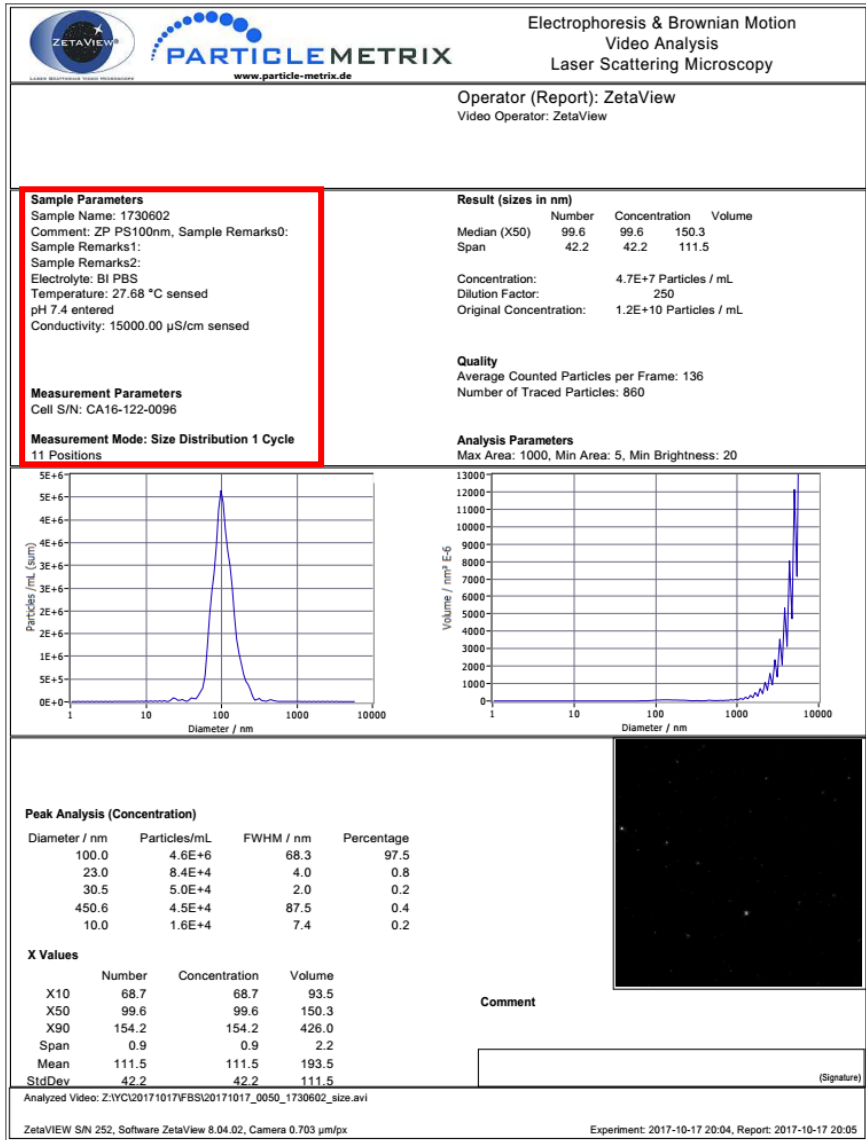


最主要关心的数据

A: 颗粒浓度

B: 粒径大小

C: 粒径浓度分布



Sample Parameters

Sample Name: 1730602

Comment: ZP PS100nm, Sample Remarks0:

Sample Remarks1:

Sample Remarks2:

Electrolyte: BI PBS

Temperature: 27.68 °C sensed

pH 7.4 entered

Conductivity: 15000.00 µS/cm sensed

其他标注, 由操作者输入

检测时用于稀释的溶剂
一般为本公司生产的PBS

Measurement Parameters

Cell S/N: CA16-122-0096

ZetaView的样本槽编号

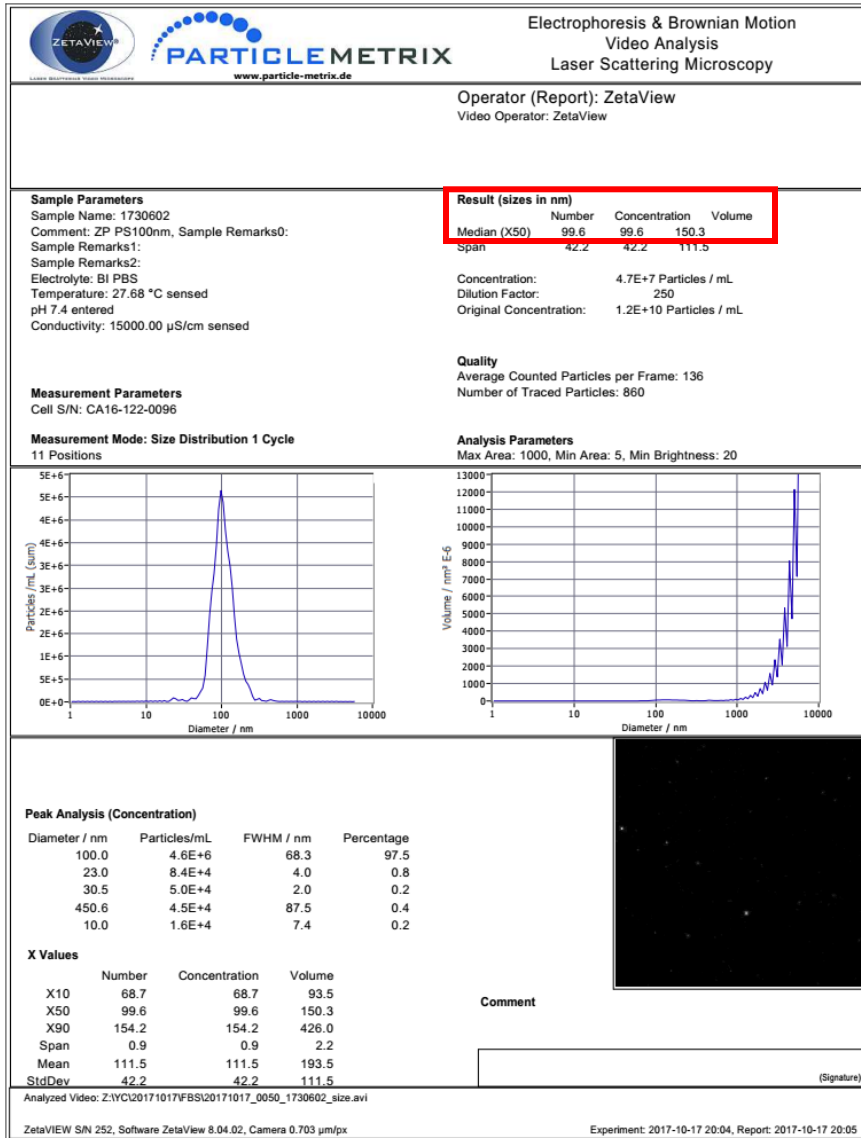
Measurement Mode: Size Distribution 1 Cycle

