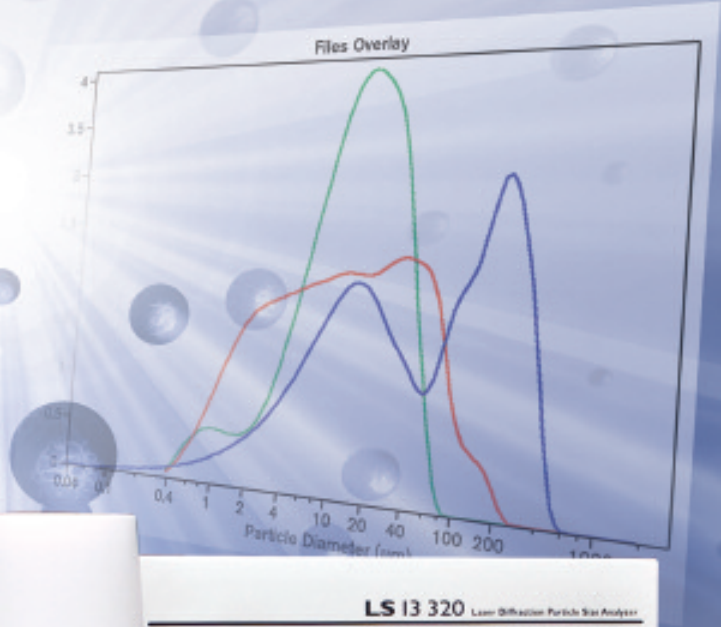


Meeting and exceeding the standard
for laser diffraction particle size analysis.

LS 13 320 Particle Size Analyzer



LS 13 320



- 1 LS 13 320 Series , 가
- Parameter LS 13 320 Series 가
- 1 LS 13 320 Series 가 Application , 가
- Single Wavelength system : 0.4um ~ 2,000um
 - Multi Wavelength system : Beckman Coulter Polarization Intensity Differential Scattering(PIDS) 0.017um ~ 2,000um
- 1 LS 13 320 Series 가 Plug-and-play
- 1 가 Standard Operating Methods (SOM's) , Standard Operating Procedures (SOP's) 가
- 1 Auto Prep Station 가 30
- 1 가



Step 1

Load your SOM or SOP



Power, flexibility and simplicity are the driving force behind the LS 13 320 software.

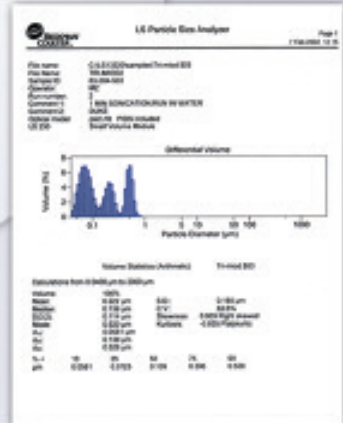
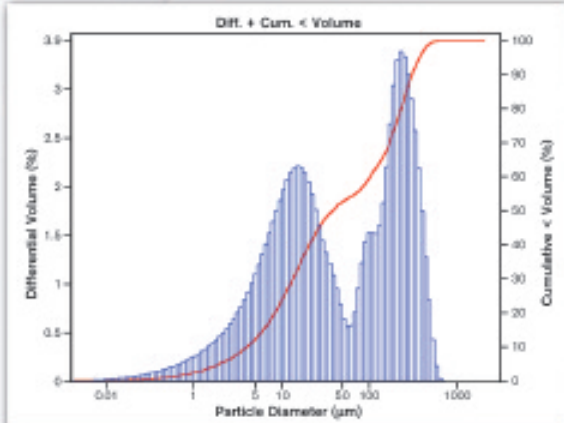
Step 2

