

# Analytical Technologies Particle Size Analyzer Sizer 3002



Analytical Technologies Sizer 3002 is smart wet dispersion particle analyzer with reliable measurement performance from submicron to millimeter. Driven by Standard Operation Procedure (SOP), the instrument minimizes manual participation and makes particle size measurement fast and routine.

**EPC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES**

**Analytical Technologies Limited**

An ISO 9001 Certified Company

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

## Features/Benefits:

- \* Measuring range: 0.02 $\mu$ m to 2000 $\mu$ m
- \* Accuracy:  $\leq 0.5\%$  (GBRM D50)
- \* Repeatability:  $\leq 0.5\%$  (GBRM D50)
- \* Detector: 90 pieces (forward, lateral, backward)
- \* Typical measurement time:  $\leq 10$ second
- \* Dual Lenses Optical System (DL0S)
- \* Standard Operation Procedure (SOP)
- \* Automatic Centering
- \* Automatic alignment
- \* High-performance fiber lasers with long lifespan.

## Intelligent Particle Sizing Performance

### 1. Repeatability: $\leq 0.5\%$ (GBRM D50)

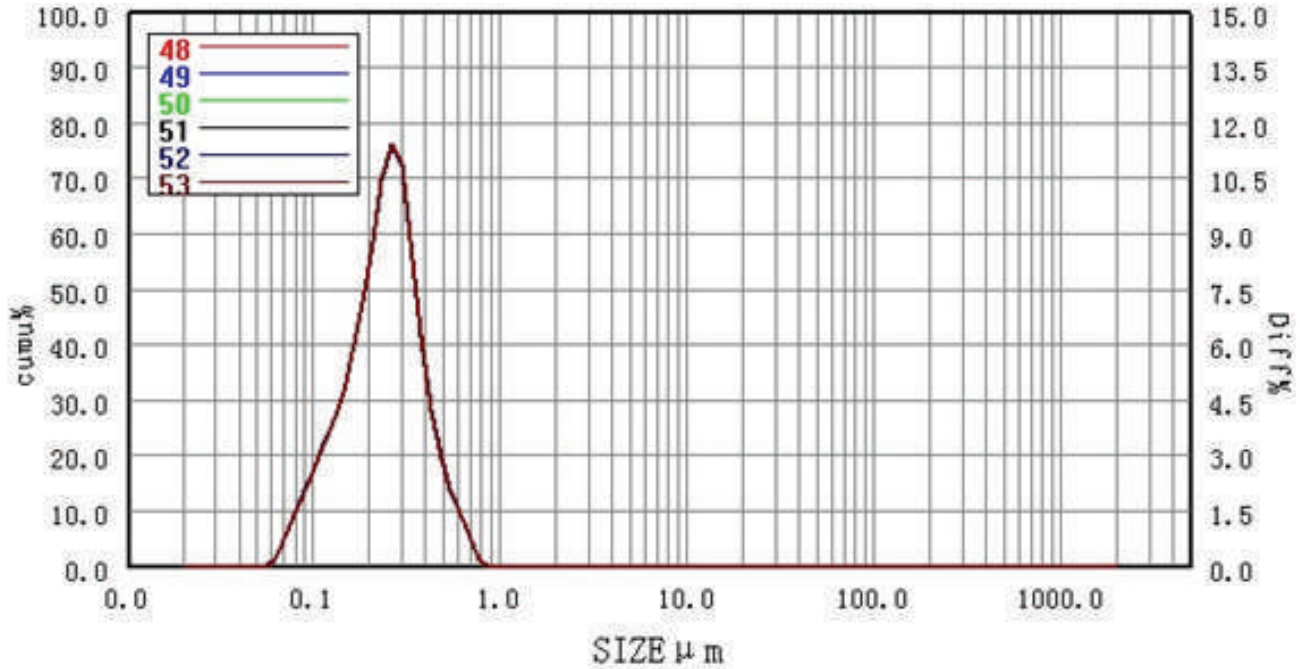
#### Reproducibility : $\leq 0.5\%$ (GBRM D50)

The assured measurement performance and wide dynamic range of Analytical Technologies Sizer 3002 makes it suitable for a diverse range of applications. The results under same analysis conditions yield good repeatability and reproducibility as shown in the following graphs.

