb 2400CE test reports offer a detailed and comprehensive analysis data concern about specific surface area, including single and multi-point BET, Langmuir surface area, external surface area, each P/P_0 point adsorption quantity, the slope, the intercept, the V_m, the C value etc. Operator can clearly and easily master every sample data details.

BET Surface Area Report

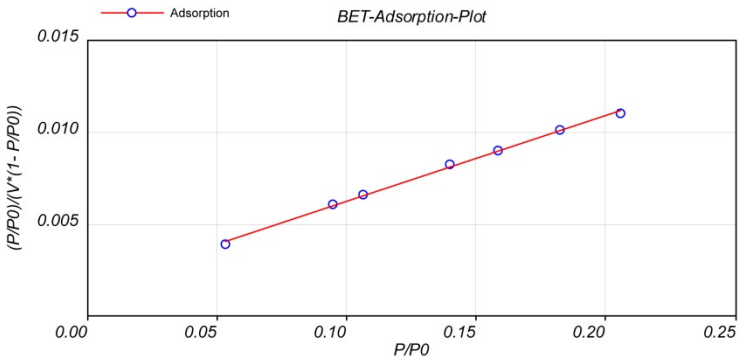
F-Sorb 2400CE Surface Area Analyzer

Sample Information

Sample ID:	2#	**Model:**	F-Sorb 2400CE Surface Area
Submitter:	SINOPEC	**Company:**	Gold APP Instrument China
Operator:	Qiaoyun Qin	**Report Time:**	2013-03-01

Analysis Information

Mass:	0.04170 (g)	**Pretreatment:**	50℃ Vacuum heat treatment 5 hours
Method:	Multi-Point BET		
Room Temp.:	25℃	**Multi-BET:**	90.026303(m2/g)
Analysis Time:			



BET Tabular Report

P/P0	Quantity Adsorbed(ml/g)	(P/P0)/(V*(1- P/P0))	Single point BET
0.205571	23.596414	0.010966	81.581215
0.182270	22.097466	0.010087	78.639610
0.158475	21.002372	0.008967	76.917308
0.139903	19.874888	0.008184	74.394523
0.106538	18.189866	0.006555	70.728537
0.094992	17.471425	0.006008	68.812889
0.053403	14.620593	0.003859	60.230822
Slope	**Intercept**	**Vm(ml)**	**C Value**
0.046841	0.001506	20.683928	32.104339
R	**Mult-BET Surf. Area**	**Lang. Sur. Area**	
0.998978	90.026303(m^2/g)	123.025076(m^2/g)	

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

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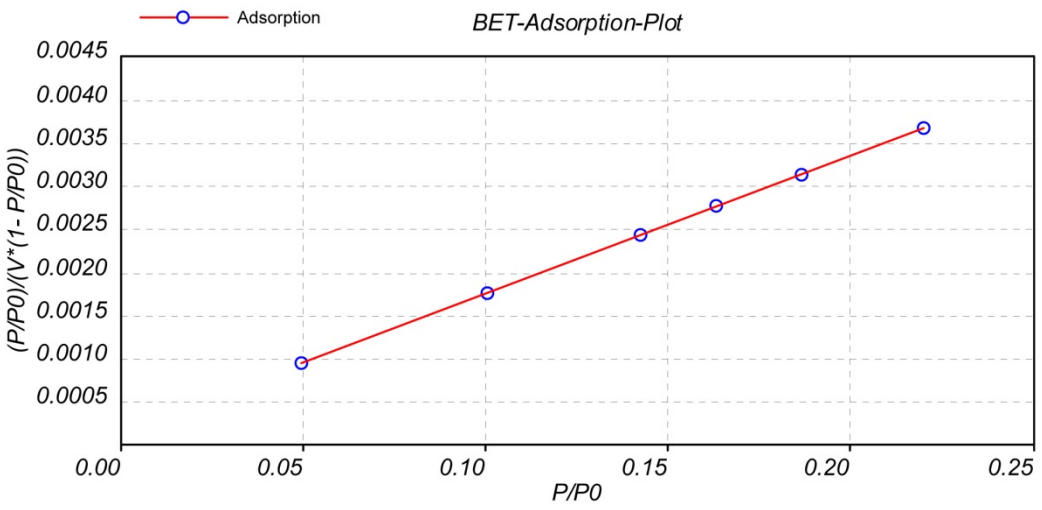

F-Sorb 2400CE Accessories

Item No.		Parts	Quantity
1	Manufacturer Supplied	F-Sorb 2400CE Analyzer	1 set
2		Analysis Software (English)	1 set
3		Rubber O-rings for Sample Cells Sealing	50
4		U-shape Sample Cells	20
5		V-shape Sample Funnel	8
6		Reference Material(big)	10 g
7		Reference Material(medium)	10g
8		Reference Material(small)	10 g
9		Stainless Steel Pipe	1 m
10		10L Liquid Nitrogen Storage Dewar	1
11		Analysis Dewar	5
12		Fuse	2
13		Power Line & Data Wire	2
14		Protective Gloves	1 pair
15		User Manual(English)	1 copy
16		Software CD (English)	1
17	Recommended	Sample Pretreatment Degasser	1 set
18	Customer Prepared	Computer	1 set
19		Printer	1 set
20		Gas regulator	2 set
21		40L He Gas (Purity 99.99%)	1 cylinder
22		40L N_2 Gas (Purity 99.99%)	1 cylinder
23		Liquid nitrogen	1 pot
24		Balance (0.00001 precision)	1 set

*Can use existing ones for items list in Customer Prepared

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