

SIZER-3201 Plus

Laser Particle Size Analyzer(Dry)



Brief introduction of (Dry):

Sizer-3201 plus(Dry) particle size analyzer is a high performance particle size distribution analyzer. Dry dispersing system adopts Venturi dispersing effect by measures for shear, inertia, collision, etc, to ensure that the powders are in complete dispersing state when pass through testing zone. Even for the sample which is difficult to disperse such as NdFeb powder, it can be dispersed completely made by large scale integrated circuit technique which is specially designed, and it has high resolution and good accuracy; adopts whole process Mie theory and data processing mode of multiple distribution models; adopts a series of advanced technologies and manufacturing techniques including high precision data transmission and processing circuit etc., to make the instrument has outstanding features including accuracy and reliability, fast test speed, good repeatability, easy operating, etc. It is a new generation of particle size test instrument which integrates laser technology, computer technology and photoelectron technology

Main Specification of 3201 plus(Dry)

No	Item	Specification	No	Item	Specification
1	Measuring range	0.1-1000 μ m	6	Sample Feeding Method	Auto Electromagnetic Vibration
2	Repeatability Error	<3% (standard sample D50)	7	Gas Pressure	0.0-0.8Mpa
3	Accuracy Error	<3% (standard sample D50)	8	Gas Flowrate	400-6000L/min
4	Resolution	Single peak, Double-peak, Multi-peak	9	Laser and Life Time	Semiconductor Laser, 25000 hours
5	Focus Mode	Auto-Alignment	10	Detector and Number	Forward and Backward, 84 PCS

Main application fields of Sizer-3201plus

(1) Water-soluble samples: Such as medicine including raw material drug, Western medicine, traditional medicine, carrier of powder medicine, etc.

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- (2) Samples which physical and chemical changes will occur under the influence of water: Such as cement, starch, coffee, salt, alkali, flavouring, chemical products, etc.
- (3) Samples which are hardly dispersed by wet dispersing: Such NdFeB powder, soft magnetic powder, permanect magnetic powder
- (4) Others: Other samples which are not suit for dispersing by liquid.

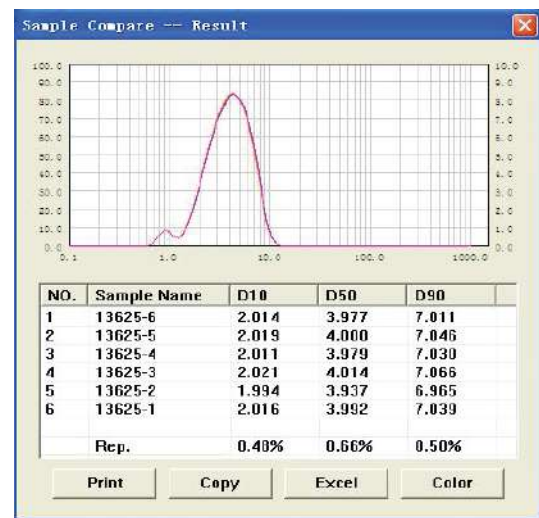
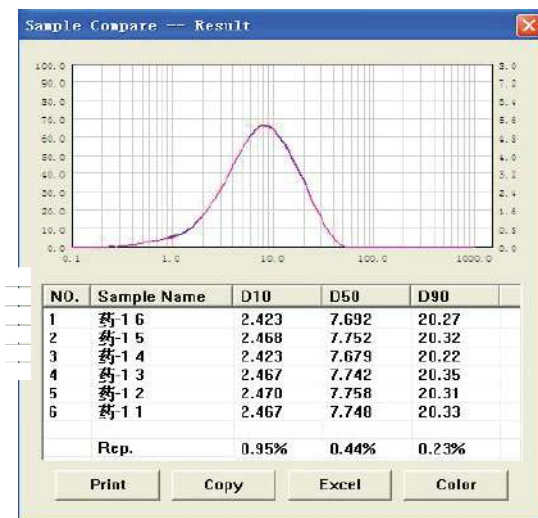
Good repeatability:

- (1) reasons for good repeatability: a) Laser, detector and signal trasmission system are stable and reliable. b) Stable and effective dispersing system. c) Automatic alignment system keeps the instrument always in optimum condition. d) Sampling rate can reach 3500 times/second, and mass data can effectively reduce the influence of repeatability caused by little abnormal data.
- (2) Repetability verification example: a) Repeatability of continuous test for same sample

Kindly reminder: About Repeatability

Repeatability is primary index of particle size analyzer. It is worthless for particle size analyzer if repeatability is not good. Repeatability is related to the instrument, also, related to the operator, voltage, water quality and interference. It is a reflecting of integrated factors.

- b) Repeatability of re-sampling teas



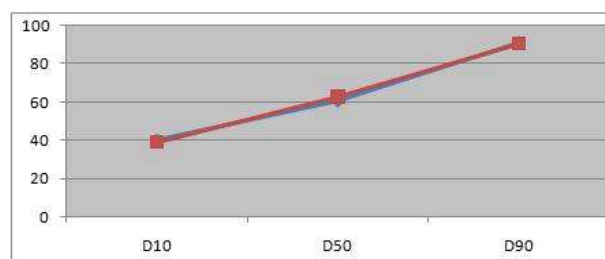
Good accuracy:

- (1) Reasons for good accuracy: a) Adopts semi-conductor laser of stable output, good monochromaticity and high efficiency which improves the precision of measurement greatly. b) the number of photodetectors reach 84 pcs, plus high performance software, can carry out auto test accurately no matter it is single peak, double-peak sample. c) Complete sample preparation system includes circulation, ultrasonic dispersing, stirring, auto water supply, etc. d) Use standar sample to verify and result is identical with value.
- (2) Examples for multiple verifications of accurecy a) Accuracy which approved by national Accreditation:Satisfied.

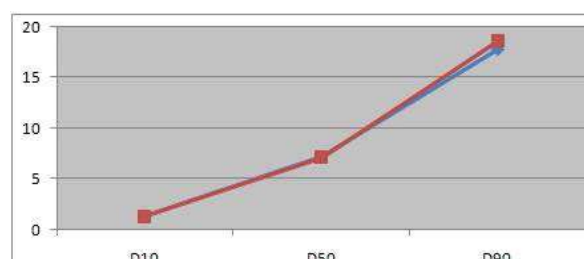
Letter of Notice for Ability Verification Plan Results					
Test Item	Sample	Lab Result (μ m)	Designated Value (μ m)	Deviation Percentage (%)	Result Evaluation
Main Diameter D _{Mean}	2017FT-A1	13.55	14.06	-3.6	Satisfied
	2017FT-A2	12.26	12.55	-2.3	Satisfied
Median Diameter D ₅₀	2017FT-A1	13.49	14.04	-4.1	Satisfied
	2017FT-A2	12.27	12.54	-2.2	Satisfied
Note: if absolute value of deviation percentage is less than or equal to 10%, it is satisfied result: if absolute value is more than 10%, it is unsatisfied result.					

b) Compare with test results of overseas advanced laser Partical size analyzer: Good consistency.

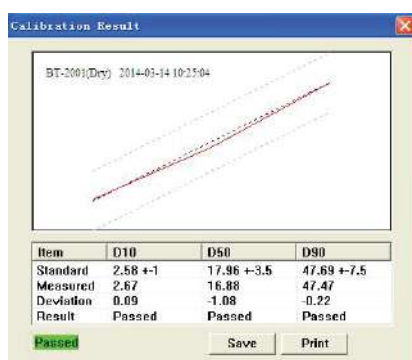
MedicineA	D10	D50	D90
Malvern	1.318	7.202	17.810
Sizer	1.342	7.146	18.570