#### a) Repeatability: $\leq 0.5\%$ (GBRM D50)

item	D3	D5	D10	D16	D25	D50	D75	D84	D90	D97	D98
7	2.951	3.602	4.151	4.731	5.400	6.975	8.860	9.880	10.86	12.95	13.77
8	2.907	3.567	4.113	4.700	5.371	6.946	8.828	9.844	10.82	12.91	13.70
9	2.894	3.561	4.111	4.693	5.362	6.928	8.793	9.797	10.75	12.83	13.67
10	2.891	3.556	4.103	4.690	5.357	6.921	8.780	9.779	10.73	12.80	13.62
11	2.894	3.559	4.110	4.691	5.360	6.925	8.787	9.788	10.74	12.81	13.64
12	2.905	3.583	4.133	4.714	5.385	6.960	8.844	9.862	10.84	12.93	13.74
Rep.	0.32%	0.50%	0.41%	0.35%	0.31%	0.31%	0.38%	0.43%	0.52%	0.51%	0.30%

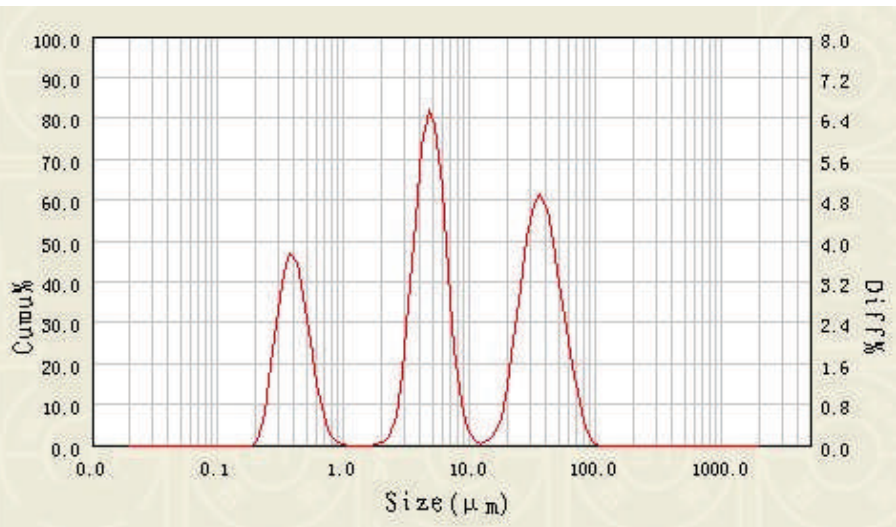
b) Reproducibility:  $\leq 0.5\%$  (GBRM D50)



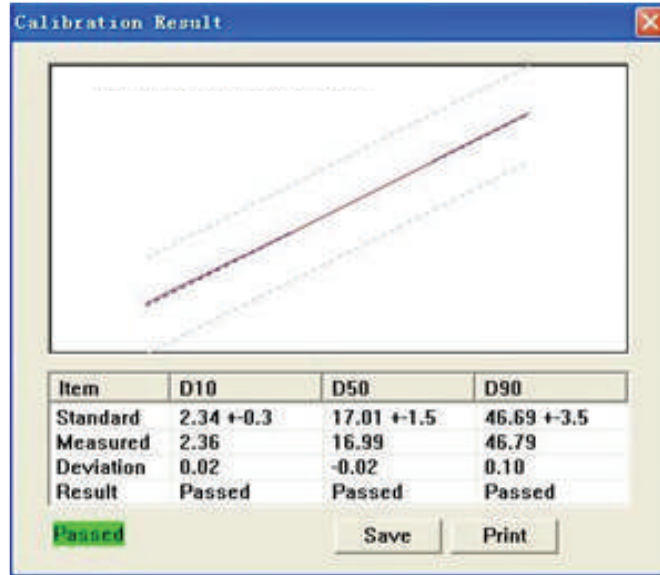
**2. Accuracy:  $\leq 0.5\%$  (GBRM D50)**

The accuracy of Analytical Technologies Sizer 3002 as verified by measurements of standard samples

a) Analytical Technologies Sizer 3002 tested certified reference Sizer materials and resolved three peaks



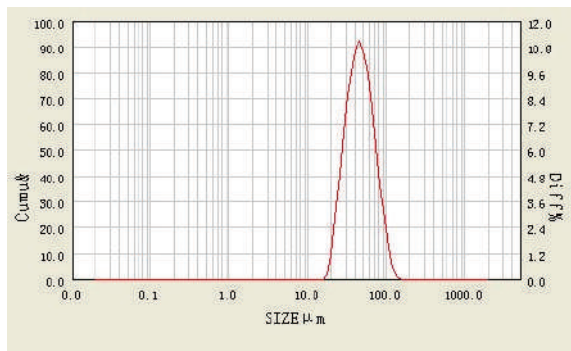
## a) Analytical Technologies Sizer 3002 tested Standard Sample to verify Accuracy



