

VARIABLE AREA PARTICLE SIZE ANALYZER

185 Plumpton Ave. Washington, Pa 15301

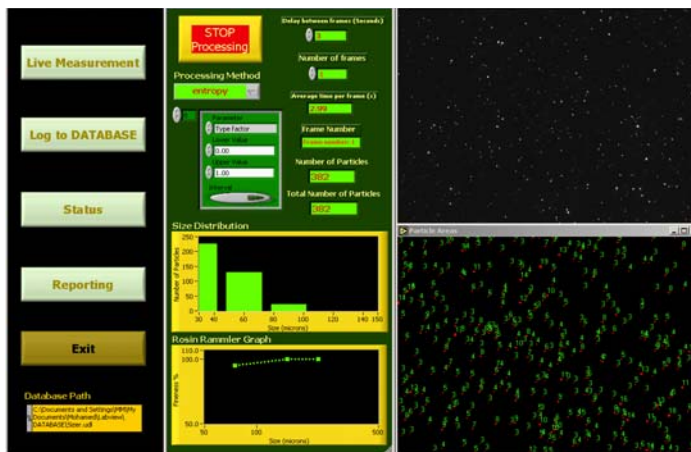
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GREENBANK ENERGY SOLUTIONS INC.
PULVERIZED FUEL APPLICATIONS

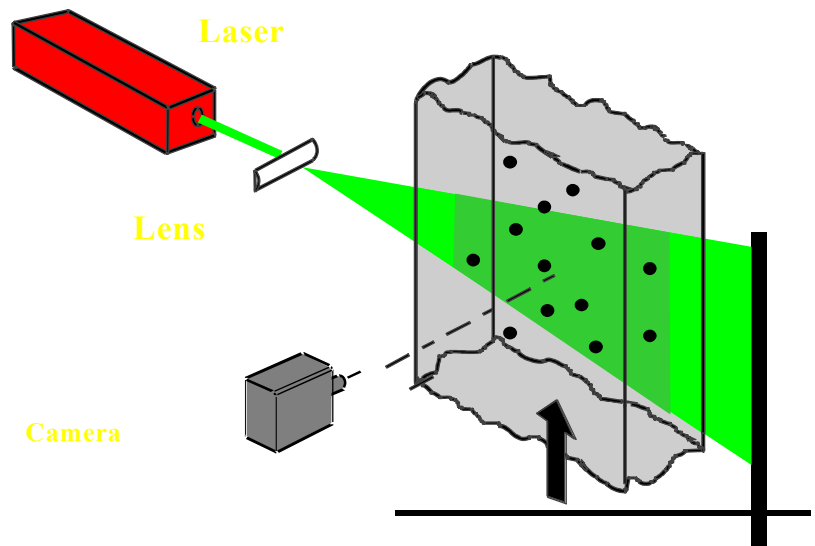
On-line Particle Size Analyzer.

The principal of our on-line Particle Size Analyzer is novel compared to the instrumentation presently available. Using the latest Laser performances and the high-tech sensors, our particle size analyzer measures, tracks and analyses the particulate phase on-line and in real time. The On-line Particle Size Analyzer is controlled by highly sophisticated software that measures particles down to few micrometers in diameter. The device is robust, user friendly and can be remotely accessed and controlled. In the hostile environment of coal power plants it allows the characterization in real time of the mill outlet as well as burner feed. This information is then used to control the performance of the boiler and to regulate the emission levels from the furnace.



- On-line accurate measurements
- Real time measurement
- Robust and user friendly device
- Easy installation and maintenance
- Upgradeable Instrument

- Non-intrusive data collection
- Variable data sampling rate
- Remote data acquisition
- Minimal pressure drop
- Output format to required specification



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Live Measurement

Log to DATABASE

Status

Reporting

Exit

Database Path
C:\Documents and Settings\MM\My Documents\Mohamed\Labview\DATABASE\Sizer.udl

Path to Database: C:\Documents and Settings\MM\My Documents\Mohamed\Labview\DATABASE\Sizer.udl

Database: **Sizer** List of tables: **Particles** List of Columns: **RecordNumber** Exit Database