Lactose	D10	D50	D90
Malvern	39.890	60.499	91.083
Sizer	38.880	62.480	90.140

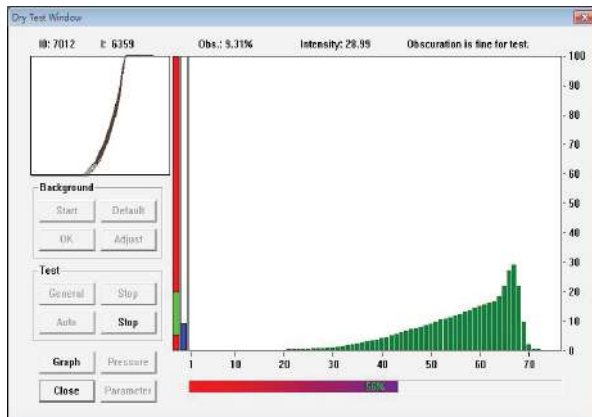


c) Use Sizer standard sample to verify accuracy and test value is identical with standard value.



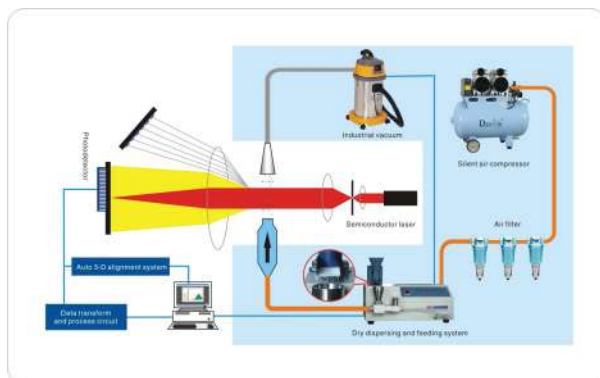
Good quality, easy operation and liability exemption service:

- Reasons for low failure rate: a) Use international standard materials and famous brand or imported components such as imported optical fiber semiconductor laser, imported Fourier lens, integrated circuit that can be traced. Have continuous 48-hour aging test before leaving the factory. c) Use advanced technologies to guarantee the quality such as anti-dry ultrasonic, auto alignment, dew-point temperature detecting and abrasive tools, etc d) passed CE, FDA 21 CFR Part 11 and ISO9001-2008 Certification.
- Easy operation: Auto test, auto alignment, continuous testing, conversion of report format, etc. It will take only ten minutes to learn and the result will not be affected because of different operators. Auto alignment system can ensure that light path always in optimum condition which makes the test more accurate.

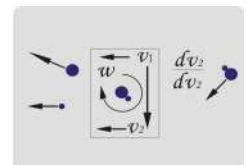
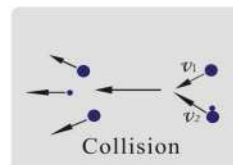
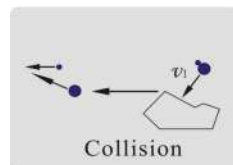
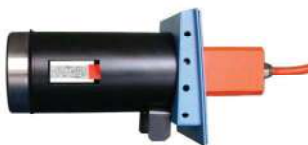


- (3) Commitments for free liability exemption service: Free liability exemption warranty one year. Within, arrival in 24 hours, door-to door service, visit at fixed period, regular call back service from 30 professional after-sales service engineers and supply spare parts at cost price in the long term.