各检测位点的重复测量次数

11 Positions

同时检测的位点数

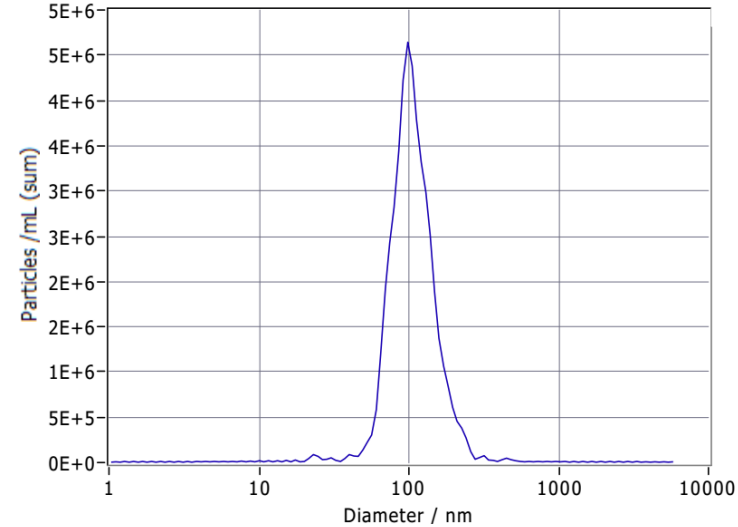
*各位点的原始数据见_size_11pos档

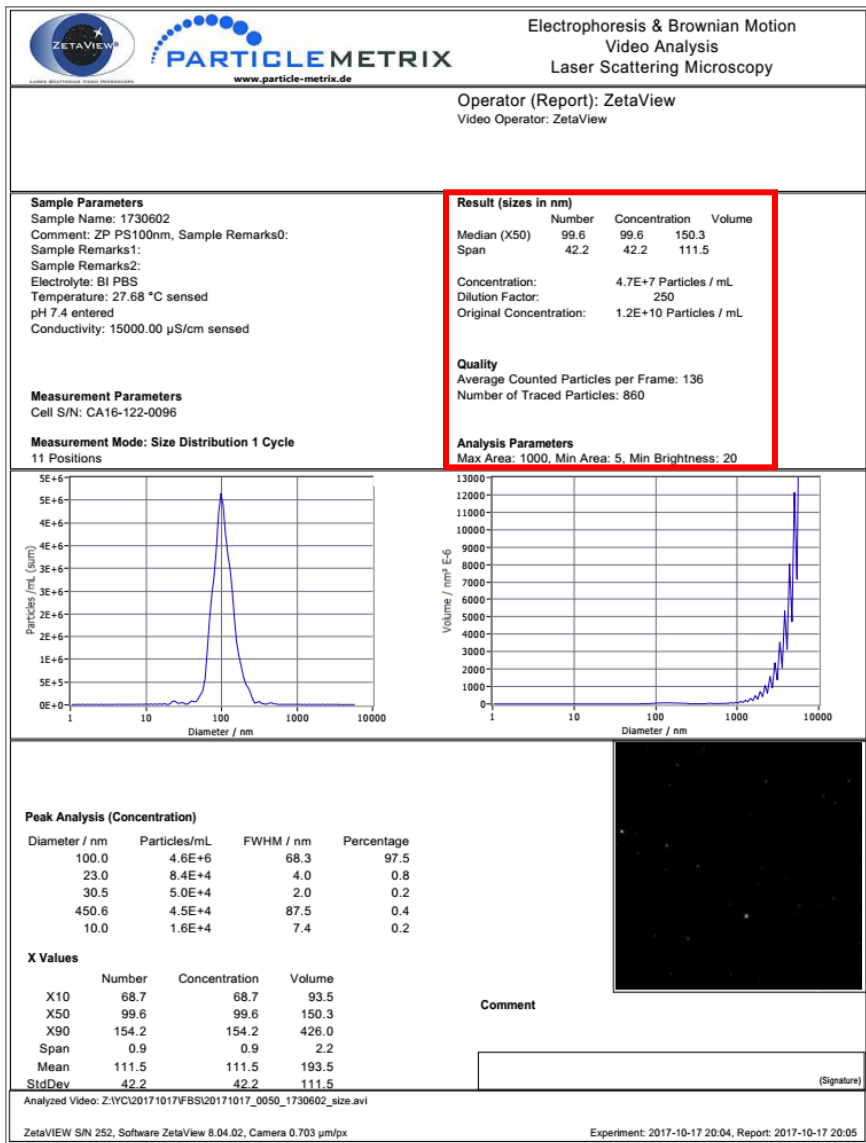


Result (sizes in nm)

	Number	Concentration	Volume
Median (X50)	99.6	99.6	150.3
	(a)	(b)	(c)

(a) 所测得颗粒依照大小排列，中位数的粒径
 (b) 意义类似 (a)，只是颗粒再除以溶液体积 (即浓度，如下图)
 (c) 所测得颗粒依照大小排列，中位数的体积比重*
 *目前在外泌体，此数据没有已知的意义





Result (sizes in nm)