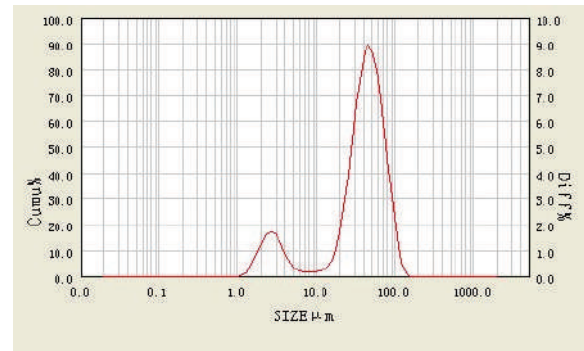
### 3. Resolution and Sensitivity

The resolution and sensitivity of Analytical Technologies Sizer 3002 as verified by measurement that sample A is gradually added to the sample B. With the addition of sample A, the results change correspondingly.

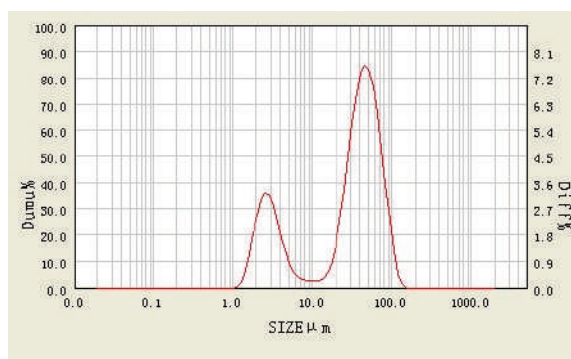
B (A=0)



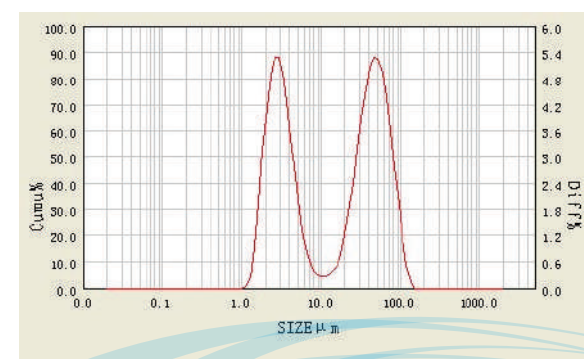
B+A(B=5%B)



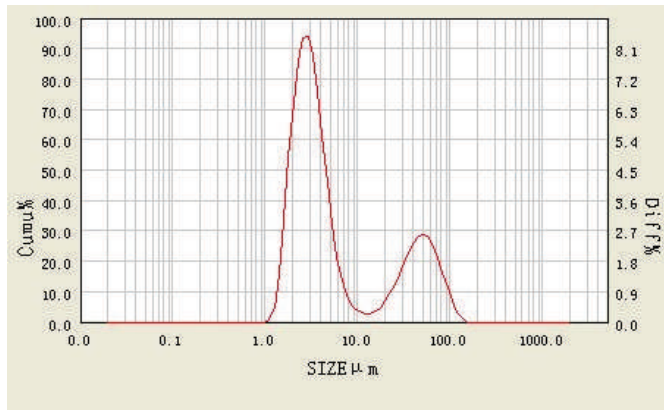
B+A(B=25%B)



B+A(B=100%B)