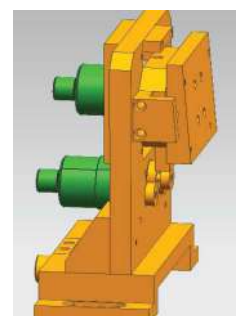
Unique technology and reliable quality



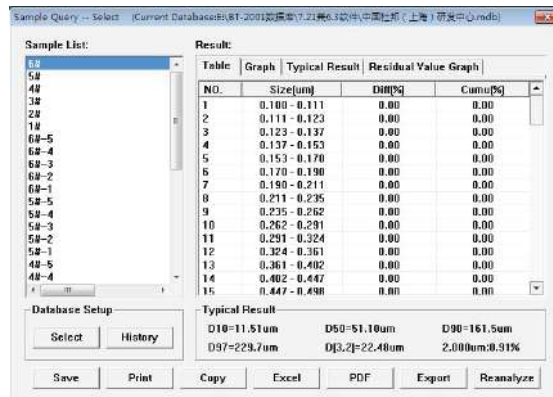
- (1) Unique dry dispersing technology: It adopts dry dispersing system which is uniquely designed the measures of shear inertia, collision etc. to ensure that the powders are in completely dispersing state when pass test window. It adopts oil free and silent air compressor with high efficient water filter to guarantee that pure compressed air is produced. Meanwhile, it has the advantages of low noise, auto start, auto stop, long running time, etc.



- (2) Auto alignment technology: Auto alignment individually invented by Analytical is composed of stepping motor, precise guide rail, subdivision controller and software system. Its function is to let the center point of photodetector which is installed on it always keep optimum location, to guarantee accuracy and precision of the measurement.



(3) Software system: The functions of the software system for Sizer-3201 plus 9(Dry) are very powerful. Herein, Only list the conversion of report format for example. Just click Excel, PDF, Copy and Export button, the conversion of report format can be realized. It is convenient for communication such as email, etc. The system has saved optical parameters of hundreds, and almost covers all common sasmples, to eansure that the test result is more accurate.



The screenshot shows the 'Sample Query' window with a 'Sample List' on the left and a 'Result' table on the right. The 'Result' table has columns for NO., Size(um), Diff(%, and Cumu(%. Below the table, there is a 'Database Setup' section with 'Select' and 'History' buttons, and a 'Typical Result' section with 'Save', 'Print', 'Copy', 'Excel', 'PDF', 'Export', and 'Reanalyze' buttons.

NO.	Size(um)	Diff(%)	Cumu(%)
1	0.100 - 0.111	0.00	0.00
2	0.111 - 0.123	0.00	0.00
3	0.123 - 0.137	0.00	0.00
4	0.137 - 0.153	0.00	0.00
5	0.153 - 0.170	0.00	0.00
6	0.170 - 0.190	0.00	0.00
7	0.190 - 0.211	0.00	0.00
8	0.211 - 0.235	0.00	0.00
9	0.235 - 0.262	0.00	0.00
10	0.262 - 0.291	0.00	0.00
11	0.291 - 0.324	0.00	0.00
12	0.324 - 0.361	0.00	0.00
13	0.361 - 0.402	0.00	0.00
14	0.402 - 0.447	0.00	0.00
15	0.447 - 0.498	0.00	0.00

Typical Result:
 D10=11.51um D50=51.10um D90=161.5um
 D97=229.7um D(3,2)=22.48um 2.00um:8.91%

(4) Reliable dry feeding system: The operations of Sizer-3201plus dry feeding system which matches Sizer-3201 plus (Dry). Including sample feeding, gas feeding, pressure test, sample collection, ect., are controlled by computer uniformly. The operations are completed automatically according to the procedures set in advance and convenient for operating.

Laser Particle Size Analyzer(Wet)



Introduction of (Wet):

particle size analyzer is an intelligence dry and liquid dual-purpose particle size analyzer. Dry dispersing system adopts Venturi dispersing effect, through the measures of shear, inertia, collision, etc. to ensure that the powders are in complete dispersing state when pass test window. It adopts aerodynamics technology to prevent the lens from pollution and has outstanding characteristics of accuracy and good reliability, good repeatability, easy operation, fast test speed, etc. It is high performance dry particle size laboratories of colleges and universities as well as research institutes to use.

