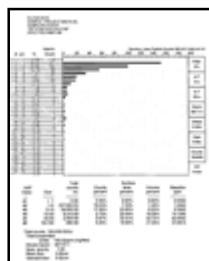


## Water/Oil Services Particle Count/Size

### Next Day Results

Comprehensive particle size/count analysis for in-situ and flowing fluids. Graphic and tabular presentation of particle size, total counts, counts percent, surface area percent, volume percent, PPM and total suspended solids. Ideal for water treatment plants, ground water analysis, filtration sizing, pre/post filtration test, and hydraulic oils/lubricants.

### TYPICAL TEST RESULTS



### DETAILED EXPLANATION OF SPECTREX WATER ANALYSIS PRINT-OUT

- A. **TITLE**  
This heading lists the customer whose sample is being analyzed and the description and identification of the sample.
- B. **HISTOGRAM SHOWING SIZE DISTRIBUTION**
  1. **Bin Number**  
Left hand vertical column indicates bin or channel number. Normally we use 32 bins.
  2. **Particle size range**  
Moving from left to right: the next vertical column shows the particle sizes, from 1 to 100 micrometers (symbol  $\mu\text{m}$ .)  
Note:  $\mu\text{m}$  is equivalent to one thousandth of a millimeter or one millionth of a meter. The human eye is able to see down to about 50  $\mu\text{m}$ , while the Spectrex instrument can count and size down to  $\mu\text{m}$ .
  3. **Particle size in percentage**  
Next column is the percentage distribution per bin over the complete size range.
  4. **Relative Count Column**  
These numbers are only indirectly related to the absolute number of particles in each bin and should be ignored.
  5. **The Bar Graph ("Histogram")**  
This gives a quick, visual indication of the size distribution. The scale at the top can be changed as necessary.
  6. **Filter Box** (The topmost of six rectangles to the right of the Bar Graph)  
"F-0" is used for clear water samples.  
"F-30" is used for opaque hydraulic oil samples.  
"F-11" is used for the small vial attachment.
  7. **A-T** This is the ACTUAL number of seconds it took to collect your sample.
  8. **S-T** This is the number of seconds SET on the computer to take your sample.
  9. **Dilution**  
If your sample has to be diluted, this is the amount of dilution needed.
  10. **Offset and Gain**  
These are constants preset in the computer to ensure that the sized particles are entered in the right bins.
- C. **LISTINGS**  
These are the vertical columns of numbers immediately under the Histogram.  
From left to right ...

1. **Bin Number** — As explained above in B-1
  2. **Size** — As explained above in B-2
  3. **Total Counts per cc** — This column lists the absolute number of particles in each bin and includes the dilution factor. If there is a "0" in the sub 1µm category this does not mean that there are no submicron particles present. Unless specifically requested, we usually size from 1µm upward as there is a slightly indeterminate factor below that size, while we are sure that all 1µm particles are counted.
  4. **Counts percent** — As explained in B-3
  5. **Surface Area percent** — The computer rearranges the distribution by Surface Area. The Surface Area is derived by multiplying Counts Percent by the "square" of the diameter.
  6. **Volume Percent** — This is calculated using the "cube" of the diameter. You will notice that the percentage distribution is heavily weighted toward the larger particle range.
  7. **Mass Per Bin** — This is derived from the volume Percent, using a special volumetric factor, to give the total suspended solids in each size range. The total of this right-hand column gives the total suspended solids in parts per million or milligrams per liter for the complete sample. Spectrex, for its lab service, will normally assume the sample specific gravity is one. If the customer knows the specific gravity, the TSS derived by Spectrex should be multiplied by this to give the final TSS. Note that the TSS we generate is CALCULATED. For extra accuracy we suggest physically separating the suspended solids from the liquid in a sample and weighing it (gravimetric method).
- D. **STANDARD CLASSIFICATION**  
This is usually in "Phi" categories, used by sedimentologists, geologists and water engineers. It is a relisting of C above in a reduced number of channels. Other "standard" listings, for hydraulic oils, are ISO, NAS and SAE. If you would prefer one of these three rather than "Phi" please specify.
- E. **TOTALS**  
Here we list -
1. Total number of particles in the sample. This is a total of C-3 above.
  2. Total suspended solids. This is a sum of the listing C-7 and is both in parts per million and in milligrams per liter.
  3. Dilution factor. This is an indication of how much dilution was necessary to get the required results.
  4. Specific Gravity. This important aspect of the sample is entered into the computer before the sample is run and is used to calculate the Mass Per Bin C-7 and Total Suspended Solids E-2.
  5. Mean Size and Standard Deviation are computed from Total Counts per cc (C-3).
  6. Date and Time at which the sample was run is a valuable reference for the future.

## Next Day Particle Analysis Service

### PRICE LIST

Quantity	Direct Service	Pre-Paid Label Service *
1-5	\$90.00	\$78.00
6-25	\$85.00	\$74.00
26-50	\$80.00	\$69.00
50+	CALL	CALL

All samples must be accompanied by the Sample Analysis Form which may be downloaded from the website [www.spectrex.com](http://www.spectrex.com).

#### \* Explanation of the Pre-paid label Service

This service is designed for customers who plan to send several samples for analysis over time. For example, you may want to send one sample per month over ten months. Normally each sample would have to be invoiced and paid for individually. With the pre-paid label service all ten samples can be purchased at the reduced price in advance, and from then on there would be no more paperwork! The customer is saving money and Spectrex is saving money. Everyone wins.

All the customer has to do is attach the specially serialized label to the sample before sending it to us.

Another valuable use for the system is as a Sales Tool. A filter manufacturer, for example can give a couple of labels to his or her client to send samples to Spectrex for analysis to prove the effectiveness of a new filter.