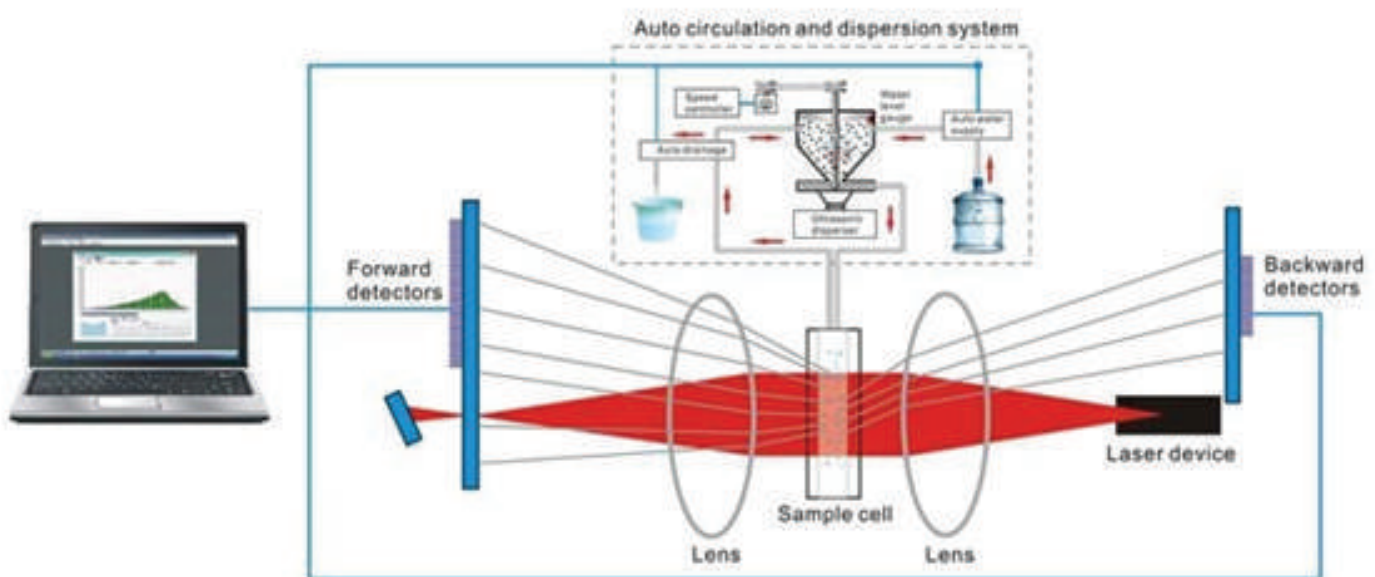
B+A(B=150%B)



## Technologies for Reliable Measurement

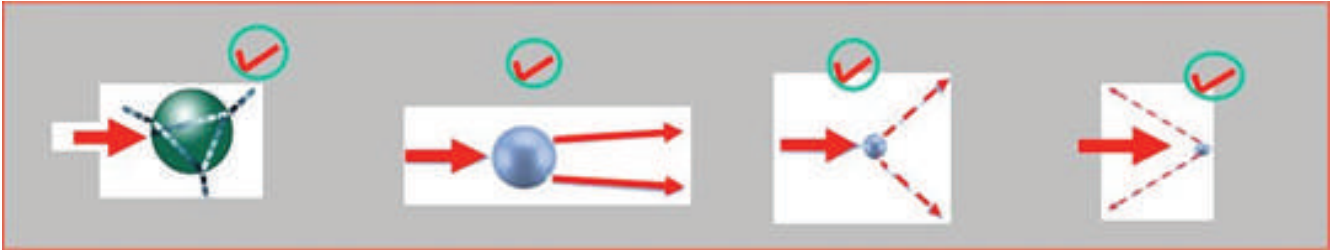
### 1. Dual Lenses Optical System (DLOS)

Based on Fourier optical system, DLOS is a technical innovation made by us. It detects backward scattered laser by symmetrically adding a second lens behind the sample cell. The second lens also functions as a collimating lens which turns the diverging laser beam into parallel beam. The parallel beam impinging on the sample cell have the advantage of large and constant intensity circle of illumination of the sample. In a laser diffraction measurement, the forward and backward diffraction lasers generated by a single laser source have a consistent wavelength, datum, and continuity, provides superior accuracy across a wide size range.