	Number	Concentration	Volume
Median (X50)	99.6	99.6	150.3
Span	42.2	42.2	111.5

← Span见第6页说明

Concentration: 4.7E+7 Particles / mL

Dilution Factor: 250

← 稀释倍数

Original Concentration: 1.2E+10 Particles / mL

← 推算得到的原始浓度

Quality

Average Counted Particles per Frame: 136

← 每个视野中计算到的颗粒数

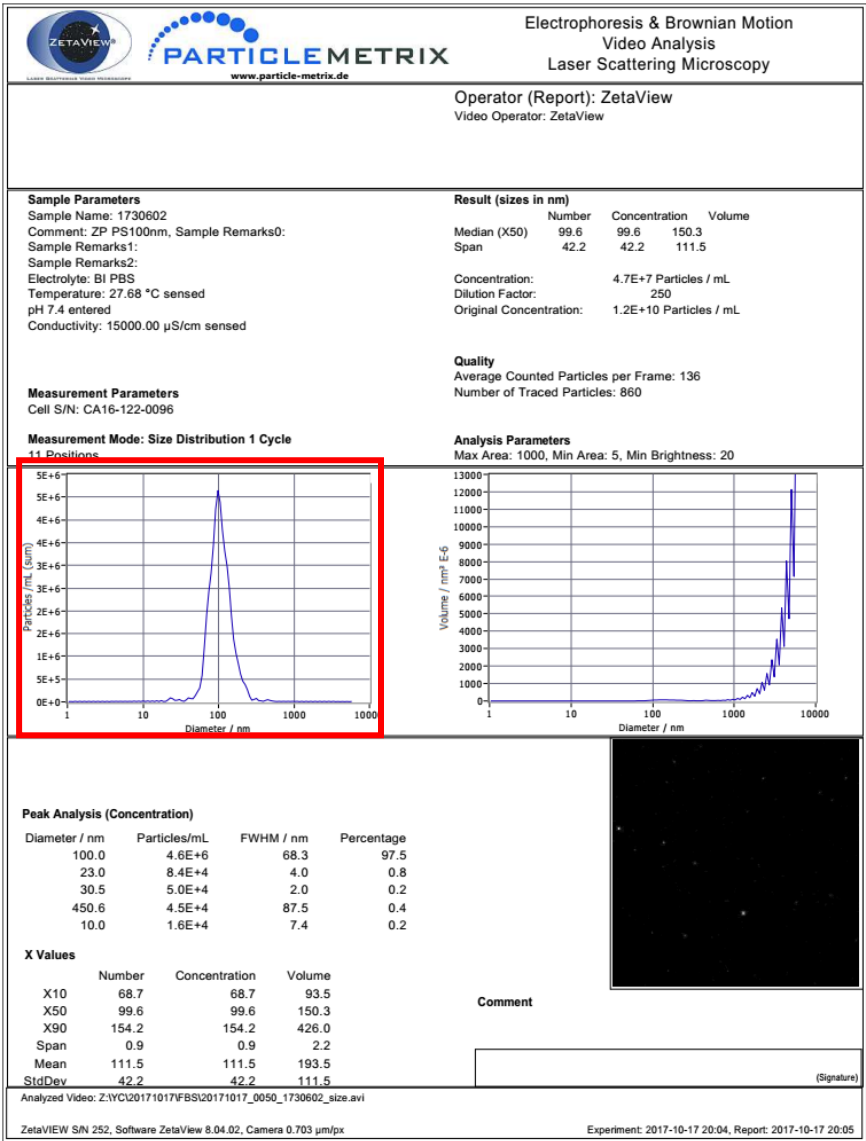
Number of Traced Particles: 860

← 追踪的全部颗粒数

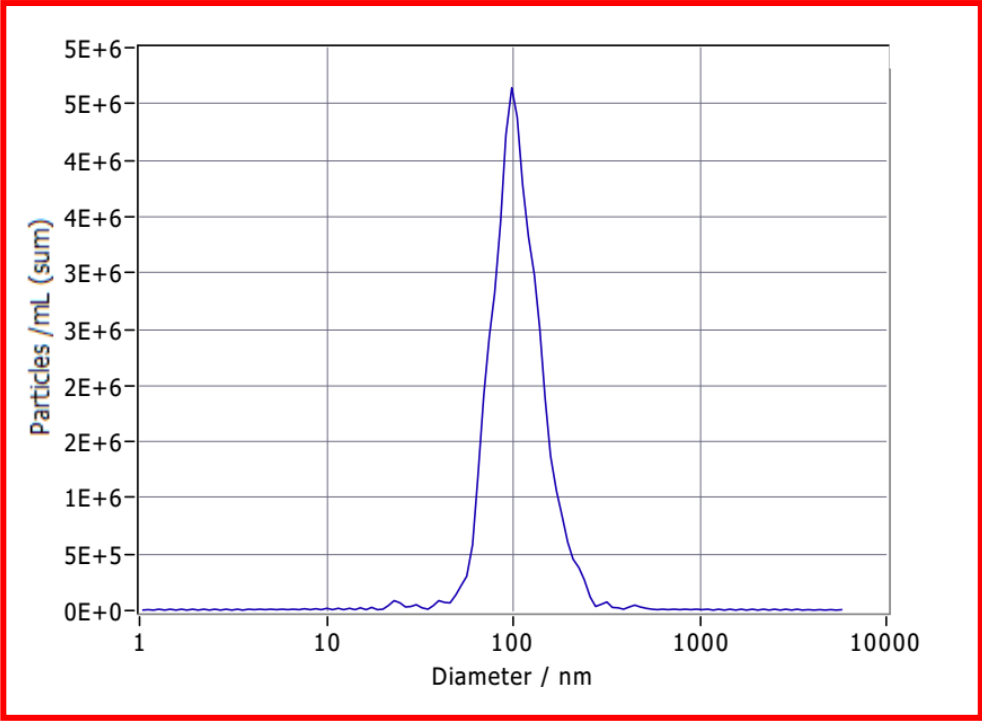
Analysis Parameters

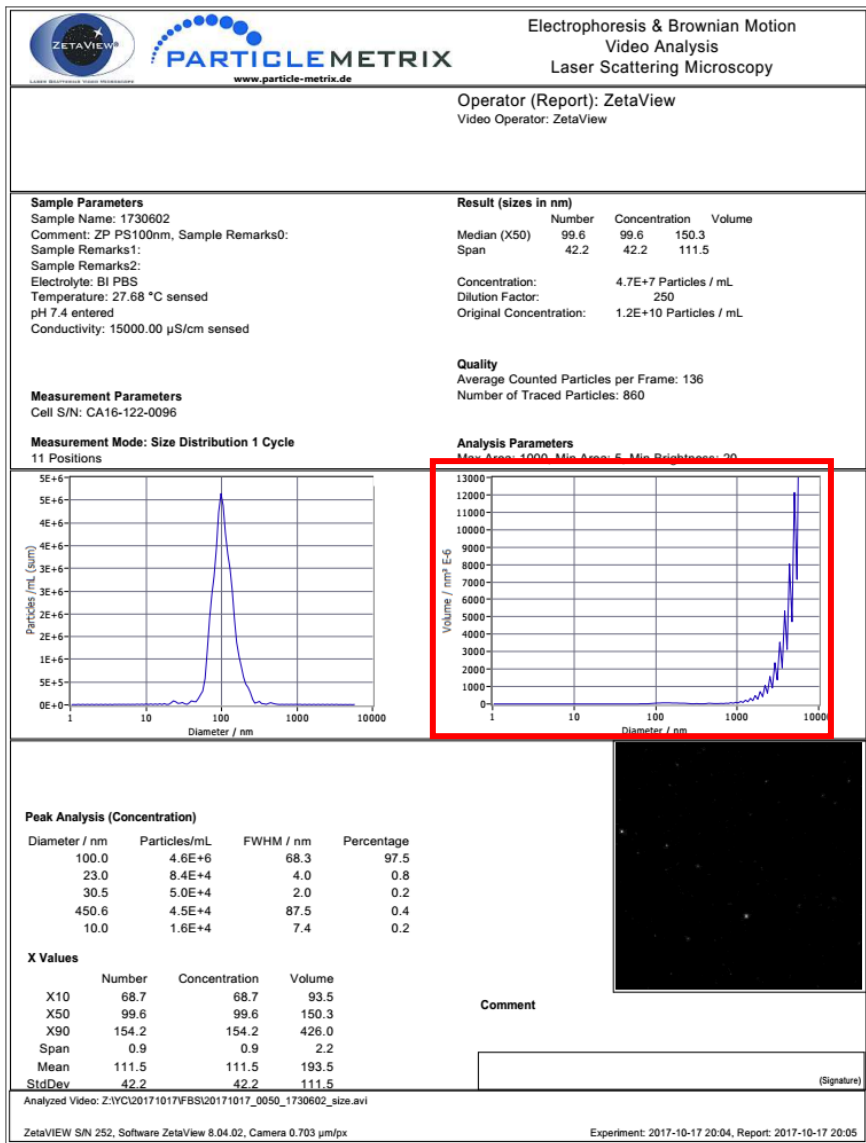
Max Area: 1000, Min Area: 5, Min Brightness: 20

