

# BSAPA:3280

## Bet Surface Area & Porosimetry Analyzers



EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

**Analytical Technologies Limited**

An ISO 9001 Certified Company

[www.analyticalgroup.net](http://www.analyticalgroup.net)

Analytical Technologies Limited is a dedicated manufacturer for gas adsorption analyzers, is a high technology company that combines state-of-the-art hardwares and professional theories for nano-materials determination. We originates and serves the Weapons System, relies on advantages of local talented human resource and weapons system technology and devotes into scientific instruments development, production and sale. To research and develop fully automatic and intelligent laboratory determination analyzers, provide international standards, high cost performance and state-of-the-art instruments for R&D institutes, universities and manufacturing enterprises are our unchanged mission.

### Our analyzers cover:

- \*BET surface area analyzers (flowing gas principle & volumetric adsorption principle)
- \*Pore size, pore volume, pore size distribution analyzers
- \*High pressure and temperature adsorption analyzers
- \*Helium pycnometer density analyzers/ open & closed pore cell analyzers
- \*Thermal analysis analyzers (TG/TGA/DTA/DSC etc)

BSAPA-3280 series analyzers work for determining BET surface area and pore size/ pore volume data by utilizing static volumetric adsorption principle. Be designed from the user perspective and with fully automated operation system, user-friendly interface makes it easy to learn, branded accessories assure stability and prolong its life.

Equipped with 2 analysis ports and 2 pretreatment ports. The pretreatment and analysis ports are separated, can work simultaneously and independently. All settings can be done through software, easy understanding operations can make all learners to fully master it within 1 day.

- 10 inch embedded PC with Windows system, can control analyzer operation automatically. Analyzer also has RS232 port for connecting bigger external display.
- 2 pretreatment/ degassing ports.
- 2 testing ports, 1 Po port.
- Software controlled heating mantle can realize temp. up to 400 Celsius degree.
- 4L stainless steel LN2 Dewar, be covered with temperature insulation material, can support over 72 hours working without refilling liquid nitrogen (LN2).
- LN2 tray can realize up/ down smoothly.
- Hand knob to control the heating mantle up/ down.
- Analyzer main power.
- Temperature probe sensor (in the middle of 3 tubes).
- Transparent protective doors be printed with operation notices for both degassing & testing.

## Features

### Vacuum System

\*unique monolithic manifolds system can decrease connecting points apparently, reduce gas leakage and improve ultimate vacuum.

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

\*the atlas copco brand bipolar vacuum pump, low noise, stable working, completely prevent oil-returning;

\*the ultimate vacuum can reach  $4 \times 10^{-2} \text{Pa}$  ( $3 \times 10^{-4} \text{Torr}$ )



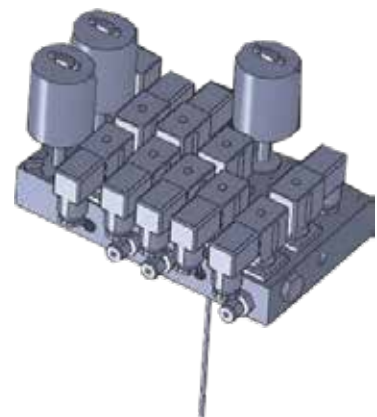
## Guaranteed Data Accuracy

\*branded silicon thin film capacitive pressure transducer, accuracy can reach 0.1% of real reading, better than 0.1% of F.S. (full-scale). Pressure resolution is 0.016 mmHg.

\*different pressure transducers (1000Torr, 1Torr, 0.1 Torr) be equipped, sectional measurement in pressure range can reduce errors in low vacuum.

\*original stepping coolant level probe system can ensure the coolant level unchanged during the whole analysis process, completely eliminate errors caused by dead volume changement.

\*pioneered gas outlet and inlet control system can efficiently prevent sample splash in vacuuming and gas input process, guarantee clean manifolds and steady sample mass, avoid zero and liner drifting caused by transducer's macro-change.



## Control System

\*branded programmable pneumatic valve system has a strong anti-interference ability, is convenient for installation and uninstallation.