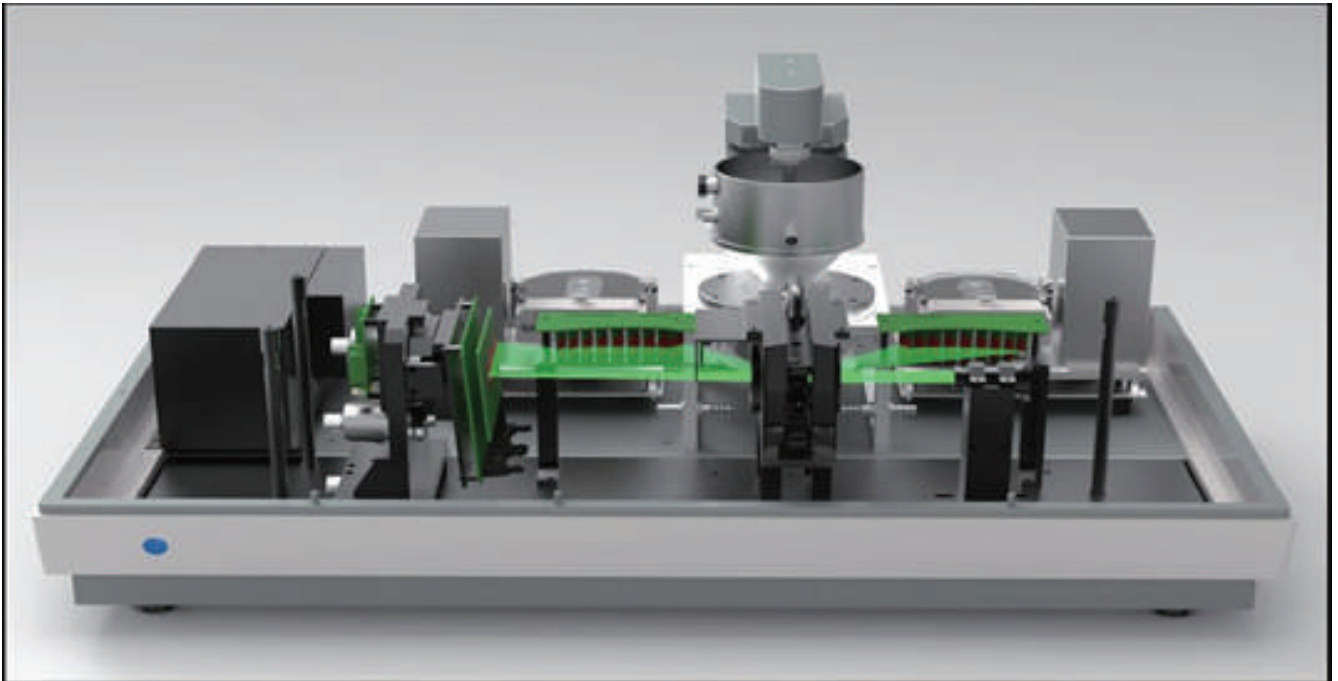


## Features and benefits of DLOS:

- \* Achieve wide measuring range from 0.02 $\mu$ m to 2000 $\mu$ m.



- \* The second lens can collimate the laser beam as well as detect backward scattering light.
- \* 90 surrounded detectors collect scattering light at wide angles to improve the resolution ratio and measuring accuracy.