← 摄像镜头的参数

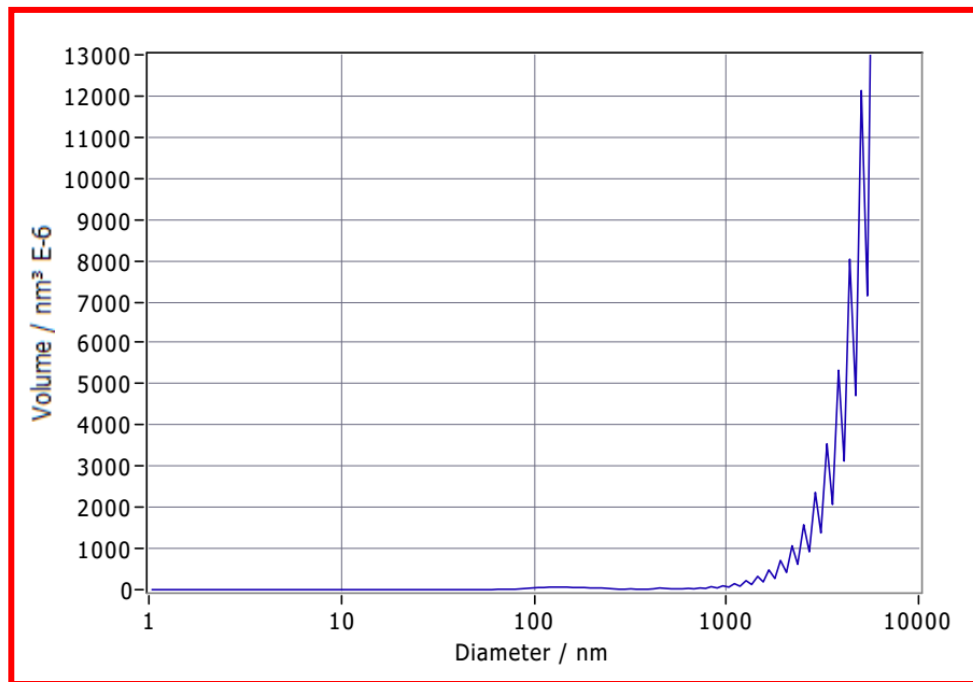


测得粒径与浓度分布图

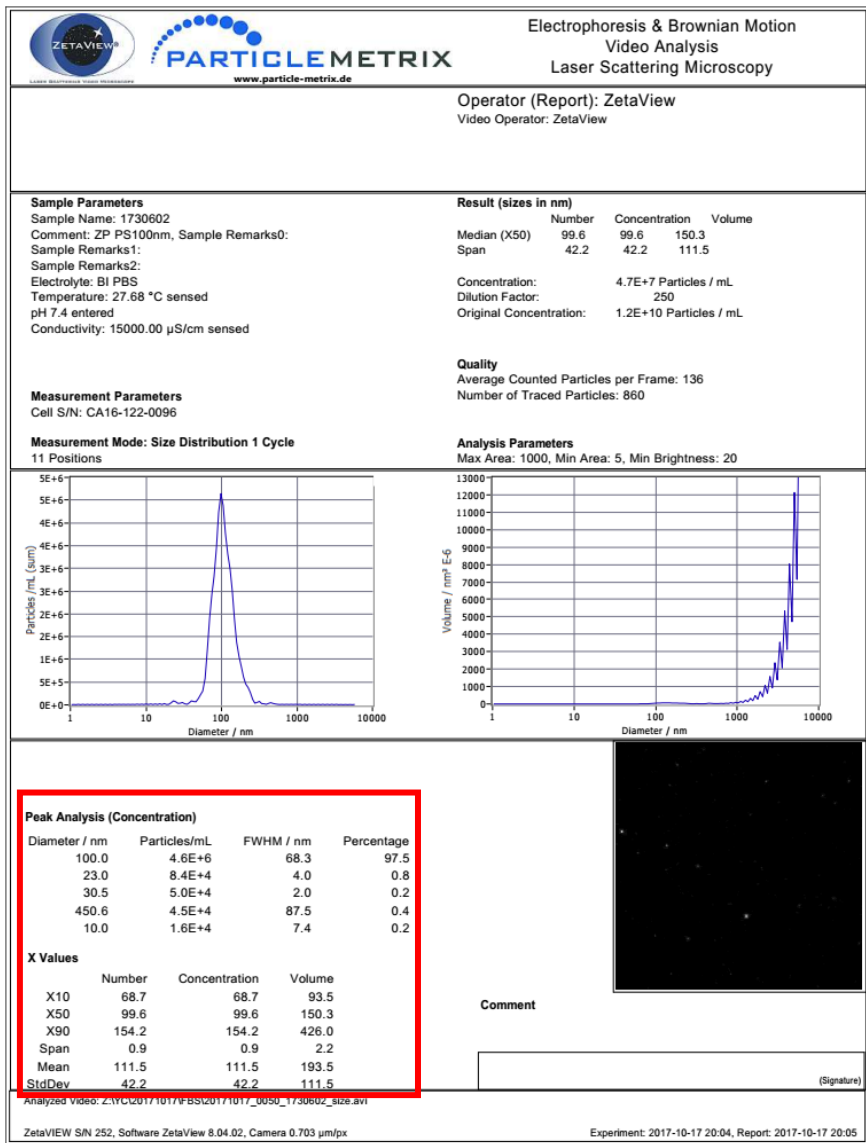




测得颗粒体积与粒径分布图



* 此为“volume-weight distribution”，当中的volume是颗粒体积乘以颗粒数。过去NTA主要用于材料的检测，针对外泌体这个数据目前没有已知的意义。



Peak Analysis (Concentration)

Diameter / nm	Particles/mL	FWHM / nm	Percentage
100.0	4.6E+6	68.3	97.5
23.0	8.4E+4	4.0	0.8
30.5	5.0E+4	2.0	0.2
450.6	4.5E+4	87.5	0.4
10.0	1.6E+4	7.4	0.2