Repeatability:

Excellent repeatability is a eved thanks to:

- (1) Laser, detector and signal transmission system are stable and reliable.
- (2) Consistent and effective dispersing system.
- (3) Automatic alignment keeps the instrument always in optimum condition.
- (4) Sampling rate up to 3500 times/second ensures outstanding repeatability

Repeatability Verification:

(1) Repeatability of a serial test for same samples

Series Result

NO.	D3 (um)	D10 (um)	D50 (um)	D75 (um)	D90 (um)	D97 (um)
1	2.171	3.226	4.445	8.945	16.21	26.88
2	2.173	3.227	4.447	8.947	16.21	26.88
3	2.173	3.227	4.445	8.945	16.21	26.88
4	2.171	3.225	4.444	8.944	16.20	26.87
5	2.171	3.226	4.445	8.945	16.20	26.88
6	2.169	3.225	4.443	8.943	16.20	26.87
Aver	2.171	3.226	4.446	8.945	16.21	26.88
Rep		0.04%		0.02%		0.03%

Save Print 取消

Series Result

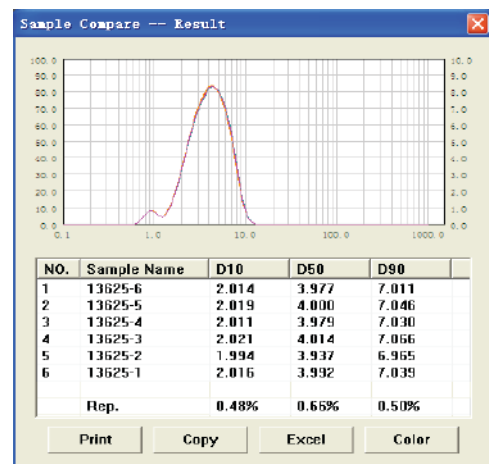
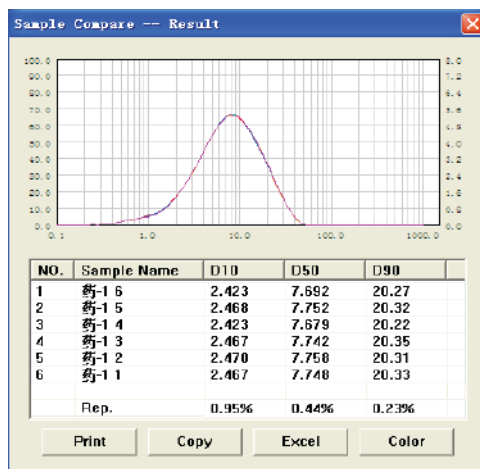
NO.	D3 (um)	D10 (um)	D50 (um)	D75 (um)	D90 (um)	D97 (um)
1	0.111	0.156	0.204	0.368	0.679	1.063
2	0.111	0.156	0.204	0.368	0.679	1.063
3	0.111	0.156	0.204	0.368	0.679	1.063
4	0.111	0.156	0.204	0.368	0.679	1.063
5	0.111	0.156	0.204	0.368	0.679	1.063
6	0.111	0.156	0.204	0.368	0.679	1.063
Aver	0.111	0.156	0.204	0.368	0.679	1.063
Rep		0.02%		0.01%		0.02%

Save Print 取消

About Repeatability

Repeatability is primary index of particle size analyzer. It is worthless for particle size analyzer if repeatability is not good. Repeatability is related to the instrument, also, related to the operator, voltage, water quality and interference. It is a reflection of integrated factors.

(2) Repeatability of re-sampling tests



Accuracy

Excellent accuracy is achieved thanks to

- (1) The use of a dual lenses optical system (DLOS) invented by Analytical Technologies, it improves the precision of the analysis compared to single lenses system
- (2) The use of 84 detectors plus high performance software, provides excellent resolution regardless the sample has a single model or multi model distribution.
- (3) Complete sample preparation system including circulation, ultrasonic dispersing, stirring, auto water supply and auto cleaning.
- (4) Use of size standard to verify the accuracy of the results.

