

**U.S. Environmental Protection Agency****EPA Response to September 11**[Contact Us](#)Search: [Advanced Search](#)[Response to 9-11](#) > [Monitoring Data](#) > [PM 2.5 Fact Sheet](#)[Monitoring Summaries](#)[Monitoring Data](#)[Frequently Asked Questions](#)[Pictures](#)[EPA Press Releases](#)[How You Can Help](#)**PM Fact Sheet****What Is Particulate Matter (PM)**

- Airborne particulate matter (PM) consists of many different substances suspended in air in the form of particles (solids or liquid droplets) that vary widely in size.
- The particle mix in most U.S. cities is dominated by fine particles (less than 2.5 micrometers in diameter) generated by combustion sources with smaller amounts coarse dust (between 2.5 and 10 micrometers in diameter). The fine particles resulting from the collapse of the World Trade Center (WTC) are largely due to the smoke from combustion of fuels and other combustible materials. The coarse dust in the WTC area is largely due to the removal of building debris and rubble.

Health Effects of Dust and Smoke

- Dust and smoke may irritate healthy people's eyes, nose, throat, and lungs, and might cause more serious problems in sensitive populations.
- Because dust and smoke are mixtures of different chemicals with different sizes, not everyone will experience the same effects.
- Most healthy adults and children will recover quickly from short-term dust and smoke exposures and will not suffer long-term consequences.
- In general, the long-term risk from short-term exposures to dust and smoke is low.

Sensitive Populations

- Certain sensitive populations, listed below, are susceptible to more severe symptoms, including cough, phlegm, wheezing, shortness of breath, bronchitis, increased asthma attacks, and aggravation of lung or heart disease. Exposure to fine particles (e.g. smoke) is of particular concern, and can be associated with several serious health effects. Some sensitive people might experience health problems after even short exposures to fine particles, such as several hours or a day.
 - **Individuals with asthma and other respiratory diseases.** Levels of pollutants that might not affect healthy people might cause breathing difficulties for people with asthma or other chronic lung diseases, especially children. Individuals with emphysema and chronic bronchitis may also experience a worsening of their conditions because of exposure to dust and smoke. Studies have linked particulate matter pollution to increased risk of hospitalizations for respiratory disease, asthma attacks, and respiratory mortality.

- **Individuals with cardiovascular disease.** People with heart disease

also experience symptoms such as shortness of breath or chest tightness. Studies have also linked particulate pollution to increased risk of hospitalizations for cardiovascular disease, heart attacks, and cardiovascular mortality.

- **The elderly.** The elderly are more likely to have preexisting lung and heart diseases, and therefore are more susceptible to health effects from exposure to particle pollution.

- **Children.** Children, even those without pre-existing illness or chronic conditions, are susceptible to air pollution because their lungs are still developing, and they are often engaged in vigorous outdoor activities, making them more sensitive to pollution than healthy adults. Studies have shown that in children, particulate pollution is associated with increased episodes of coughing and difficulty breathing, and decreased lung function.

- **Smokers.** People who smoke, especially those who have smoked for many years, generally have reduced lung function and may be affected by dust smoke exposure. Smokers are also less likely to recognize and report symptoms from exposure to irritant chemicals than nonsmokers.

What you can do to reduce your exposure to particulate matter

- When fine particle levels are high outdoors, they will likely be high indoors, since fine particles can enter through very small openings or cracks even if doors or windows are closed. Staying indoors, in a tightly closed house that has a filter on the heating or air conditioning system, can usually reduce exposure to larger particles.

- In the home, car and workplace:

- If particle levels are high outside, keep windows and doors closed. If needed for comfort, use air conditioners or heating systems on recycle/recirculation mode, if available. Inspect and change filters often in home and workplace systems.

- When the air quality improves, you should open up and air out your homes.

- Reduce indoor sources of particles, including: propane and wood burning stoves and furnaces, natural gas stoves and ovens, and gas logs. Activities such as cooking, burning candles, and tobacco smoking greatly increase the particle levels in a home. Even vacuuming can stir up and greatly increase particle levels in the air.

- If you vacuum in an area with high dust levels, consider using a vacuum cleaner with a "high efficiency particulate arresting" or HEPA filter, if available.

- Some air cleaners can be effective at reducing indoor particulate levels, but they must properly matched to the size of the space to be cleaned. Keep these devices clean and the filters changed frequently.

- Wipe floors and hard surfaces with a damp mop or cloth that will retain the dust.

- People with heart or lung disease, the elderly, and children:

- When dust and smoke are present, limit time outdoors.
 - Avoid physical exertion, indoors or outdoors, when dust or smoke levels are high.
 - If you have symptoms of heart or lung disease, including shortness of breath, chest tightness, chest pain, palpitations or unusual fatigue, contact your health care provider.
 - If you have heart or lung diseases, make sure you have adequate medication on hand. If you have asthma, be sure to follow your asthma management plan.
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