Click Start SOM or SOP



Step 3

Get results



LS 13 320

LS 13 320

SOP's Preference

SOM & SOP

Standardize your process with
Standard Operating Procedures and Methods



Standard Operating Method Procedure

Step 1

Set up your SOM and sample description

Step 2

Identify your sample

Step 3

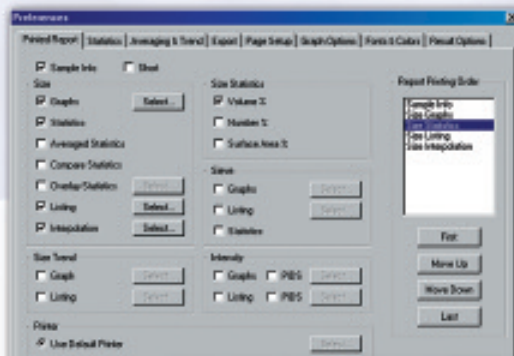
Set up your analysis parameters

Step 4

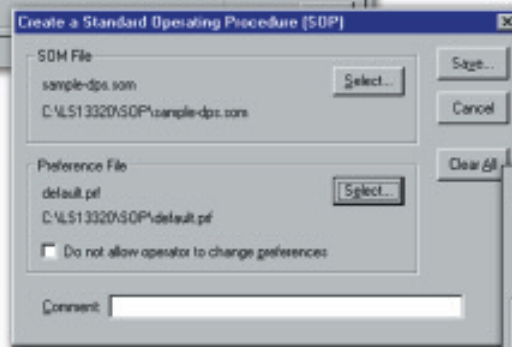
Choose your optical model

Step 5

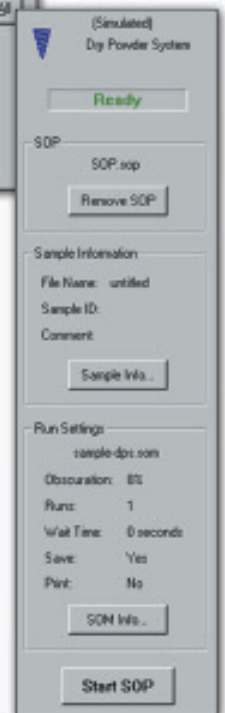
Save your SOM



Your solution to consistent results and reports.



Standard Operating Procedure (SOP)



SOM
SOP

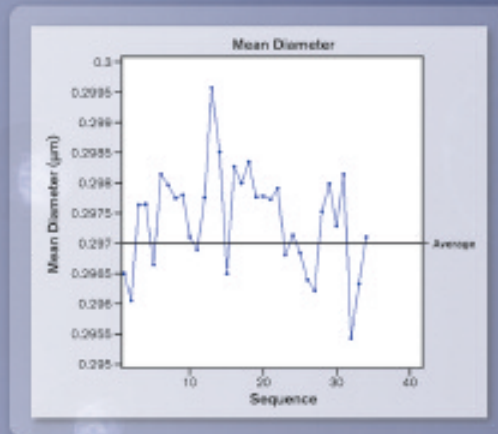
Preference

Start SOP

Size Trend

Size Trend

Software designed
with the user in mind.



Sieve Analysis

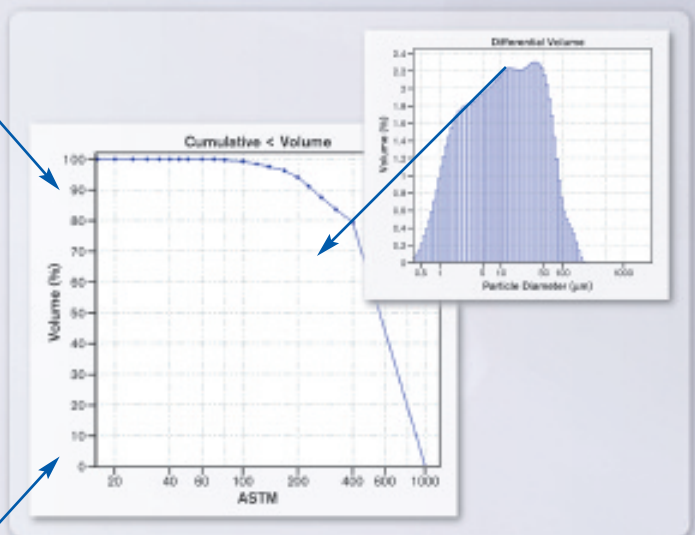
Sieve Analysis

Sieve

Analysis

Sieve data

ASTM	Cum. < Volume %
999	0
400	79.5164
325	83.6407
270	87.4781
230	91.1161
200	94.0814
170	96.2735
140	97.5502
120	98.4782
100	99.2856
80	99.8087
70	99.9786
60	99.9993
50	100
45	100
40	100
35	100
30	100
25	100
20	100