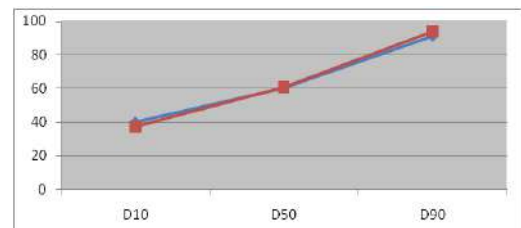
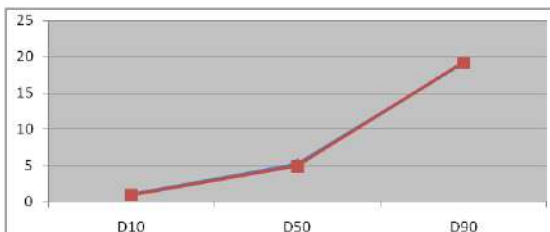
Verifications of accuracy

Letter of Notice for Ability Verification Plan Results					
Test Item	Sample	Lab Result (μ m)	Designated Value (μ m)	Deviation Percentage (%)	Result Evaluation
Main Diameter D _{Mean}	2017FT-A1	13.55	14.06	-3.6	Satisfied
	2017FT-A2	12.26	12.55	-2.3	Satisfied
Median Diameter D ₅₀	2017FT-A1	13.49	14.04	-4.1	Satisfied
	2017FT-A2	12.27	12.54	-2.2	Satisfied
Note: if absolute value of deviation percentage is less than or equal to 10%, it is satisfied result: if absolute value is more than 10%, it is unsatisfied result.					

b) Compare with test results of overseas advanced laser Partical size analyzer: Good consistency.

Caco3	D10	D50	D90
Other brand	0.981	5.144	19.122
Sizer	0.943	4.936	19.22

Silicon Dioxide	D10	D50	D90
Other Brand	39.89	60.499	91.083
Sizer	37.08	60.64	93.83

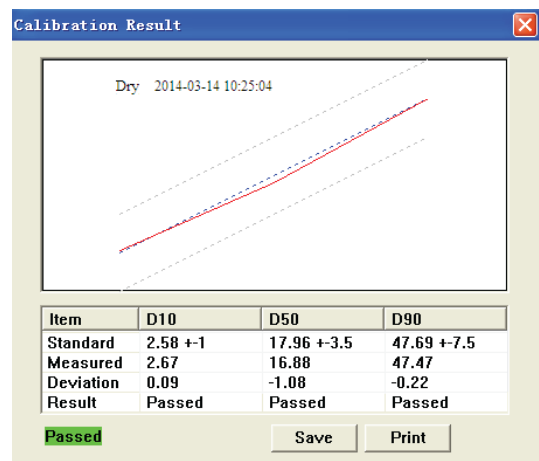


c) Use Sizer standard sample to verify accuracy and test value is identical with standard value.

Reliable performance and easy operation

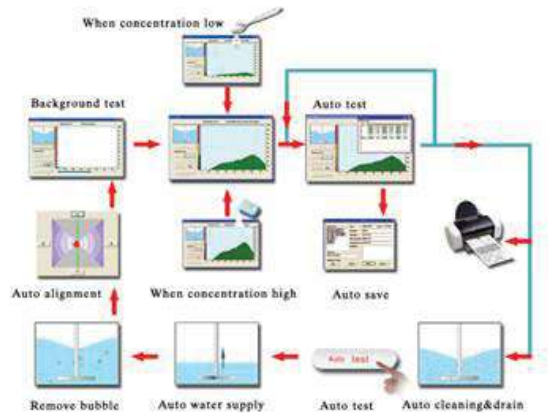
Reasons for low failure rate:

- (1) Use of high quality components.
- (2) Components are inspected and recorded for traceability. A 48-hour failure test before instruments leaves the factory.
- (3) Use of advanced technologies such as dry burning-resistant ultrasonic, auto alignment, dew-point temperature detecting and others
- (4) Comply with CE, FDA 21 CFR Part 11 and ISO 9001-2008 certification.



