Particle Pollution and Your Health

What is particle pollution?

Particle pollution consists of tiny droplets or particles in the air. The smallest particles are no more than 2.5 microns wide — 30 times smaller than the width of a human hair. These tiny particles, also called PM2.5 or soot, are easily inhaled and can become embedded in our lungs and pass directly into the bloodstream, making them especially dangerous for human health.

Where does particle pollution come from?

PM2.5 can come from a wide variety of sources. One of the largest sources of particle pollution is the burning of fossil fuels, such as coal-fired power plants, industrial facilities, and combustion engines. Particle pollution is also emitted by wildfires. Climate change is making wildfires worse. Recent research shows that around the world, wildfires are burning almost twice as much tree cover today compared to 20 years ago. Other sources of particle pollution include agriculture, vehicle tires/road dust, and volcanic eruptions.

How does particle pollution affect our health?

In addition to its alarming global death toll, PM2.5 can affect our health in many other ways, contributing to:

- Asthma attacks
- Respiratory illness, such as chronic obstructive pulmonary disease (COPD)
- Lung cancer
- Impaired immune health, including increased risks from COVID-19 infection
- Heart attacks and strokes
- Metabolic disorders, like diabetes
- Preterm birth and low birth weight
- Nervous system impacts, including cognitive effects

Particle pollution is one of the leading causes of premature death worldwide. Researchers estimate that in 2018, over 8 million people died from fossil fuel pollution—that means that air pollution from burning fossil fuels like coal and diesel accounted for about a fifth of deaths worldwide.

Who is most at risk?

Far too many people in the US are breathing unhealthy air. According to the 2022 State of the Air Report, more than 63 million of us live in counties with a failing grade for air quality based on daily levels of particle pollution. Communities of color and low-income communities bear a disproportionate burden of the health harms of PM2.5, as they often live near pollution sources like high-traffic roads and heavily polluting industrial facilities.

Babies, children, and pregnant people are especially vulnerable to the health harms of air pollution, in large part because little lungs are still developing. Older adults and people who spend a lot of time outside, like outdoor workers, are also at higher risk for adverse health impacts from PM2.5.

The mission of Moms Clean Air Force is to protect children from air pollution and climate change. We envision a safe, stable, and equitable future where all children breathe clean air. We fight for Justice in Every Breath, recognizing the importance of equitable solutions in addressing air pollution and climate change. www.momscleanairforce.org
EPA’s role in protecting people from particle pollution

PM2.5 is dangerous to human health. In the United States, the Clean Air Act empowers the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS).

The NAAQs establish health-based standards for some of the most common outdoor air pollutants that are known to be harmful to human health, including particle pollution. These standards are regularly updated to account for the latest scientific advancements in our understanding of the health impacts of air pollution. EPA will propose updates to the NAAQS standards for particle pollution in 2022.

Why do we need stronger particle pollution standards?

The NAAQS were last strengthened in 2012, and we know more now about how air pollution affects public health. The current air quality standards for PM2.5 are not adequate for protecting our communities and families.

The NAAQS include both annual standards, which set a health-based limit of pollution exposure in a year, and 24-hour standards, which set a health-based limit for pollution exposure within a single day. Right now, the NAAQS allow an annual PM2.5 standard of 12.0 micrograms per cubic meter (μg/m³) and a 24-hour standard of 35 μg/m³. We urge EPA to quickly set stronger NAAQS for PM2.5 of no higher than 8 micrograms per cubic meter (μg/m³) for the annual standard and no higher than 25 μg/m³ for the 24-hour standard.

Setting these tighter limits on harmful PM2.5 pollution will protect millions of Americans, including vulnerable populations like children, older adults, and people with asthma and other respiratory and heart conditions. For example, research shows that a stronger annual standard of 8 μg/m³ could prevent 46,000 pediatric emergency department visits for asthma and avert up to 19,000 premature deaths each year in the US.

How can I take action?

Join Moms Clean Air Force in telling EPA that our families and communities deserve to breathe clean, healthy air.

Ask EPA to strengthen the National Ambient Air Quality Standards for PM2.5 pollution to no higher than 8 μg/m³ for the annual standard and no higher than 25 μg/m³ for the 24-hour standard.

Learn more on our website: www.momscleanairforce.org/particle-pollution.

November 2022

Full list of sources: momscleanairforce.org/sources-particle-pollution

The mission of Moms Clean Air Force is to protect children from air pollution and climate change. We envision a safe, stable, and equitable future where all children breathe clean air. We fight for Justice in Every Breath, recognizing the importance of equitable solutions in addressing air pollution and climate change. www.momscleanairforce.org