Interpolation

LS 13 320

가

ISO 13320 *Meeting and exceeding the standard*

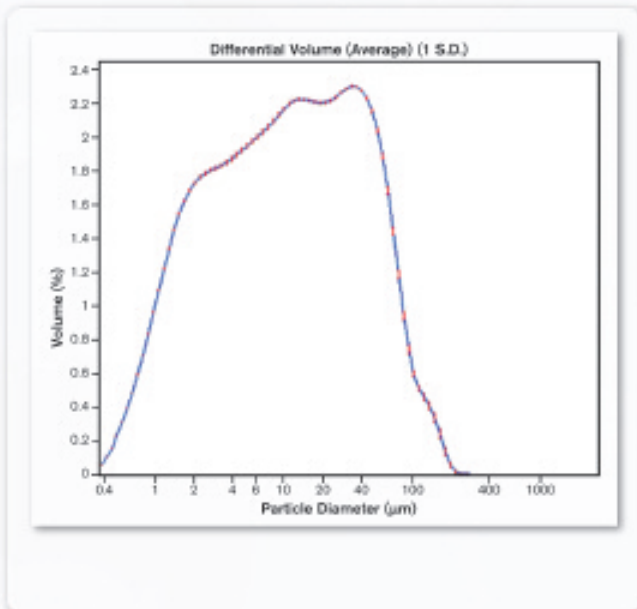
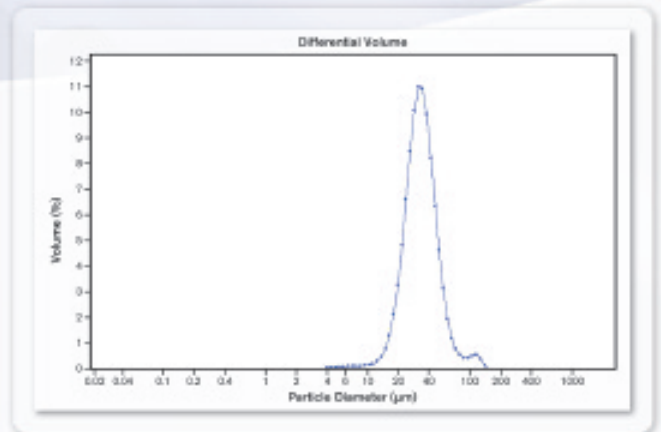
LS 13320

ISO 13320, Particle size analysis - Laser diffraction methods, ISO13320

Overlay Statistics							
	Amount %	Mean μm	S.D. μm	C.V.	d10 μm	d50 μm	d90 μm
G351907.001	100	34.3	15.6	45.6%	20.2	31.8	49.6
G351907.004	100	34.2	15.4	45.1%	20.3	31.8	49.4
G351907.005	100	34.3	15.5	45.3%	20.2	31.8	49.6
G351907.006	100	34.2	15.5	45.5%	20.2	31.8	49.2
G351907.007	100	34.2	15.4	45.1%	20.2	31.7	49.3
(Average)	100	34.2	15.5	45.3%	20.2	31.8	49.4
(C.V.)	0.0%	0.2%	0.5%	0.1%	0.2%	0.3%	
(Maximum)	100	34.3	15.6	45.6%	20.3	31.8	49.6