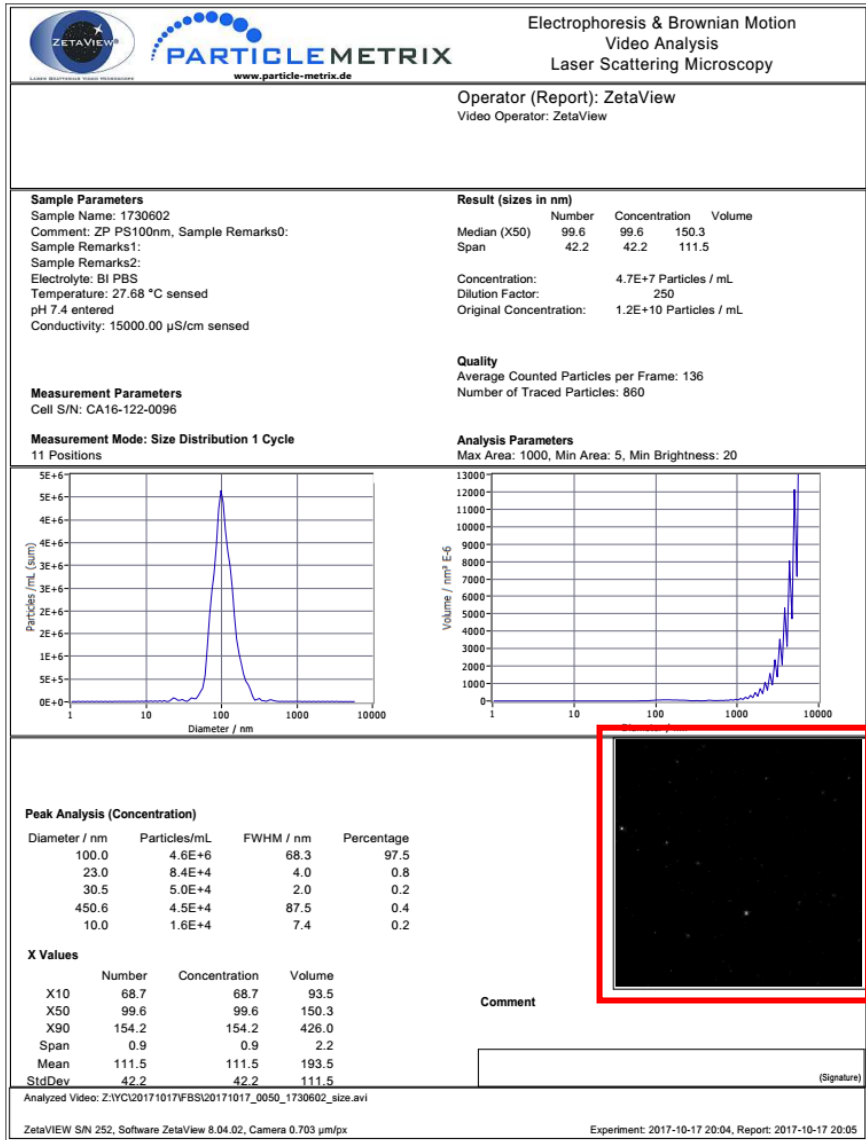
X Values

	Number	Concentration	Volume
X10	68.7	68.7	93.5
X50	99.6	99.6	150.3
X90	154.2	154.2	426.0
Span	0.9	0.9	2.2
Mean	111.5	111.5	193.5
StdDev	42.2	42.2	111.5

← 不同粒径各占的比例

← 见下面解释*
← 平均值与标准差

* Span 类似半峰全宽 (full width half maximum, FWHM), 不过改取X10-X90 (全部数据的80%) 的半峰。峰宽窄表示分布集中, 反之则表示分散。



量测录像的影片截图



* 完整影像见_size.avi档


```

Datei Bearbeiten Format Ansicht ?
Original File: D:\20151027\PS102 Thermo Fischer Frisch2\20151027_0025_PS102_frisch Thermo Fischer_size_000.avi
Section: 0,1 [0]
Operator: ZetaView
Experiment: 20151027_0025
ZetaVIEW S/N: 220
Software: ZetaView 8.02.30.02
Sample: PS102_frisch Thermo Fischer
Electrolyte:
pH: 7,000000 entered
Particle Concentration: 0,000000
Electrolyte Concentration: 0,000000
Conductivity: 14,670769 sensed
Temperature: 23,460000 sensed
Date: Dienstag, 27. oktober 2015
Time: 12:06:51
General Remarks: offset4,5, sensitivity70, Shutter70
Remarks:
Scattering Intensity: 1,248786
Detected Particles: 116
Cell Checked: 2015-10-27 09:07:45
Cell Check Result: Very Good
Type of Measurement: Size Distribution
Microscope Position: 0,100003
Number of Traces: 621 (at 0,100000) Average Number of Particles: 129,200000 Dilution:: 1,000000
Image Evaluation:
Minimum Brightness: 20
Minimum Size: 5
Maximum Size: 200
Camera: FpSec 30 #Cycles 1 FRate 30,000000
Gain: 517,000000
Offset: 0,000000
Shutter: 70,000000
Brightness: 0,000000
Gamma: 10,000000
Auto Exposure: 0,000000
Camera Trigger Mode: Camera Frequency
Camera Trigger Duration mus: Shutter Duration
Camera Trigger Delay mus: -100
Position: 0,100003
actual Microscope: -163815 (Pos 0,100003)
actual Laser: -216693
Position0 Microscope: -171185
Position0 Laser: -226534
Position1 Microscope: -97487
Position1 Laser: -128122
Cell Thickness (Microscope Steps): -73698
Cell Thickness (Laser Steps): -98412
SL1 (Stationary Layer 1): 0,149500
SL2 (Stationary Layer 2): 0,850500
Cell parameter:
Cell#: CA0068-0090b
Micrometer per Pixel: 0,703000
Reference Electrode Distance: 5,150000
Voltage: 0,000000
Polarity: 1
Reference Voltage: 0,000000
Microscope Magnification: x10
Laser wavelength: 488,000000
ZP Factor: 13,172181 (Smoluchowski)Results (Pos 0,100003):
Median Number (D50): 102,263386
Median Concentration (D50): 102,263386
Median Volume (D50): 215,912983
Size Distribution
Size / nm Number Particles / mL E+6 Volume / nm^3
15,000000 8,000000 681711,628986 0,014137
45,000000 29,000000 2471204,655072 1,383675
75,000000 163,000000 13889874,440580 36,005597
105,000000 213,000000 18150572,121739 129,105910
135,000000 106,000000 9032679,084058 136,554430
165,000000 43,000000 3664200,005797 101,139059
195,000000 13,000000 1107781,397101 50,471453
225,000000 17,000000 1448637,211594 101,389994
255,000000 16,000000 1363423,257971 138,911802
285,000000 5,000000 426069,768116 60,604268
315,000000 4,000000 340855,814493 65,462152

