

Ozone Facts

What is Ozone?

Ozone is a colorless gas that can be found in the air we breathe. Each molecule of ozone is composed of three atoms of oxygen, one more than the oxygen molecule we need to breathe to sustain life. The additional oxygen atom makes ozone extremely reactive.

Ozone exists naturally in the Earth's upper atmosphere, known as the stratosphere, where it shields the Earth from the sun's ultraviolet rays. However, ozone is also found close to the Earth's surface. This ground-level ozone is a harmful air pollutant. Ozone is primarily a summertime air pollution problem in Phoenix (May through September).

Summer Ozone Fact Sheet



Where does ground-level ozone come from?

Ground-level ozone is formed by a chemical reaction between volatile organic compounds (VOCs) and oxides of nitrogen in the presence of sunlight. Sources of VOCs and oxides of nitrogen include:

- automobiles, trucks, and buses
- large industry and combustion sources such as utilities
- small industry such as gasoline dispensing facilities and print shops
- consumer products such as paints and cleaners
- off-road engines such as aircraft, locomotives, construction equipment, and lawn and garden equipment.
- Ozone concentrations can reach unhealthy levels when the weather is hot and sunny with relatively light winds.

Why is Ozone Harmful?

Ozone is to your lungs what the sun is to your skin. Repeated exposure to unhealthy levels of ground-level ozone will stiffen lung tissue much like repeated sunburn will lead to leathery, wrinkled skin.

- Ozone is a severe irritant that can cause choking, coughing and stinging eyes.
- Ozone damages lung tissue, aggravates respiratory disease and makes people more susceptible to respiratory infections.
- While anyone who is active or works outdoors is affected by unhealthy ozone levels, children and the elderly are especially vulnerable to its harmful effects.

What is the difference between a health watch and an HPA?

A "High Pollution Advisory" or "HPA" means the highest concentration of pollution may exceed the federal health standard. Active children, adults and people with lung disease such as asthma should reduce prolonged or heavy outdoor exertion. Maricopa County employers enlisted in the Trip Reduction Program are asked to activate their HPA plans on high pollution advisory days.

A "Health Watch" means the highest concentration of pollution may approach the federal health standard. Unusually sensitive people should consider reducing prolonged or heavy outdoor exertion during a health watch.

What can you do to help?

First, sign up for email and/or text message air quality alerts at [CleanAirMakeMore.com](https://www.cleanairmake.com) under "Make the Commitment." Once you are informed of the current air quality, you can take action to help keep pollution from our air. Incorporate as many of these tips into your daily routine, especially during a health watch or high pollution advisory:

- Eliminate wood burning in fireplaces, stoves, chimineas and outdoor fire pits.
- Drive as little as possible: car pool, use public transit or telecommute. For information on transportation alternatives, visit [Valley Metro](#).
- Avoid using leaf blowers.
- Reduce your time waiting in long drive-thru lines. For example, at coffee shops, fast-food restaurants or banks. Park your car and go inside.
- Fuel your vehicle after dark or during cooler evening hours.
- Use low-VOC (Volatile Organic Compounds) or water-based paints, stains, finishes and paint strippers.
- Delay big painting projects until high-pollution advisories or health watches have passed.
- Conserve electricity.

What strategies are in place to reduce Ozone?

To help combat ground-level ozone, there are a number of air quality improvement programs in place in Arizona.

- Cleaner burning gasoline is sold in the Phoenix-metro area during the summer months.
- Vapor Recovery Systems control emissions of gasoline vapors when you fill your gas tank.
- Enhanced Vehicle Emissions Testing Program - I/M147
- Voluntary Vehicle Repair and Retrofit Program provides for the installation of an emission upgrade kit designed to reduce exhaust emissions.
- The Clean Air Campaign is a public education and marketing campaign that encourages the use of alternative forms of transportation and other pollution reducing strategies.
- Maricopa County's Trip Reduction Program requires Valley employers with 50 or more employees to encourage their employees not to drive to work alone.