Accuracy

3%
 Deviation 가
 D10, D90
 Deviation 가 5%

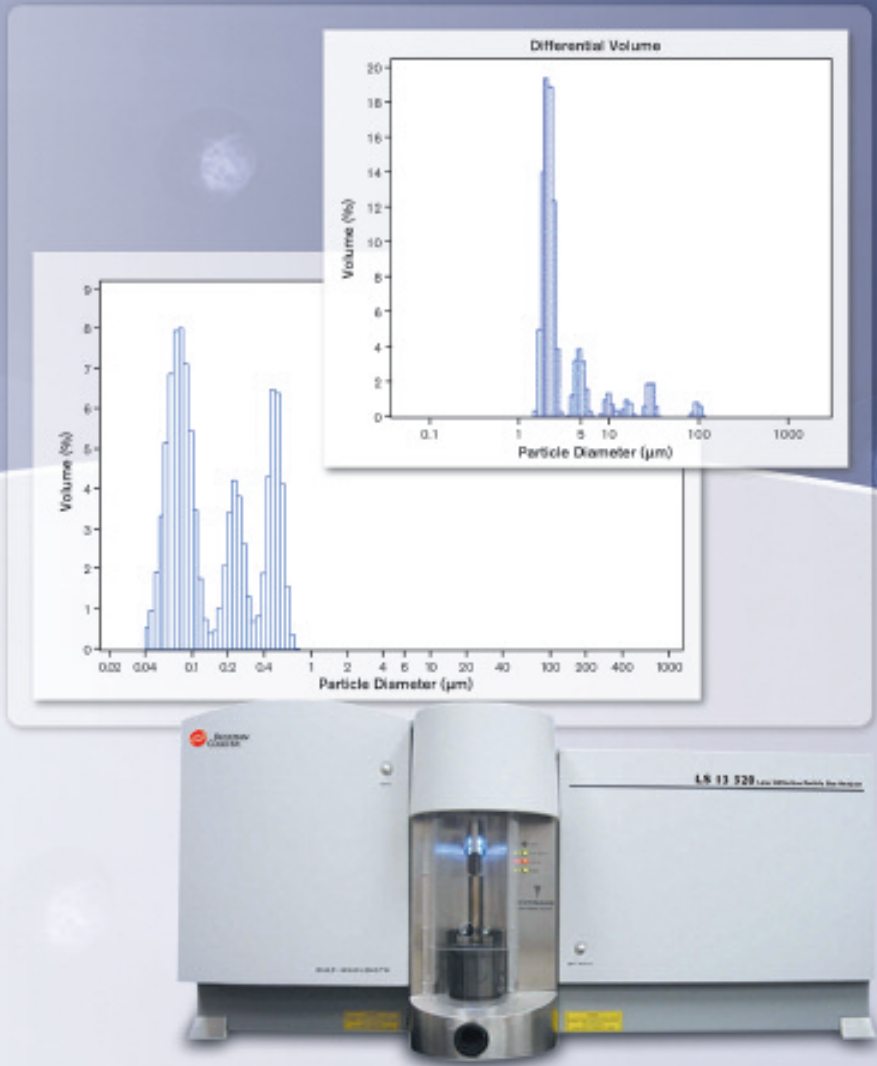


Repeatability

5%
 3%, D10 D90 D50 CV% CV% 5%

Resolution & Sensitivity

- (Resolution
-) Size
- Sensitivity
- Detector
- (S/N ratio)
-
-
- Optical Model



How does the LS 13 320 comply?

