

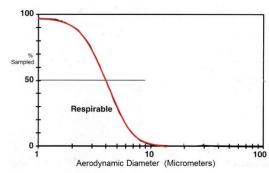
FEATURE DESCRIPTION: PARTICLE DISTRIBUTION

OVERVIEW

The DustCount combines the advantages of real-time dust monitoring with the ability to do the standard method, all in a compact lightweight package. The DustCount also provides particle distribution on every sample.

The DustCount samples the air continuously through its impactor which follows the NIOSH curve for respirable fraction. The impactor lets almost 100% of small particles pass and blocks all particles above 10um in size. This is shown by the following curve:

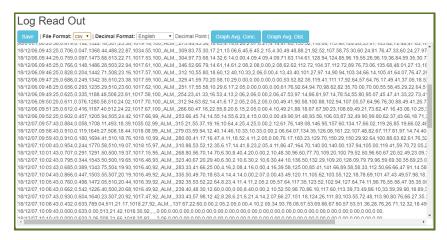




The DustCount inspects each particle that passes through the impactor and determines its size and increments the count of one of 128 size bins. 20 of these sizes (between 0.5um to 10um) are reported in the logs for simplicity.

PARTICLE DISTRIBUTION DATA

The particle distribution is downloaded from the DustCount via a PC/MAC or smartphone and can be saved in either comma separated value (.csv) or Excel (.xlsx) file formats. The downloaded data appears in the Log Read Out window of the DustCount User Interface.



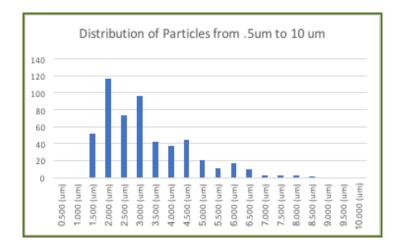
User Interface Log Read Window with particle size distribution

The log output above contains the number of particles found for each of the 20 sizes from .5um to 10um.

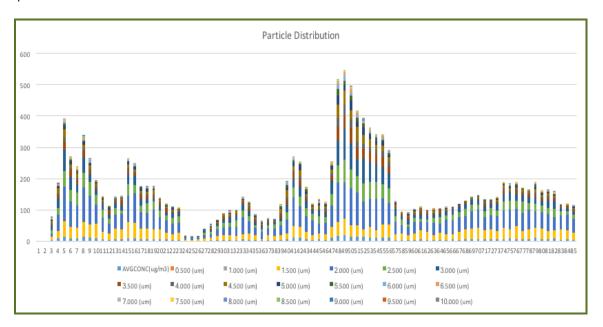
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The following chart is of a single sample showing the particle distribution over the entire range from .5um to 10um. In this example most, particles fall into the 1.5um to 5um range.



The following graph shows all dust samples over the entire shift. In each vertical bar different colors represent different sizes of dust. The colours start from the smallest particle at the bottom of the bar to the largest particle at the top of the bar.



Single sample showing particle count from .5um to 10um. Colors show number of particles at different sizes

The spikes in dust at various times of the day can be seen.

CONCLUSIONS

Particle distribution can be a valuable tool to determine the various health risks facing a worker. It can also be used to determine the presence and concentration of a specific engineered particle in the air.

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