Easy operation:

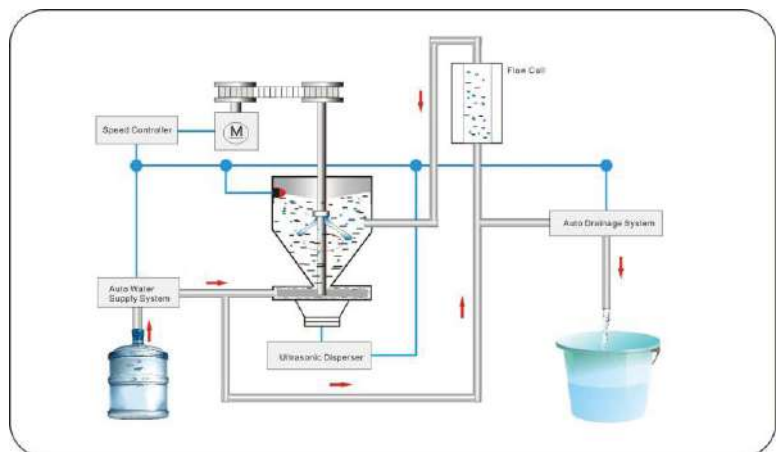
Intelligent standard operation procedure (SOP) design: Just add sample, system can complete the operations such as water supply, dispersing, circulation, concentration adjustment, test, drainage, cleaning, print, storage, etc. If the concentration is high, the system will dilute automatically. If the concentration is low, the system will show “add the sample”, to guarantee that the concentration always keeps optimum status. The direct effect of full-automation is not just for easy operation. More importantly, it reduces the errors caused by human factors and improves test precision.



Unique technology and reliable quality

Reliable circulating and dispersing system:

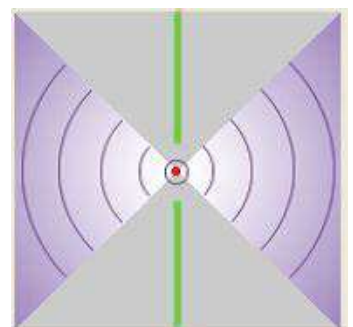
Sizer-3201 automatic liquid circulating and dispersing system which matches in cluded anti-dry ultrasonic disperser, centrifual circulating pump, auto water supply system, auto drianage system and auto overflow system. It applies to all kinds of samples and ensures that sample can be dispersed completely. The accuracy and repeatability of the test is guaranteed.



Unique conversion technology between dry and liquid: The instrument provides Sizer-3201 wet feeding system and Sizer-3201 feeding system. Just change feeding system and set corresponding software, then conversion between dry and wet can be completed quickly.

Auto alignment technology:

Auto alignment system individually invented by Analytical is composed of stepping motor, precise guide rail, subdivision controller and software system. Its function is to let the center point of photodetector which is installed on it always keep optimum location, to guarantee accuracy and precision of the measurement.



Sample Query -- Select

Sample List:

院-05

院-04

院-03

院-02

院-01

WorkSample-3

WorkSample-2

WorkSample-1

Result:

Table	Graph	Typical Result	Residual Value Graph
NO.	Size(um)	Diff(%)	Cum(%)
1	0.000 - 0.100	0.00	0.00
2	0.100 - 0.111	0.00	0.00
3	0.111 - 0.123	0.00	0.00
4	0.123 - 0.137	0.00	0.00
5	0.137 - 0.153	0.00	0.00
6	0.153 - 0.170	0.00	0.00
7	0.170 - 0.189	0.00	0.00
8	0.189 - 0.211	0.00	0.00
9	0.211 - 0.235	0.12	0.12
10	0.235 - 0.261	0.53	0.65
11	0.261 - 0.291	1.32	1.97
12	0.291 - 0.324	2.33	4.30
13	0.324 - 0.360	3.57	7.87
14	0.360 - 0.401	5.35	13.22
15	0.401 - 0.446	7.40	20.62

Database Setup

Select

History

Typical Result

D10=0.376umD50=0.595umD90=1.159umD100=2.431umD[3.2]=0.574um2.000um:99.68%

Save

Print

Copy

Excel

PDF

Export

Reanalyze

Software system:

The functions of the software system for Analytical SD are very powerful. Herein, only list the conversion of report format for example. Just click Excel, PDF, Copy and Export button, the conversion of report format can be realized. It is convenient for communication such as email and so on.