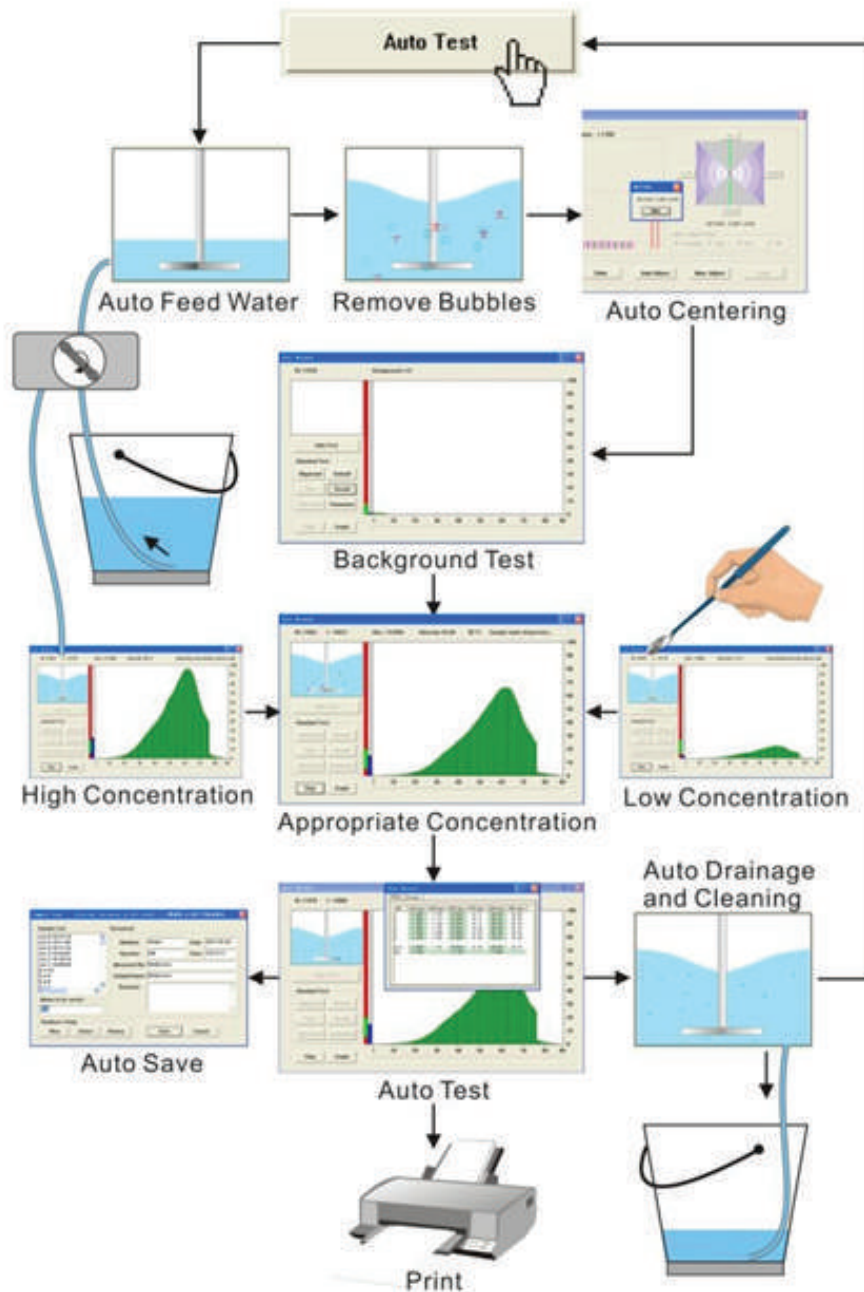


## 2. Standard Operation Procedure (SOP)

### Analysis by one mouse click:

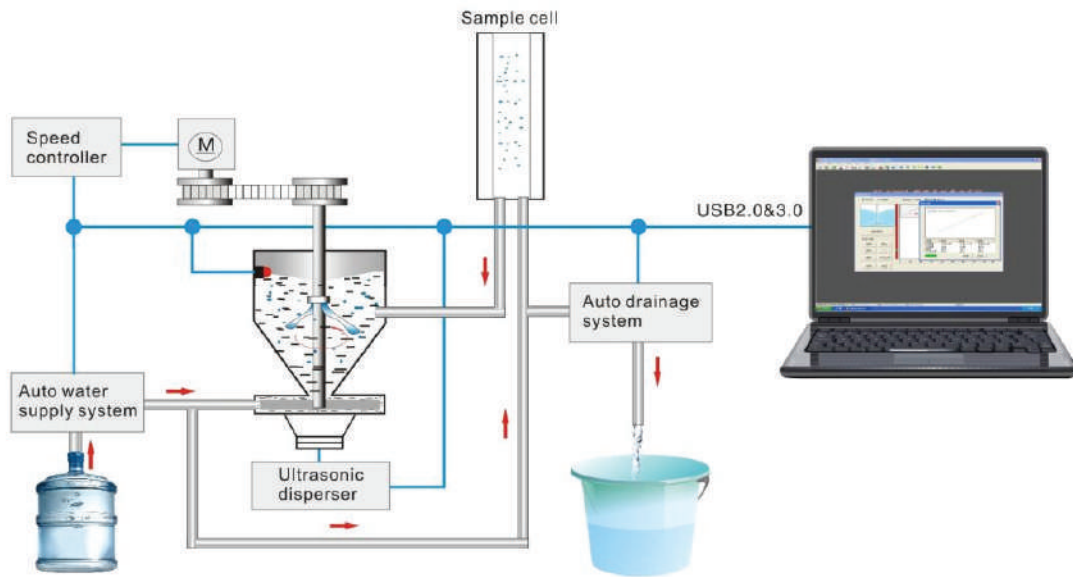
SOP of Analytical Technologies Sizer3002 provides an intuitive solution for standardized and automatic testing. Click once on the auto test button, the testing procedure will run by itself, including water intake, bubble removal, background and obscuration measurement, testing, rinsing, and result save and print. Just add sample and the automatic analysis procedure is just one mouse click away.

SOP not only provides a simplified procedure but also avoids human operation error; therefore, it ensures the repeatability and accuracy of testing results.



### 3. Automatic Circulation and Dispersion System:

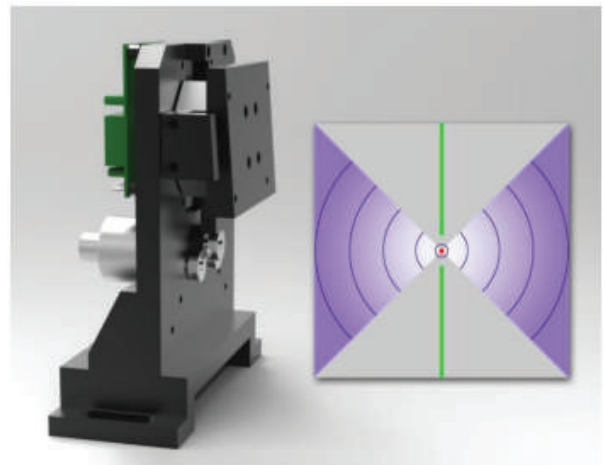
The wet circulation and dispersion system of Analytical Technologies Sizer 3002 ensures a complete sample dispersion hence make sure that each particle would be accounted for through the laser system.



