SPECTREX CORPORATION
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PC-2200 LASER PARTICLE COUNTER

Calibration:

Spectrex provides three sealed calibration standards with each unit. Each standard contains a precise number of NIST traceable polystyrene spheres of known size in suspension and are sealed with inert Argon gas These standards have a proven stability of more than 2 years and provide efficient calibration within 10 minutes.

Applications:

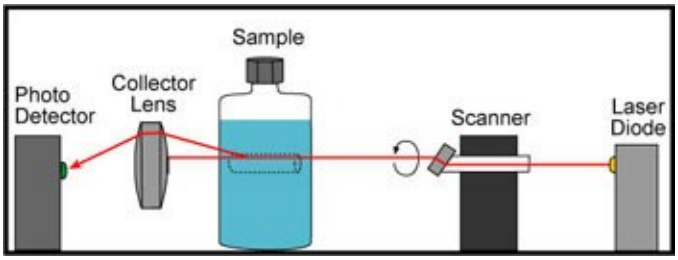
- Water Treatment Plants
- Hydraulic Fluids and Oil QC
- Silts and Sediment Sizing
- University Laboratories
- Pharmaceutical Manufacturers
- Oil Refineries and On-site drilling
- Bottling & Beverage Operations
- Oceanographic Studies
- Liquid Chromatography Solvent QC
- Cooling Power and Waste Water Filter Efficiency
- Particle Agglomeration Studies
- Particle Settling Characteristics
- Corrosive Chemical and Solvent Sizing
- Vial and Ampule Inspection
- De-ionized Water and Acid Testing
- Cell Counting

Features:

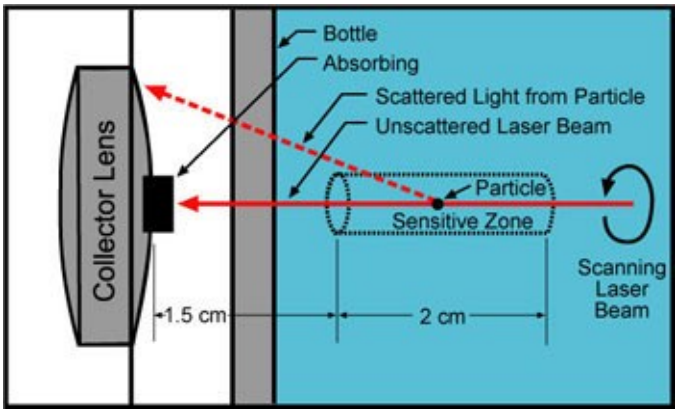
- Easy Do-It-Yourself Calibration
- SuperCount® Software
- Compact & Portable (6 lbs)
- Quickly Counts & Sizes
- No Cross-contamination of Flow Lines
- Eliminates Sample Flushing
- Built in magnetic stirrer

Operational Theory:

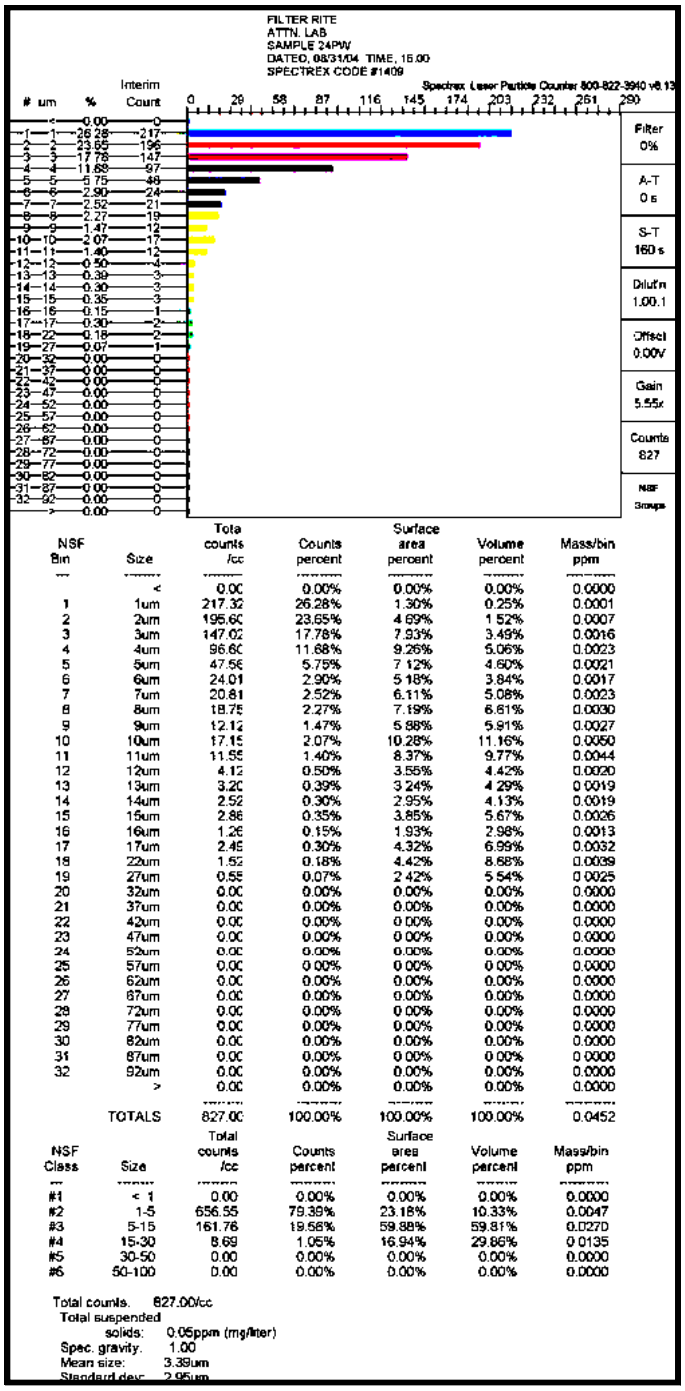
Utilizing the principle of "near angle light scatter," a revolving laser beam passes through the walls of a glass container or a flow-thru cell. When it is directed through a central "sensitive zone" the PC-2200 not only counts the particles in suspension, but tabulates their size as well. The analog signals generated by the light pulses are routed to a computer and digitized.



Optical Schematic of the Laser Particle Counter



Detail of Laser Optics



FILTER RITE
ATTN. LAB
SAMPLE 24PW
DATE0, 08/31/04 TIME, 15:00
SPECTREX CODE #1409

Interim

# um	%	Count
<	0.00	0
1	26.28	217
2	23.65	196
3	17.78	147
4	11.68	97
5	5.75	48
6	2.90	24
7	2.52	21
8	2.27	19
9	1.47	12
10	2.07	17
11	1.40	12
12	0.50	4
13	0.39	3
14	0.30	3
15	0.35	3
16	0.15	1
17	0.30	2
18	0.18	2
19	0.07	1
20	0.00	0
21	0.00	0
22	0.00	0
23	0.00	0
24	0.00	0
25	0.00	0
26	0.00	0
27	0.00	0
28	0.00	0
29	0.00	0
30	0.00	0
31	0.00	0
32	0.00	0
>	0.00	0

Filter 0%
A-T 0 s
S-T 160 s
Dilut'n 1.00:1
Offset 0.00V
Gain 5.55x
Counts 827
NSF Groups