Specification

Testing parameter	Material
Particle size distribution	Suspension, emulsion, dry powder
General	Sizer
Theory	Laser diffraction
Analysis theory	Mie and Fraunhofer
Testing speed	3kHz
Typical measurement time	≤ 10 second
Size Range	0.1 - 1000um
Number of size classes	More than 100 customized grades
Accuracy	Wet ≤1% (GBRM D50), Dry ≤3% (GBRM D50)
Repeatability	Wet ≤1% (GBRM D50), Dry ≤3% (GBRM D50)
Resolution ratio	Single peak, double peak multi-peak
Optics	
Red light	Max. 3mW Semiconductor optical fiber laser, 635nm
Lens arrangement	Single lens
Lens design	F-Theta Lenses
Effective focal length	223mm
Arrangement	Log-spaced array
Quantity	84-pieces (forward, sideways)
Light path adjustment	Intelligent automatic alignment
Dispersion type	Wet & Dry
Dispersion system	Ultrasound 50W, 38KHz Dry burring-resistant protection system
Water circulation	Centrifugal pump, 500-2500ml/min, auto water intake and rinsing
Water capacity	600 ml
Dispersion system available	Solvent compatible system
Air flowrate	400-6000L/min
Air compressor	Gas container ≥ 60L, Pressure ≤ 8bar
Vacuum Cleaner	Wet dust collector or bag filter
Air filter	3um, 0.3um, 0.01um
21 CFR Part 11	Wet ≤1% (GBRM D50), Dry ≤3% (GBRM D50)
Resolution ratio	Single peak, double peak multi-peak

21 CFR Part	Enable
SOP Designer	Enable
Report	More then 14 formats report
Auto test	Enable
Data export	EXCEL, PDF, WORD, JPG and etc.
Laser class	Class I laser product
Supply voltage	220VAC
Dimension	720mm x 300mm x 280mm (L x W x H)
Weight	26kg
Computer interface	At least a USB 2.0 port required
Operation system	Windows XP, Windows 7,8 or 10
Hardware specification	Intel Core 15, 4GB RAM, 250GB HD

Nano-particle analyzer



Features

Sizer 3201 nano-particle analyzer based on dynamic light scattering technology for analyzing nano sized materials. Sizer 3201 nano-particle can measure sizes down to 1nm. The high-power laser light source and high sensitivity PMT provide rapid and accurate testing results.

Specification

- (1) Measuring range: Particle size from 1nm to 9500nm
- (2) Less than 5 minutes per test.
- (3) A small quantity of sample required - 5ml and 1ml sample cell volume available.
- (4) High-precision temperature control system provides accuracy of $\pm 0.5^{\circ}\text{C}$.
- (5) Intuitive software interface.

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



UV/VIS
Spectro 2080+
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Infra FTIR



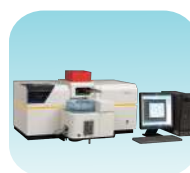
Optima Gas
Chromatograph
3007



Optima Gas
Chromatograph
2979 Plus



Flash
Chromatograph



Atomic Absorption
Spectrophotometer



Liquid Particle
Counter



Optical Emission
Spectrophotometer



DSC/TGA



Semi Auto Bio
Chemistry Analyzer



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Hematology
Analyzer



Micro Plate
Reader/Washer



URINOVA 2800
Urine Analyzer



Total Organic
Carbon 3800



Fully Automated
CLIA



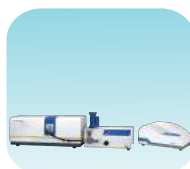
NOVA-2100
Chemistry Analyzer



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

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.

Reach us @



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