## 4. Automatic Centering

**Guarantee the perfect condition of optical system:**

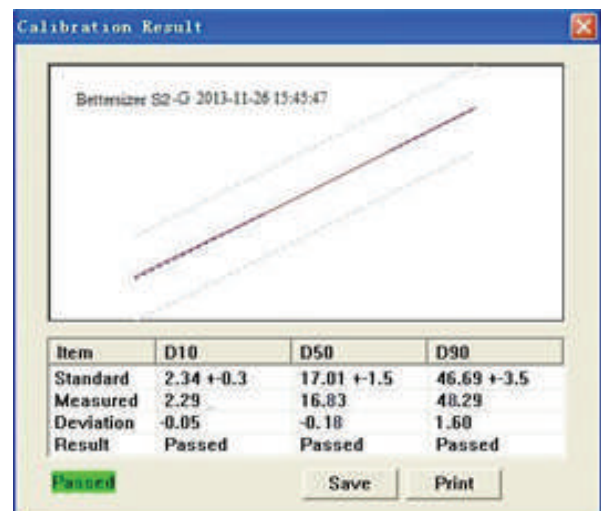
By moving the laser detector center point to the focus point of lens before each test, automatic centering function guarantees the perfect condition of optical system, therefore, provides accurate and repeatable testing results.



Automatic centering

## 5. Accuracy Calibration

Maintain accurate datum lifetime:  
This function makes operate parameters maintained at consistent conditions, producing consistent and reproducible measurement across the board for all old and new instruments alike.



Accuracy Calibration





# Sizer 3002 Particle Size Analyzing Report

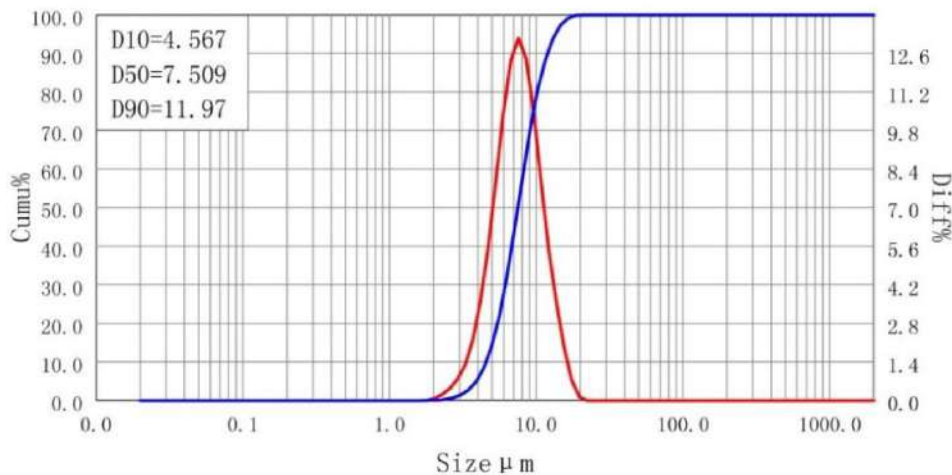


Range : 0.02um - 2000um

<b>Sample:</b> Ternary	<b>Dispersant:</b>	<b>Sample Owner</b> JARAMY ANALYSIS
<b>Medium:</b> Water	<b>Optical:</b> Mie	<b>Measured By:</b> Analytical Technologies Limited
<b>Particle RI:</b> 1.980-1.0001	<b>Mode:</b> 2.35 General	<b>Operator:</b> LM
<b>Medium RI:</b> 1.333	<b>Date:</b> 2017-06-27	<b>Time:</b> 16:39:31
<b>Remark:</b> (1:3.00)-1-(03)		<b>Distribution:</b> Volume

<b>D 50 :</b> 7.509 um	<b>D [4,3] :</b> 7.928 um	<b>D [3,2] :</b> 6.899 um	<b>OBS. :</b> 12.19 %
<b>SPAN :</b> 0.986	<b>D [2,1] :</b> 5.932 um	<b>SSA :</b> 3220 cm <sup>2</sup> /g	<b>Residual :</b> 0.357 %
<b>D03 =</b> 3.516 um	<b>D06 =</b> 4.062 um	<b>D10 =</b> 4.567 um	<b>D16 =</b> 5.138 um
<b>D50 =</b> 7.509 um	<b>D75 =</b> 9.606 um	<b>D84 =</b> 10.79 um	<b>D90 =</b> 11.97 um
			<b>D25 =</b> 5.828 um
			<b>D97 =</b> 14.53 um