NSF Bin	Size	Total counts /cc	Counts percent	Surface area percent	Volume percent	Mass/bin ppm
	<	0.00	0.00%	0.00%	0.00%	0.0000
1	1um	217.32	26.28%	1.30%	0.25%	0.0001
2	2um	195.60	23.65%	4.69%	1.52%	0.0007
3	3um	147.02	17.78%	7.93%	3.49%	0.0016
4	4um	96.60	11.68%	9.26%	5.06%	0.0023
5	5um	47.56	5.75%	7.12%	4.60%	0.0021
6	6um	24.01	2.90%	5.18%	3.84%	0.0017
7	7um	20.81	2.52%	6.11%	5.08%	0.0023
8	8um	18.75	2.27%	7.19%	6.81%	0.0030
9	9um	12.12	1.47%	5.88%	5.91%	0.0027
10	10um	17.15	2.07%	10.28%	11.16%	0.0050
11	11um	11.55	1.40%	8.37%	9.77%	0.0044
12	12um	4.12	0.50%	3.55%	4.42%	0.0020
13	13um	3.20	0.39%	3.24%	4.29%	0.0019
14	14um	2.52	0.30%	2.95%	4.13%	0.0019
15	15um	2.86	0.35%	3.85%	5.67%	0.0026
16	16um	1.26	0.15%	1.93%	2.98%	0.0013
17	17um	2.46	0.30%	4.32%	6.99%	0.0032
18	22um	1.52	0.18%	4.42%	8.68%	0.0039
19	27um	0.55	0.07%	2.42%	5.54%	0.0025
20	32um	0.00	0.00%	0.00%	0.00%	0.0000
21	37um	0.00	0.00%	0.00%	0.00%	0.0000
22	42um	0.00	0.00%	0.00%	0.00%	0.0000
23	47um	0.00	0.00%	0.00%	0.00%	0.0000
24	52um	0.00	0.00%	0.00%	0.00%	0.0000
25	57um	0.00	0.00%	0.00%	0.00%	0.0000
26	62um	0.00	0.00%	0.00%	0.00%	0.0000
27	67um	0.00	0.00%	0.00%	0.00%	0.0000
28	72um	0.00	0.00%	0.00%	0.00%	0.0000
29	77um	0.00	0.00%	0.00%	0.00%	0.0000
30	82um	0.00	0.00%	0.00%	0.00%	0.0000
31	87um	0.00	0.00%	0.00%	0.00%	0.0000
32	92um	0.00	0.00%	0.00%	0.00%	0.0000
	>	0.00	0.00%	0.00%	0.00%	0.0000
	TOTALS	827.00	100.00%	100.00%	100.00%	0.0452

NSF Class	Size	Total counts /cc	Counts percent	Surface area percent	Volume percent	Mass/bin ppm
#1	< 1	0.00	0.00%	0.00%	0.00%	0.0000
#2	1-5	656.55	79.39%	23.18%	10.33%	0.0047
#3	5-15	161.76	19.56%	59.88%	59.81%	0.0270
#4	15-30	8.69	1.05%	16.94%	29.86%	0.0135
#5	30-50	0.00	0.00%	0.00%	0.00%	0.0000
#6	50-100	0.00	0.00%	0.00%	0.00%	0.0000

Total counts. 827.00/cc
Total suspended solids: 0.05ppm (mg/liter)
Spec. gravity. 1.00
Mean size: 3.39um
Standard dev: 2.95um

Sample Print-out

SuperCount® Software:

Developed by Spectrex, the custom interfacing electronics and proprietary software provide an easy means of analyzing and saving data generated by the PC-2200. SuperCount® provides instant sizing information and generates a printout with count information and a histogram of size distribution in addition to indicating:

- Absolute Counts
- Mean Size
- Mass Distribution
- Percentage Distribution
- Standard Deviation
- Total Suspended Solids

The dilution factor can be automatically computed to give absolute counts for liquids as dense as sludge! SuperCount® also is loaded with a special bonus program for hydraulic fluids * and Phi classifications. Auto-Mode Software for sequential reading at user selected intervals is available upon request. It is ideal for monitoring rates of change such as dissolution or agglomeration. * NAS, SAE, and ISO classifications.

Options:

- **Opacity Meter** - provides an instantaneous measurement of the sample's opacity to correlate with computer calculations.
- **Small Vial Attachment** - follows for use of 5ml vials or ampoules.
- **Flow-Thru-Cell** - Spectrex stocks various sizes of flow-thru-cells and can manufacture cells to customer specifications. Cells are also available for testing at high pressure and temperatures.
- **Datacom** - a 21 CFR 11 compliant product for pharmaceutical and other applications that require secure liquid particle data logging. (See our website for more information)

Specifications:

Size : 4.75" x 14" x 4.5" (height with Light Tight Cover is 5.5")
Typical Bottle Size: 15-60 mm inside diameter
Detectable Particle Size: From 0.5µm - 100µm.
Weight: 6 lbs
Bottle Material: Transparent, scratch-free glass
Power: 115v 60Hz (230v optional)

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