

AIR POLLUTANT: Particulate Matter



What is particulate matter?

Particulate matter (PM) is a mixture of microscopic solids and liquid droplets suspended in air. This pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles and allergens (such as fragments of pollen or mold spores).

There are two types of PM that the U.S. Environmental Protection Agency (EPA) has established air quality standards for, which include:

- Coarse particulates (PM-10) with diameters 10 micrometers or less
- Fine particulates (PM-2.5) with diameters 2.5 micrometers or less.

Where does it come from?

Particulate matter comes from many different sources. PM-10 is often from winds blowing dust off the desert or farm fields, crushing and grinding operations, dust disturbed from driving on dirt roads and some agricultural operations. PM-2.5 is generally created from power plants, industrial processes, vehicle tailpipes, residential fireplaces, woodstoves and wildfires.

Why is particulate matter a problem?

Both coarse and fine particulate matter pose a problem to health because they are small enough to get deep into

your lungs and may even get into your bloodstream. As a result, exposure to these pollutants can lead to a variety of health effects.

Short-term exposures to particulate matter (hours and days) can aggravate lung disease, causing asthma attacks and acute bronchitis, and may also increase susceptibility to respiratory infections. It has also been linked to an increased risk of heart attacks and arrhythmias (irregular heartbeat).

Long-term exposures (years) have been associated with problems such as reduced lung function and the development of chronic bronchitis.

What are the symptoms of exposure to particulate matter?

Even if you are healthy, you may experience temporary symptoms such as irritation of the eyes, nose, and throat, including coughing, phlegm, chest tightness and shortness of breath.

If you have lung disease, you may not be able to breathe as deeply or as vigorously as normal and you may experience coughing, chest discomfort, wheezing, shortness of breath and unusual fatigue. If you have heart disease, you may be more at risk for heart attacks. Symptoms such as chest pain or tightness, palpitations, shortness of breath or unusual fatigue may indicate a serious problem. If you have any of these symptoms, follow your doctor's advice.

Do I need to be concerned?

While it's always smart to pay attention to air quality where you live, some people may be at greater risk from particle pollution. This includes:

- People with lung disease, including asthma and chronic obstructive pulmonary disease (COPD)
- People with cardiovascular disease (diseases of the heart and blood vessels)
- Children and teenagers
- Older adults
- People with diabetes
- People considered obese
- New or expectant mothers

How can I protect myself?

For Phoenix, Tucson, Yuma and Nogales, the ADEQ Forecast Team issues an air quality forecast including at least one type of PM. These provide an hour-by-hour outlook; helping people plan for outdoor activities through the day to minimize the impacts of air pollution. This forecast is based on the Environmental Protection Agency's Air Quality Index (AQI).

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When you see that the air quality forecast predicts an AQI indicating potentially harmful pollutant levels, take simple steps to reduce your exposure, including:

- Choosing a less-strenuous activity
- Shortening your outdoor activities
- Rescheduling outdoor activities
- Spending less time near busy roads

When particulate levels are high outdoors, they can be high indoors, unless the building has a good filtration system. Use HEPA filters and air cleaners designed to reduce particulates indoors.

Can I help reduce particle pollution?

Yes! You can:

- Drive less—carpool, use public transportation, bike, walk, telecommute
- Avoid driving on unpaved roads
- Put away the leaf blower; sweep instead
- Don't burn leaves, yard waste, garbage, plastic or rubber—mulch or compost leaves and yard waste instead
- Keep your engine tuned
- Consider using gas logs instead of wood, and if you use a wood-burning stove or fireplace insert, make sure it meets EPA design specifications
- Burn only dry, seasoned wood—wet wood releases more particulates when burned

Where can I learn more?

Visit the ADEQ Air Forecasting webpage at www.azdeq.gov/forecasting for air quality forecasts. There you can find more information, plus ways to access the forecasts online or through text, e-mail and mobile apps.

Contact the Forecast Team directly at:

ForecastTeam@azdeq.gov

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