

Indoor air quality monitoring with Fluke 985 Airborne Particle Counter to ensure you know your risk exposure.

The effects of indoor air quality (IAQ) has been highlighted in numerous environment risk reports and joint agency efforts by the U.S. Environmental Protection Agency (EPA).

Further studies indicate that indoor air in some commercial buildings is up to five times more polluted than outdoor air. Airborne particulates come in a variety of forms ranging from animal dander, plant pollen, and airborne bacteria, to fiberglass, asbestos, and combustion particles that are generated from part of the production equipment or process.



To properly identify and troubleshoot IAQ problems, the technician needs a tool that not only reads particle concentrations for spot check, but also provides continuous monitoring for process control.

Are you sure you are not expose to ultra-fine particles in your working environment?

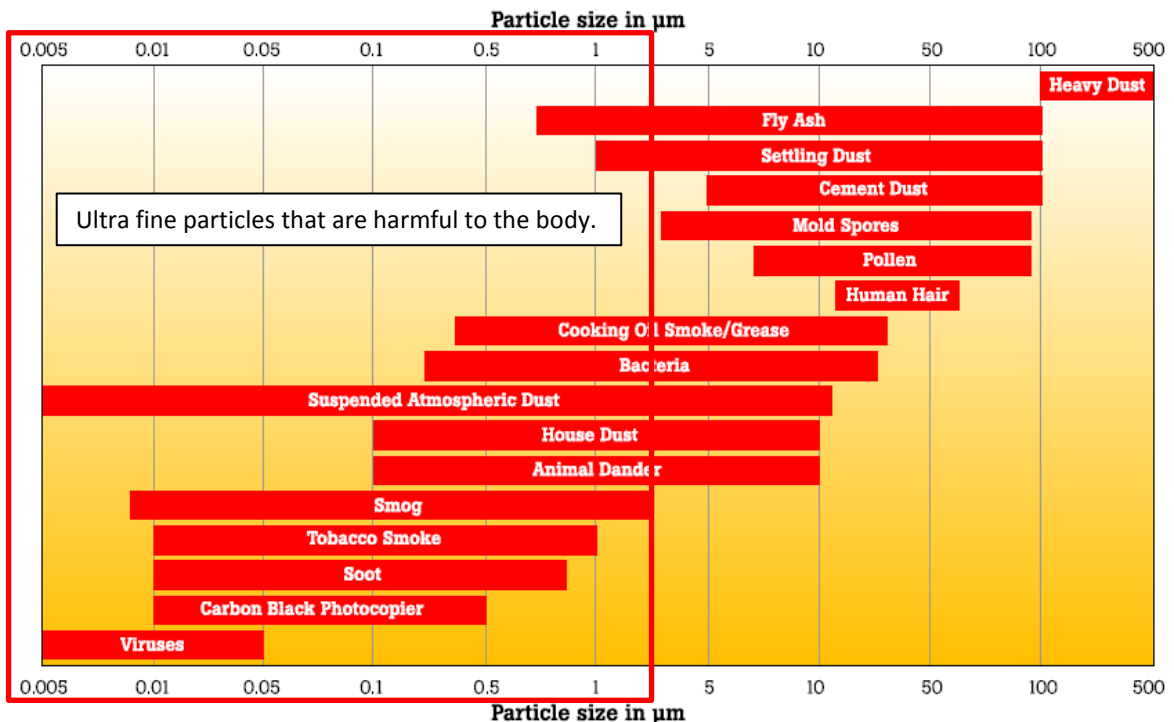


Table 1.

Do you need to take precautions to ensure that you are not breathing in such harmful ultra fine particles?

In the indoor environment, the ventilation systems are able to filter the fine particles but for ultra fine particles they are not able to filter it and these particles are trapped in the building and will make the environment unhealthy to work in.