```

原始数据见_size.txt档

打开原始数据档，你会看到一系列检测参数。

```

Median Concentration (D50): 102,263386
Median Volume (D50): 215,912983
Size Distribution
Size / nm      Number Particles / mL E+6      Volume / nm^3
15,000000     8,000000      681711,628986      0,014137
45,000000     29,000000     2471204,655072     1,383675
75,000000     163,000000    13889874,440580    36,005597
105,000000    213,000000    18150572,121739    129,105910
135,000000    106,000000    9032679,084058     136,554430
165,000000    43,000000     3664200,005797     101,139059
195,000000    13,000000     1107781,397101     50,471453
225,000000    17,000000     1448637,211594     101,389994
255,000000    16,000000     1363423,257971     138,911802
285,000000    5,000000      426069,768116      60,604268
315,000000    4,000000      340855,814493      65,462152
345,000000    1,000000      85213,953623       21,500864
375,000000    1,000000      85213,953623       27,611654
405,000000    1,000000      85213,953623       34,782732
435,000000    0,000000      0,000000            0,000000
465,000000    0,000000      0,000000            0,000000
495,000000    0,000000      0,000000            0,000000
525,000000    1,000000      85213,953623       75,766379
555,000000    0,000000      0,000000            0,000000
585,000000    0,000000      0,000000            0,000000
615,000000    0,000000      0,000000            0,000000
645,000000    0,000000      0,000000            0,000000
675,000000    0,000000      0,000000            0,000000
705,000000    0,000000      0,000000            0,000000
735,000000    0,000000      0,000000            0,000000
765,000000    0,000000      0,000000            0,000000
795,000000    0,000000      0,000000            0,000000
825,000000    0,000000      0,000000            0,000000
855,000000    0,000000      0,000000            0,000000
885,000000    0,000000      0,000000            0,000000
915,000000    0,000000      0,000000            0,000000
945,000000    0,000000      0,000000            0,000000
975,000000    0,000000      0,000000            0,000000
1005,000000   0,000000      0,000000            0,000000
1035,000000   0,000000      0,000000            0,000000
1065,000000   0,000000      0,000000            0,000000
1095,000000   0,000000      0,000000            0,000000
1125,000000   0,000000      0,000000            0,000000
1155,000000   0,000000      0,000000            0,000000
1185,000000   0,000000      0,000000            0,000000
1215,000000   0,000000      0,000000            0,000000
1245,000000   0,000000      0,000000            0,000000
1275,000000   0,000000      0,000000            0,000000
1305,000000   0,000000      0,000000            0,000000

```

原始数据见_size.txt档

继续往下阅读，你会看到四列数据；

- 第一列：粒径/nm
- 第二列：颗粒数
- 第三列：浓度/particles/mL E+6
- 第四列：体积/nm³

以“size”为X轴，“number”或“particles/mL E+6”为Y轴作图，即可得到相应的粒径分布图

5745,000000	0,000000	0,000000	0,000000
5775,000000	0,000000	0,000000	0,000000
5805,000000	0,000000	0,000000	0,000000
5835,000000	0,000000	0,000000	0,000000
5865,000000	0,000000	0,000000	0,000000
5895,000000	0,000000	0,000000	0,000000
5925,000000	0,000000	0,000000	0,000000
5955,000000	0,000000	0,000000	0,000000
5985,000000	0,000000	0,000000	0,000000
-1,000000	-1,000000	-1,000000	-1,000000
0,006215	0,000000	0,000000	0,000000
0,006659	0,000000	0,000000	0,000000
0,007135	0,000000	0,000000	0,000000
0,007646	0,000000	0,000000	0,000000
0,008192	0,000000	0,000000	0,000000
0,008778	0,000000	0,000000	0,000000
0,009406	0,000000	0,000000	0,000000
0,010079	0,000000	0,000000	0,000000
0,010800	0,000000	0,000000	0,000000
0,011572	0,000000	0,000000	0,000000
0,012400	0,000000	0,000000	0,000000
0,013286	0,000000	0,000000	0,000000
0,014237	0,000000	0,000000	0,000000
0,015255	0,000000	0,000000	0,000000
0,016346	0,000000	0,000000	0,000000
0,017515	0,000000	0,000000	0,000000
0,018768	0,000000	0,000000	0,000000
0,020110	0,000000	0,000000	0,000000
0,021548	0,000000	0,000000	0,000000
0,023089	0,000000	0,000000	0,000000
0,024741	0,000000	0,000000	0,000000
0,026510	0,000000	0,000000	0,000000
0,028406	0,000000	0,000000	0,000000

原始数据见_size.txt档

这四列数据中间有一行“-1 -1 -1 -1”，为线性和对数关系的分界线：

“-1 -1 -1 -1”以上为线性关系对应数据；

“-1 -1 -1 -1”以下为对数关系对应数据。

因此，取“-1 -1 -1 -1”以下数据作图则为对数关系图，也对应的是仪器运行检测时软件输出的图。