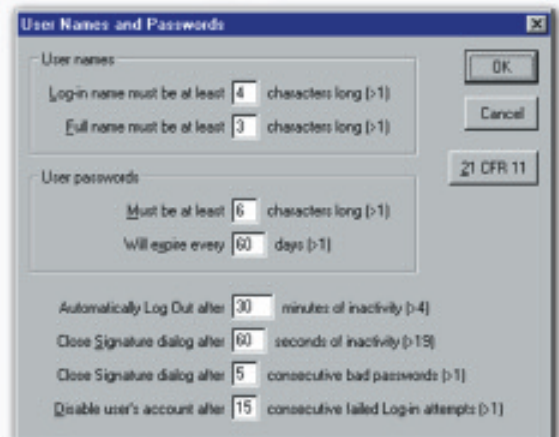
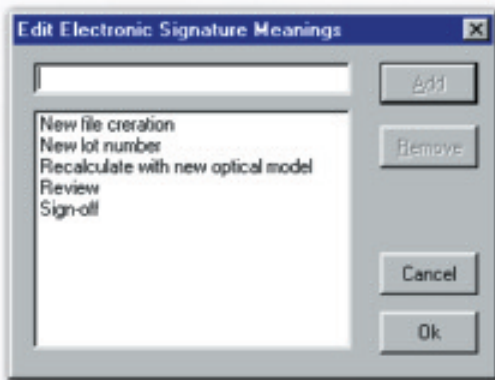
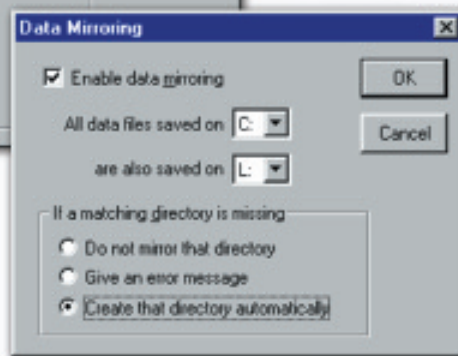
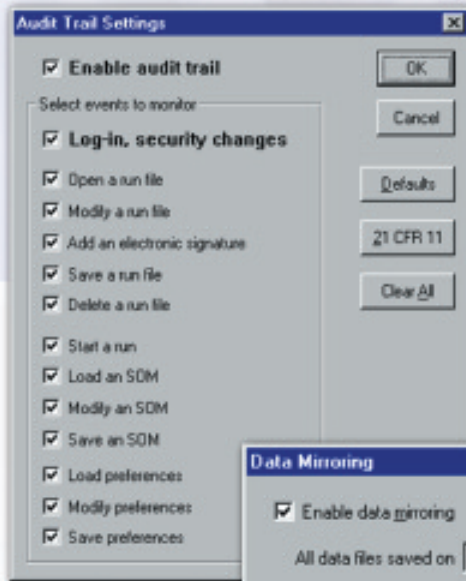
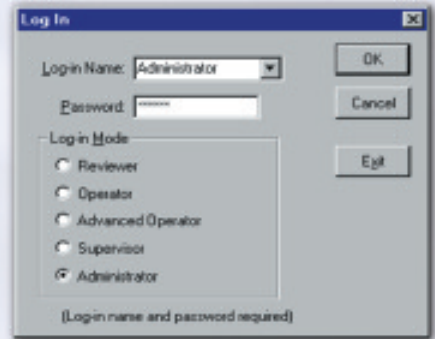
Accuracy	Resolution & Sensitivity	Repeatability
X detector	133 detector	Align system
	Fitting 가	
PIDS 가 가 가 36		
Beckman Coulter 가		

Security *21 CFR Part 11 and instrument qualification process*

Security

LS 13 320 가 가
 CFR Part 11 5 No Security 21
 , 21 CFR Part 11 FDA

One click away
 from compliance.



Regulatory Compliance

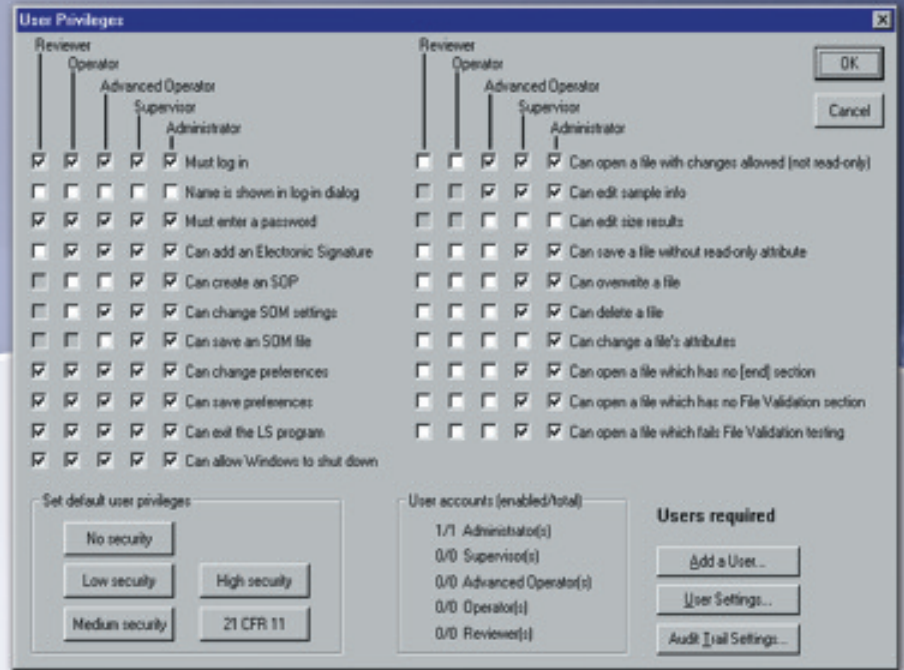
The Electronic Records and Electronic Signatures Rule (21 CFR Part 11) FDA