Different locations have varying levels of acceptable particulate concentrations. In a residential and commercial environment (i.e. homes, offices, hotels), health and comfort concerns and fear for litigation often drive IAQ investigations. In industrial and institutional environment (hospitals, food and beverage plant, electronic and precision manufacturing), energy cost, contamination control and production yields are the primary concern.

Excessive levels can result in medical conditions such as Sick Building Syndrome^[1], lower productivity, contaminated product, or all of the above. Maintaining acceptable air quality levels not only lower the costs associated with downtime, but also reduce or remove costs associated with expensive fixes in the future. The first step in establishing an IAQ maintenance program is to determine if a problem currently exists.

^[1] *An illness affecting workers in office buildings, characterized by skin irritations, headache, and respiratory problems, and thought to be caused by indoor pollutants, microorganisms, or inadequate ventilation.*

Interpreting the data

Below measured data are based on the typical facilities environment in United States of America with Fluke 985 Airborne Particle Counter.

A correct interpretation of the data requires an understanding of the test area. Is the area residential or commercial? Concentration limits vary widely according to the size and type of facility, among other variables. However, a high-level assessment can provide direction on whether or not a problem exists. The following outside air readings provide a high-level point of reference in figure A for the technician.

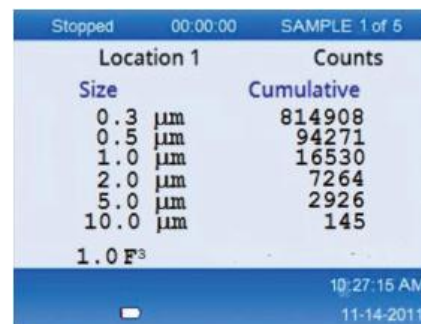


Figure A.

Scenario 1:

The particulate levels displayed in Figure B are from a new residence (< 5 years), and do not indicate any concentrations outside of the norm. In a residential setting, particle levels are sometimes higher than outside readings due to more potential particle sources (i.e. pet dander), smaller diffusion area, and often less sophisticated filtration.

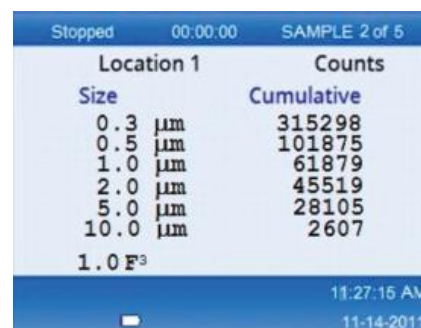


Figure B.

Scenario 2:

The particulate levels displayed in Figure C are representative of an average office workspace in US, and do not indicate any concentrations outside of the norm. In a commercial setting, particle levels should be significantly less than outside readings due to better filtration and better dilution with outside air.

Size	Cumulative
0.3 µm	113899
0.5 µm	21898
1.0 µm	9383
2.0 µm	5934
5.0 µm	3285
10.0 µm	617

Figure C.

Scenario 3:

The particulate levels in Figure D are from an older residential location with visible mold. The readings are significantly higher, and steps should be taken to remediate the mold and address the root cause of the problem.

Size	Cumulative
0.3 µm	2651469
0.5 µm	291193
1.0 µm	70852
2.0 µm	36837
5.0 µm	17993
10.0 µm	1979

Figure D.

Scenario 4:

If the particle source in Scenario 3 is not visible, use particle size tables such as Table 1 to identify possible sources. Obtain a sample of the particles and submit to a lab for further analysis.

With recent environment challenges we face in our regions, it has reflected the importance for us to understand the risks and how we can minimize the impact in our daily activities. We understand the risks of these ultra fine particles, but we might not know that these particles could actually accumulate in our working environment which the ventilation system are not able to filter. Therefore Fluke 985 Airborne Particle Counter is a critical tool for you to quantify this ultra fine particles risk and make necessary precautions to minimize your exposure.

To improve the indoor air quality, you can engage Indoor air quality consultant to advise you how to mitigate your risks.

For more information:

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