Date: 03/12/2002 Acquisition Time: 1 Number of particles: 382
 Time: 11:10 Number of Frames: 1 Relative Error: 0
 Average Time per Frame: 1.00 Pass / Fail: ■

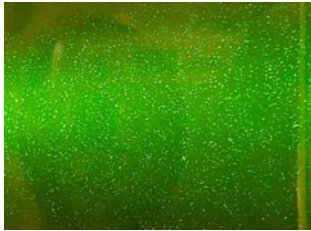
Size Distribution

Rosin Rammler Graph

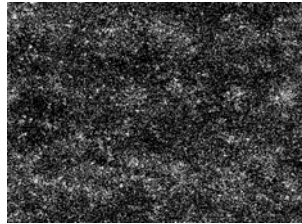
Number of Records: **12** Previous Record Record Number: **8** Next Record Display record Number

RecordNumber	MDate	MTime	ACQTime	NumberOfFrames	NumberOfParticles	Particles	Errors	Pass
1	03/12/2002	11:09	9	9	1825	□□z□□	□yē yē	Pass
2	03/12/2002	11:09	9	9	1825	□□z□□	□yē yē	Pass
3	03/12/2002	11:09	6	6	1094	□□-□□	□yē yē	Pass
4	03/12/2002	11:09	6	6	1094	□□-□□	□yē yē	Pass
5	03/12/2002	11:09	4	4	382	□ s , □	□yē yē	Pass
6	03/12/2002	11:09	4	4	382	□ s , □	□yē yē	Pass
7	03/12/2002	11:09	4	4	382	□ s , □	□yē yē	Pass
8	03/12/2002	11:10	4	4	382	□ s , □	□yē yē	Pass
9	03/12/2002	11:10	1	1	382	□ s , □	□@WLeYsē	Pass
10	03/12/2002	11:10	1	1	382	□ s , □	□@WLeYsē	Pass

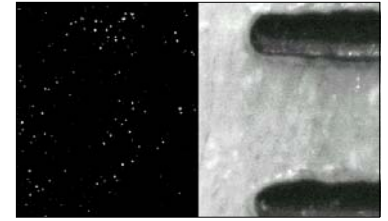
Sort by
 ACQTime ▾
▲ Ascend
▼ Descend



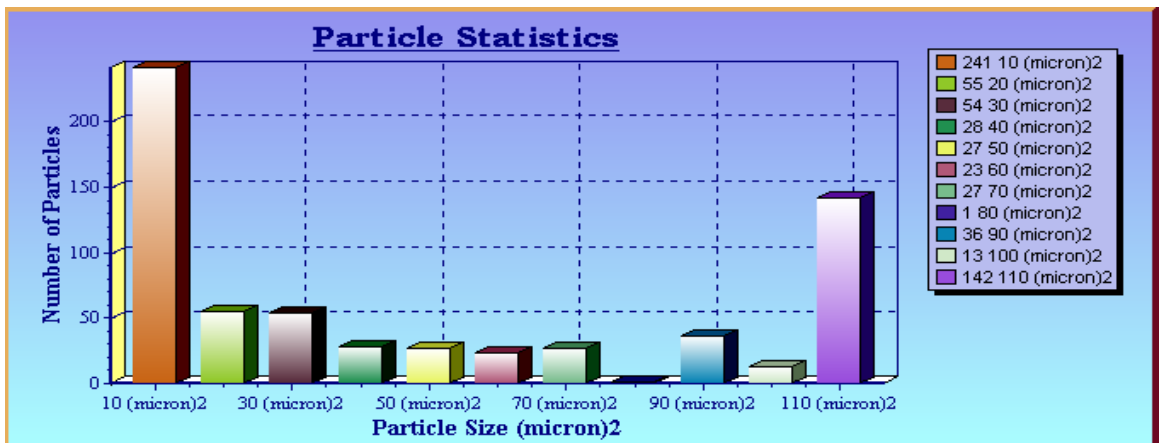
Particles seen with naked eye



Digital image of Particles



Field of View : 1mm x1mm



Particle Concentration

Particles under 20 (micron)²:	296 (46%)
Particles between 20-50 (micron)²:	109 (17%)
Particles between 50-100 (micron)²:	100 (15%)
Particles over 100 (micron)²:	142 (22%)
Total Number of Particles:	647