\*separated analysis and pretreatment manifolds can prevent foreign matters to contaminate inner pipelines.

Specs	Models	BSAPA:3280	BSAPA:3280	BSAPA:3280P	BSAPA:3280TP
		BSAPA:3280	BSAPA:3280	BSAPA:3280P	BSAPA:3280TP
		BSAPA:3280S			
Sample Pretreatment	Ports	2 pretreatment/degassing ports			
	Temp. Range	RT to 400 °C			
	Vacuum Pressure	vacuuming to 0.5 pa			
	Working Mode	fully controlled by software			
Sample Testing	Principle	volumetric adsorption			
	Ports	2 testing ports work alternately(2800S, 2800, 2800P, 2800TP)			
		2 testing ports work parallel (2802S, 2802, 2802P, 2802TP)			
		3 testing ports work parallel (2803S)			
	Ultimate Pressure	4x10 <sup>-2</sup> Pa		4x10 <sup>-6</sup> Pa	
	Accuracy	surface area repeatability ≤ ± 1.9%			
		pore size repeatability ≤ 0.02nm			
	Range	surface area only 0.0005 m <sup>2</sup> /g to no upper limit	surf area: 0.0005 m <sup>2</sup> /g to no upper limit pore size: 0.35nm – 500nm		
	Partial Pressure	P/P0 accuracy range 5x10 <sup>-6</sup> – 0.998			
	Gases	N <sub>2</sub> , Kr, CO <sub>2</sub> , Ar, purity 99.999%			
Working Mode	fully controlled by software				
Data Report	single–point BET*	✓	✓	✓	✓
	multi–point BET	✓	✓	✓	✓
	Langmuir surface area	✓	✓	✓	✓
	t–plot surface area	✓	✓	✓	✓
	STSA*	✓	✓	✓	✓
	true density	✓	✓	✓	✓
	BJH* mesopore		✓	✓	✓
	CO2 ice water		✓	✓	✓
	DR* & DA*		✓	✓	✓
	t–plot micropore			✓	✓
	MP micropore			✓	✓
	HK* micropore			✓	✓
	C–Y correction			✓	✓
	SF* micropore			✓	✓
	NLDFT*			✓	✓
Hardwares	Pressure Sensors	0–3 Bar/1 pc	0–3 Bar/1 pc	0–3 Bar/ 1 pc 0–1 torr/ 1 pc	0–3 Bar/ 1 pc 0–1 torr/1 pc 0–0.1 torr/ 1 pc
	Sensors Accuracy	0.15% better than full scale			
	Pipelines	integrated vacuum pipelines			stainless steel micro-welding pipelines
	Valves	solenoid valves + O-rings			pneumatic valves + VCR rings
	Vacuum Pump	mechanical pump			mechanical pump+ turbo pump
	LN <sub>2</sub> Dewar	4L stainless steel Dewar, can work over 72 hours without intervention.			
	Sample Tubes	quartz material			
Extra Accessories*	Dimension	net: 75x60x90 cm,80 kgs gross: pkg 1: 92x73x110cm,115kgs; pkg 2: 60x75x80cm,70 kgs.			
	helium cylinder	purity over 99.99%, volume can be 10L, 20L or 40L cylinder			
	nitrogen cylinder	purity over 99.99%, volume can be 10L, 20L or 40L cylinder			
	liquid nitrogen (LN <sub>2</sub> )	should prepare at least 10L for calibration, it is consumblething.			
	balance (option)	precision should be 0.0001 g			
<b>Remarks:</b> 1. BET – Brunauer, Emmett, and Teller 2. STSA – Statistical Thickness Surface Area 3. BJH – Barrett, Joyner, and Halenda 4. DR – Dubinin–Radushkevich 5. DA – Dubinin–Astakhov 6. HK – Horvath–Kawazoe 7. SF – Saito and Foley 8. NLDFT – Non–local Density Functional Theory 9. extra accessories should be prepared by buyers because they (except balance) cannot be shipped by air.					