, LS 13 320

21 CFR Part 11

21 CFR Part 11

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V-Check Program

V-Check Program

, SQ, DQ, IQ,

OQ

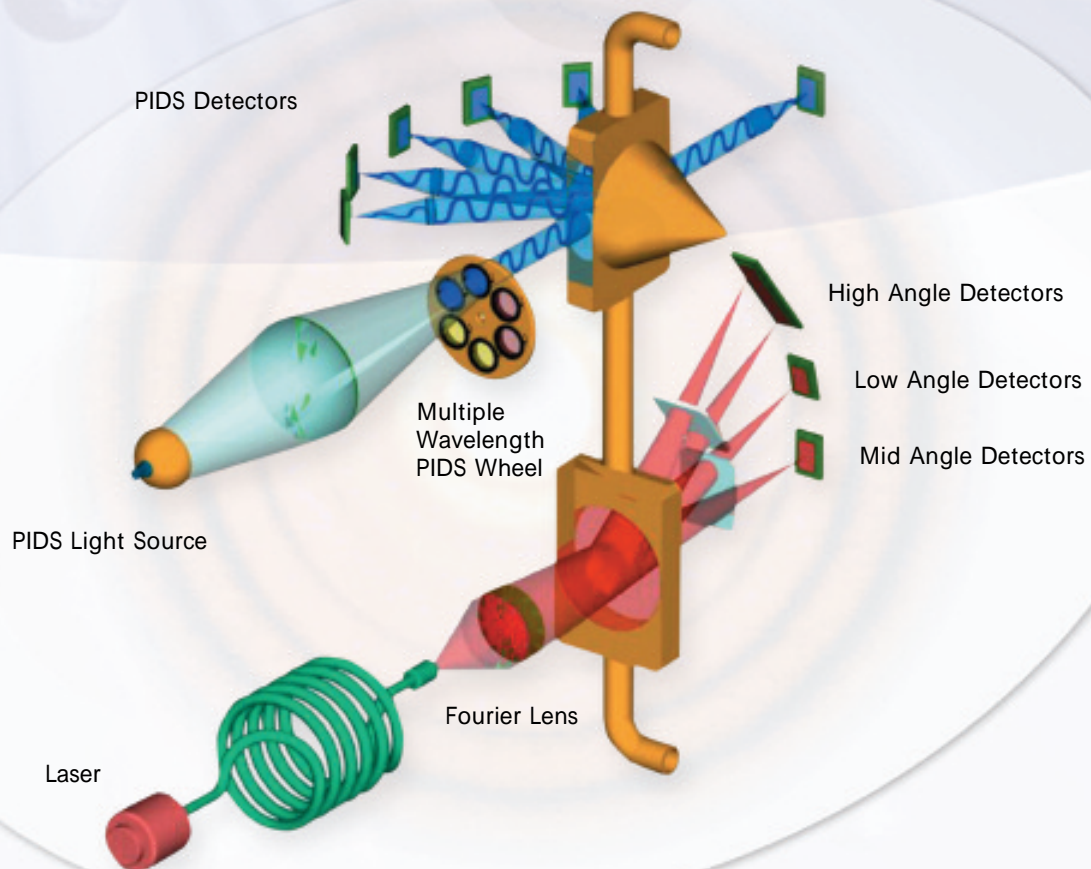
V-Check Program



Operating Principles

Beckman Coulter Firsts:

- 1 First company offering wide range without changing lenses
- 1 First company with auto-alignment
- 1 First company to utilize four wavelengths
- 1 First and only company incorporate scattering technology - PIDS



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Cell

Cell
Silicon Photo-detector

Volume%

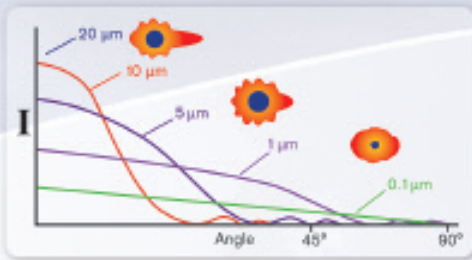
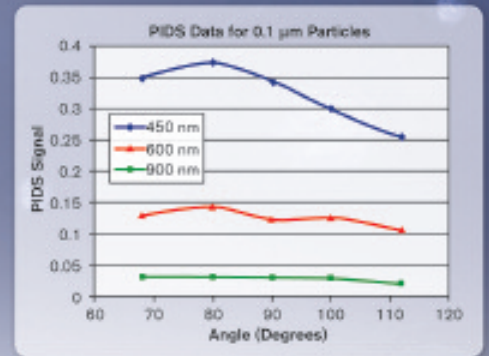
PIDS

Polarization Intensity Differential Scattering

PIDS;
angle

PIDS

Low-
?



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Low-angle detector
가

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Back-scattered light

PIDS

PIDS

450nm, 600nm, 900nm

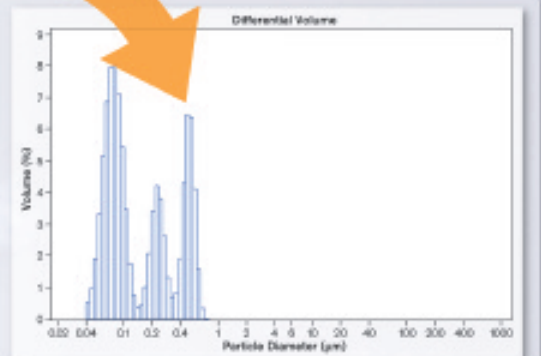
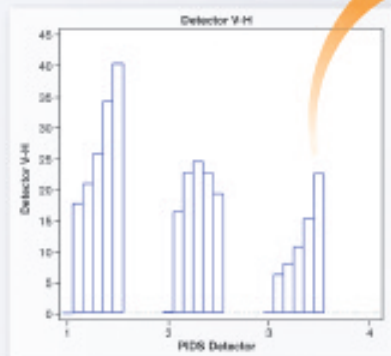
가

6가

PIDS

가

PIDS



LS 13 320 Specifications



Aqueous Liquid Module (ALM)

-
-
- System Probe
- Auto Prep Station
- 가



Micro Liquid Module (MLM)

-
- 12mL
- 가



Tornado Dry Powder System (DPS)

- ISO 13320
- 가
- System
-



Universal Liquid Module (ULM)

- System
- 가
- Drain System
- Pump Speed

Technology Low angle forward light scattering with optional PIDS (Polarization Intensity Differential Scattering) technology. Full implementation of both Fraunhofer and Mie theories of light scattering

Particle Size Range 0.017 μm - 2000 μm

Power Consumption ≤ 6 amps @ 90 - 125 VAC
 ≤ 3 amps @ 220 - 240 VAC

Dimensions 10 in depth (25.4 cm)
 39.6 in width (100.7 cm)
 17 in height (44.5 cm)

Weight 71.5 lbs (32.5 kg)

Typical Analysis Time 15 - 90 sec

Illuminating Sources Diffraction: Solid State (780 nm)
 PIDS: Tungsten lamp with high quality band-pass filters (450, 600 and 900 nm)

Humidity 0 - 90% without condensation

Temperature Range 10 - 40°C

Sample Modules Micro Liquid Module (MLM)
 Tornado Dry Powder System (DPS)
 Aqueous Liquid Module (ALM)
 Universal Liquid Module (ULM)
 Auto Prep Station (APS)

Operating System Windows 98, NT, 2000, XP, Vista



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