

Air Quality 101 Fact Sheet

Learn what air pollution is, why you should be measuring it, and what can be done to reduce it.

WHAT IS PARTICLE POLLUTION?

Particle pollution is a mix of solid and liquid particles in the air that can be hazardous to human health when breathed in. Also known as particulate matter, which is commonly abbreviated as PM, particulate matter is all around us yet largely invisible because of its microscopic size. However, when concentrations of particulate matter are dense enough they become visible to the naked eye, think smoke from a fire or the exhaust from a dirty diesel-powered truck. Particle pollution can be measured and exposures to particle pollution can be reduced and/or avoided.

WHERE DOES PARTICLE POLLUTION COME FROM?

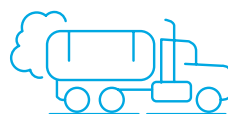
Particle pollution is generated by both human activities and natural phenomenon. The burning of fossil fuels for energy, transportation, and industry, wildfires, and biomass burning are some of the biggest sources of hazardous particle pollution the world over. The smallest particles can travel for thousands of miles, however, most particle pollution comes from local sources that vary from location to location and time of year, so the particles floating in New Delhi in the summer come from different sources than the particles found in New York City in winter. Here are some examples of sources that generate hazardous particle pollution:



Wildfires



Power Plants



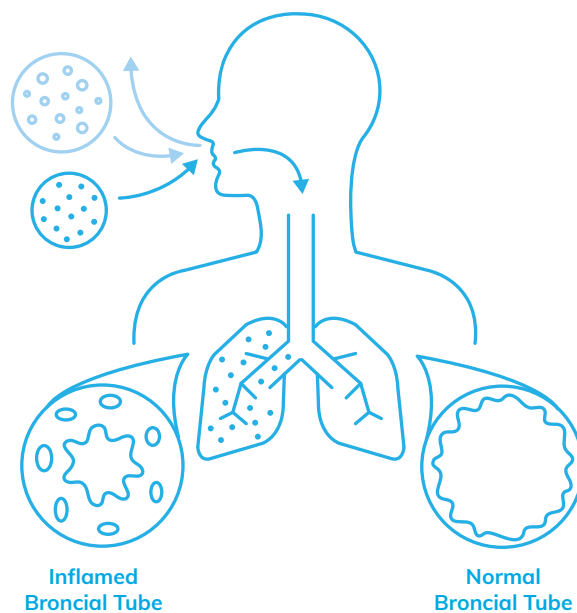
Diesel Trucks



Cooking

HOW DOES PARTICLE POLLUTION IMPACT HUMAN HEALTH?

When we breathe in particles they travel into our respiratory system. The larger the particles the more likely they will be caught by the body's first defenses, like our nose hairs and mucus, and ejected from our bodies. The smaller the particles, the more likely they are to travel into the lungs, pass into our bloodstream, and move to other organs in the body. Exposure to particle pollution can cause short-term health problems like headaches, coughing, painful breathing, pneumonia, and bronchitis. Long-term effects on the body can include strokes, heart attacks, asthma, lung cancer, and infertility. There is no safe level of exposure to particle pollution; recent research shows that health effects occur at levels well below current regulatory thresholds, especially for the most toxic particles, like those from diesel exhaust. Globally, over four million people die prematurely every year as a result of breathing dirty air.



WHERE IS PARTICLE POLLUTION TYPICALLY THE WORST?

Air pollutants usually get diluted as you move further from a source and the polluted air mixes with the surrounding air. Generally speaking, the closer you are to a source, the more sources there are nearby, and the greater the amount of pollution each source generates, the worse the air quality will be.

Particle pollution is typically worst in politically and socially marginalized communities and low-income communities the world over due to political and regulatory decision making processes that favor the financial interests of capital and industry over the right to breathe clean air. Social inequality and systemic racism leads to discrimination in access to safe and adequate housing and land use planning that concentrates polluting infrastructures and facilities in marginalized communities.

WHY DO WE MEASURE AIR POLLUTION?

Government and regulatory agencies throughout the world have traditionally relied on networks of fixed-site monitors to measure air quality and evaluate compliance with air quality standards. Owing to their high equipment and operational costs, fixed-site monitors tend to be sparsely located even in large metropolitan areas and may be entirely missing from smaller cities and rural areas. As concentrations of air pollutants can fluctuate markedly over small distances and short time periods, variations in exposure between individuals and communities cannot be adequately characterized using information from sparse, static networks of air pollution monitors.

Recording hyperlocal air quality data, or air quality data that is sampled at sub-block areas and sub-hourly intervals, can give you quantifiable data to help you and/or your community improve the air you breathe. What you do with the air quality measurements you map depends on your goals. For example, you may be trying to identify an emissions source, document trends in air quality over time, inform regulators or legislators about current conditions, or quantify the benefits of targeted source abatement policies. You may be working to help hold companies accountable for their actions or create programs to help control air pollution. Even if you just want to understand your household's exposure or exposure levels on your daily commute, measuring air pollution can help improve your health and the health of your community.



Prevent Illness & Disease



Identify Emission Sources



Study Trends



Inform



Assist with Regulations and Policy



Create Programs & Hold Companies Accountable