

## Ozone and Air Pollution

### WHAT IS OZONE?

Ozone, a gas, is a form of oxygen. In the Earth's upper atmosphere ozone plays an important and beneficial role by providing a shield from the sun's ultraviolet rays. Ozone at ground level is a harmful air pollutant.

### WHAT CAUSES OZONE POLLUTION?

Tailpipe emissions from automobile traffic are the main contributors to ozone pollution. Ozone pollution is created when certain chemicals in auto emissions interact with heat and sunlight. Emissions from certain manufacturing operations also contribute to ozone pollution.

### ISN'T OZONE THE SAME AS THE "BROWN CLOUD"?

No. The brown cloud that sometimes appears in the air over Phoenix is made of small particles of soot and dust. Ozone is invisible, and can be a problem even when visibility is very good.

### DON'T RAINSTORMS CLEAR OUR AIR OF OZONE?

While rainstorms help clear dust particles from the air, they don't usually have a significant impact on the level of ozone.

### IS OZONE HARMFUL?

Ground-level ozone is a public health concern. Prolonged exposure to low-level ozone concentrations is as harmful to human health as exposure to higher levels for shorter durations. It inflames lung tissues and can cause coughing, chest pains, and asthma.

Children are most at risk from exposure to ozone because they play and exercise outdoors during the months ozone concentrations are highest. The elderly are also susceptible.

Adults who are outdoors and active during the summer months are also at risk. These individuals, as well as those with asthma or respiratory illnesses, can experience chest pain and coughing when exposed to relatively low ozone levels during periods of moderate exertion.

### WHEN SHOULD I BE CONCERNED ABOUT OZONE?

From Sunday through Friday ADEQ forecasters issue air quality forecasts that predict maximum air pollutant concentrations for a three-day period. Ozone concentrations are usually at their peak from June through August. Consequently, from April through September the main emphasis is on maximum ozone concentrations measured on the Air Quality Index (AQI).

The AQI reports daily air quality. Think of the AQI as a yardstick that runs from 0 to 500. The higher the AQI value the greater the level of air pollution and the greater the potential health concern. An AQI value of 50 represents good air quality with little potential to affect public health, while an AQI value over 300 represents hazardous air quality. An AQI value of 100 generally corresponds to the level EPA has set to protect public health. AQI values below 100 are generally thought of as satisfactory. When AQI values are above 100, air quality is considered to be unhealthy for certain sensitive groups of people. AQI values above 150 indicate that air pollution levels are unhealthy for everybody.

When the AQI is expected to reach 90, ADEQ issues an Ozone Health Watch. When the AQI is expected to exceed 100, ADEQ issues an Ozone High Pollution Advisory.

### WHAT SHOULD I DO IF THERE IS...

#### *An Ozone Health Watch?*

- Children and adults with breathing problems might want to stay indoors.
- Drive less. Combine trips. Call ahead for directions.
- Refuel your vehicle after 4 p.m.
- If you see a smoking vehicle, get the license plate and call the Smoking Vehicle Hotlines:  
Maricopa County: (602) 506-6010  
Pima County: (520) 622-5700

## WHAT SHOULD I DO IF THERE IS...

### *An Ozone High Pollution Advisory (HPA)?*

- Children and adults with breathing problems should avoid hard work or play outdoors. Everyone else should limit exerting themselves outdoors.
- Drive or idle vehicles as little as possible. Refuel your vehicle after 4 p.m.
- Don't use gas-powered lawn or garden equipment until the HPA is over.
- If possible, telecommute or use a "flex" day.

## WHAT CAN I DO TO HELP?

- Carpool, use mass transit, walk, bicycle, and/or reduce driving, especially on hot summer days.
- Make sure your car's tires are properly inflated and your wheels are aligned.
- Make arrangements to telecommute one or more days per week.
- Be careful not to spill gasoline when filling up your car or gasoline-powered lawn and garden equipment.
- Participate in your local utility's energy conservation programs.
- Seal containers of household cleaners, workshop chemicals and solvents, and garden chemicals to prevent gases from evaporating into the air. Dispose of containers properly.

## WHAT ABOUT OTHER KINDS OF AIR POLLUTION?

ADEQ also monitors particulate matter pollutants, known as PM10 and PM2.5, both of which are regulated by the EPA. Along with carbon monoxide, actual and forecast concentrations of these PM pollutants are also included in ADEQ forecasts. As is the case with ozone, when maximum concentrations of particle pollutants (PM10/PM2.5) are forecast to reach 90 or exceed 100 on the Air Quality Index, a Health Watch or High Pollution Advisory is issued, respectively.

## ARE WE MAKING A DIFFERENCE?

Yes. Despite rapid growth and development, air quality in the Valley of the Sun is improving. In March, 2005 EPA announced that for the previous eight years Phoenix had met federal health standards for one-hour ozone (exposure during the hour when levels are highest).

The steps Arizona has been taking to cut down on the emissions that contribute to the formation of ozone are working. Emissions have been reduced by the nation's toughest vehicle emission inspection program, improvements in area mass transit, increased participation in Valley Metro's Trip Reduction Program and the introduction of clean-burning gasoline during the summer months

But there's more to be done. Ozone and other air pollution will remain a health concern in Phoenix for the foreseeable future. The challenge now is to meet federal health standards for 8-hour ozone (the highest average 8 hours during a 24-hour period). We can all help by monitoring the weekly ozone outlooks and avoiding ozone-contributing activities on unhealthy days.

## WHERE CAN I LEARN MORE?

- ADEQ's Web site, [www.azdeq.gov](http://www.azdeq.gov), includes the Air Quality Forecast and other announcements, plus a great deal of information on air, water, the environment and community events.
- You can also use the ADEQ Web site to sign up to receive the Air Quality Forecast by e-mail by clicking "Subscribe" in the top-most navigation menu.
- For more ideas on ride reduction, visit Valley Metro's Web site, [www.valleymetro.org](http://www.valleymetro.org).

## FOR MORE INFORMATION

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