Diam um	Diff%	Cumu%	Diam um	Diff%	Cumu%	Diam um	Diff%	Cumu%
0.020-0.024	0.00	0.00	0.911-1.161	0.00	0.00	44.04-56.13	0.00	100.00
0.024-0.030	0.00	0.00	1.161-1.479	0.00	0.00	56.13-71.52	0.00	100.00
0.030-0.039	0.00	0.00	1.479-1.885	0.01	0.01	71.52-91.14	0.00	100.00
0.039-0.049	0.00	0.00	1.885-2.403	0.27	0.28	91.14-116.1	0.00	100.00
0.049-0.063	0.00	0.00	2.403-3.062	1.18	1.46	116.1-147.9	0.00	100.00
0.063-0.080	0.00	0.00	3.062-3.902	3.42	4.88	147.9-188.5	0.00	100.00
0.080-0.102	0.00	0.00	3.902-4.972	9.06	13.94	188.5-240.3	0.00	100.00
0.102-0.131	0.00	0.00	4.972-6.336	18.41	32.35	240.3-306.2	0.00	100.00
0.131-0.167	0.00	0.00	6.336-8.074	25.74	58.09	306.2-390.2	0.00	100.00
0.167-0.212	0.00	0.00	8.074-10.28	22.85	80.94	390.2-497.2	0.00	100.00
0.212-0.271	0.00	0.00	10.28-13.11	13.05	93.99	497.2-633.6	0.00	100.00
0.271-0.345	0.00	0.00	13.11-16.70	5.22	99.21	633.6-807.4	0.00	100.00
0.345-0.440	0.00	0.00	16.70-21.28	0.79	100.00	807.4-1028	0.00	100.00
0.440-0.561	0.00	0.00	21.28-27.12	0.00	100.00	1028-1311	0.00	100.00
0.561-0.715	0.00	0.00	27.12-34.56	0.00	100.00	1311-1670	0.00	100.00
0.715-0.911	0.00	0.00	34.56-44.04	0.00	100.00	1670-2000	0.00	100.00



Diam um	Percent
0.100	0.00
0.200	0.00
0.500	0.00
1.000	0.00
2.000	0.03
5.000	14.27
10.00	78.56
20.00	99.94
45.00	100.00
75.00	100.00



## Specification

Testing parameter	Material
Particle size distribution	Suspension, emulsion, dry powder
<b>General</b>	<b>Analytical Technologies Sizer 3002</b>
Theory	Laser diffraction
Analysis theory	Mie and Fraunhofer
Testing speed	3kHz
Typical measurement time	≤10second
<b>Size</b>	
Size range	0.02 - 2000μm
Number of size classes	More than 100 customized grades
Accuracy	≤0.5% (GBRM D50)
Repeatability	≤0.5% (GBRM D50)
Resolution ratio	Single peak, double peak, multi-peak
<b>Optics</b>	
Green light source	Max.3mW, Semiconductor optical fiber laser, 635nm
Lens arrangement	Dual lenses on the right and left of sample cell
Lens design	F-Theta Lenses
Effective focal length	223mm
<b>Detector</b>	
Arrangement	Log-spaced array
Quantity	90 pieces(forward, lateral, backward)
Light path adjustment	Intelligent automatic alignment
<b>Sample dispersion system</b>	
Dispersion type	Wet and dry
Dispersion system	Ultrasound 50W, 38KHz dry-run protection system
Water circulation	Centrifugal pump 3000 -8000ml/min, auto water intake and rinsing
Water capacity	600ml
<b>Software</b>	
21 CFR Part 11	Enable
SOP Designer	Enable
Report	More than 14 formats report
Auto test	Enable
Data export	EXCEL, PDF,WORD,JPG and etc.
<b>System compliance</b>	
Laser class	Class I laser product
<b>System</b>	
Supply voltage	220VAC
Dimension	800mm x 500mm x 410mm (L x W x H)
Weight	45kg
<b>Computer specification</b>	
Computer interface	At least a USB2.0 port required
Operation system	Windows XP, Windows 7,8 or 10
Hardware specification	Intel Core I5, 4GB RAM, 250GB HD

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HEMA 2020 Hematology Analyzer



Micro Plate Reader/Washer



URINOVA 2800 Urine Analyzer



Total Organic Carbon



Fully Automated CLIA



NOVA Basic Semi -Auto Chemistry Analyzer



PCR/Gradient PCR/ RTPCR



Blood Gas Analyzer



Random access Analyzer for immunoassay Proteins & clinical chemistry



Semen Analyzer



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.

## Reach us @



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