## APPLICATIONS

Battery Materials:

Cathode materials:

NMC (NCM) – Lithium Nickel Cobalt Manganese Oxide ( $\text{LiNiCoMnO}_2$ ) LFP – Lithium Iron Phosphate ( $\text{LiFePO}_4/\text{C}$ )

LNMO – Lithium Nickel Manganese Spinel ( $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ ) NCA – Lithium Nickel Cobalt Aluminum Oxide ( $\text{LiNiCoAlO}_2$ ) LMO – Lithium Manganese Oxide ( $\text{LiMn}_2\text{O}_4$ )

LCO – Lithium Cobalt Oxide ( $\text{LiCoO}_2$ ) lithium titanate etc.

Anode materials: typically graphite, others like silicon, tin and its alloys. Separators: typically microporous polypropylene or polyethylene film

### Petrochemical Industry:

carbon black, surfactant, white carbon black, pesticide, titanium dioxide, additive, alumina, molecular sieve catalyst, resin, carbon fiber, etc

### Medical Implants:

montmorillonite powder, magnesium stearate, micropowder silica gel, talc and other lubricants, diluents such as starch and sugar, aluminum hydroxide and other pharmaceutical excipients

### Environmental Protection Materials:

pine, activated carbon, bamboo charcoal, chemical carbon, zeolite molecular sieve, etc

### Nano Materials:

MOF materials, nanometallic materials, nano silica, nano zinc oxide, carbon nano-tubes, nano aluminum oxide, nano silicon nitride, graphene, etc

### Other Powder and Granular Materials:

magnesium oxide, zirconia, calcium oxide, metal powder, ceramics, mineral powder, etc



## HPLC Servicing, Validation, Trainings and Preventive Maintenance :

**HPLC Servicing** :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

**Trainings** :We also take up preventive Maintenance to reduce downtime of HPLC's Trainings.

**AMC's/CMC** :AMC's/CMC :We offer user training both in-House and at customer sites on HPLC principles, operations, trouble-shooting.

**Validations** :Validations :We have protocols for carrying out periodic Validations as per GLP/GMP/USFDA norms.

**Instruments** :Instruments :We offer instruments/Renting Services Modules like pumps,detector etc. on Rent.



## About Analytical Technologies

Analytical Technologies is synonymous for offering technologies for doing analysis and is the Fastest Growing Global Brand having presence in at least 96 countries across the global. Analytical Technologies Limited is an ISO:9001 Certified Company engaged in Designing, Manufacturing, Marketing & providing Services for the Analytical, Chromatography, Spectroscopy, Bio Technology, Bio Medical, Clinical Diagnostics, Material Science & General Laboratory Instrumentation. Analytical Technologies, India has across the Country operations with at least 4 Regional Offices, 6 Branch Offices & Service Centers. Distributors & Channel partners worldwide.

## Our Products & Technologies



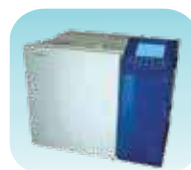
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Infra FTIR



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Chromatograph  
3007



Optima Gas  
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Atomic Absorption  
Spectrophotometer



Liquid Partical  
Counter



Optical Emission  
Spectrophotometer



DSC/TGA



Semi Auto Bio  
Chemistry Analyzer



HEMA 2062  
Hematology  
Analyzer



Micro Plate  
Reader/Washer



URINOVA 2800  
Urine Analyzer



Total Organic  
Carbon 3800



Fully Automated  
CLIA



NOVA-2100  
Chemistry Analyzer



PCR/Gradient PCR/  
RTPCR



TOC  
Analyzer



Laser Particle  
Size Analyzer



Ion Chromatograph



Water purification  
system



## Regulatory compliances



## Corporate Social Responsibility

Analytical Foundation is a nonprofit organization (NGO) found for the purpose of:



# Analytical Foundation

1. Research & Innovation Scientist's awards/QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personalities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at [Info@analyticalfoundation.org](mailto:Info@analyticalfoundation.org)

2. Improving quality of life by offering YOGA Training courses, Work shops/Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXYFY human minds,souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.



**HPLC Solutions   MultipleLabs   Analytical Bio-Med   Analytical Distributors   Analytical Foundation (Trust)**

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