United States Environmental Protection Agency
Air and Radiation Washington, DC 20460
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Air Quality Guide for Ozone

Air Quality	Air Quality Index	Protect Your Health
Good	**0-50**	No health impacts are expected when air quality is in this range.
Moderate	**51-100**	Unusually sensitive people should consider limiting prolonged outdoor exertion.
Unhealthy for Sensitive Groups	**101-150**	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
Unhealthy	**151-200**	Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
Very Unhealthy (Alert)	**201-300**	Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.

For more information visit EPA's web site at: **www.epa.gov/airnow**

What You Should Know About Ozone

- *Ozone is a major element of urban smog. Ozone can limit the ability to take a deep breath, and it can cause coughing, throat irritation, and breathing discomfort. There is also evidence that ozone can lower resistance to respiratory disease (such as pneumonia), damage lung tissue, and aggravate chronic lung disease (such as asthma or bronchitis).*
- *Children and those with pre-existing lung problems (such as asthma) are sensitive to the health effects of ozone. Even healthy adults involved in moderate or strenuous outdoor activities can experience the unhealthy effects of ozone.*

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 which 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.

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 fuel combustion sources such as utilities
- small industry such as gasoline dispensing stations and print shops
- consumer products such as some paints and cleaners
- emissions from 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.

How does ozone affect human health?

Even at relatively low levels, ozone may cause inflammation and irritation of the respiratory tract, particularly during physical activity. The resulting symptoms can include breathing difficulty, coughing, and throat irritation. Breathing ozone can affect lung function and worsen asthma attacks. Ozone can increase the susceptibility of the lungs to infections, allergens, and other air pollutants. Medical studies have shown that ozone damages lung tissue and complete recovery may take several days after exposure has ended.

Who is sensitive to ozone?

Groups that are sensitive to ozone include children and adults who are active outdoors, and people with respiratory disease, such as asthma. Sensitive people who experience effects at lower ozone concentrations are likely to experience more serious effects at higher concentrations.

What is an Ozone Action Day?

An Ozone Action Day may be called by your State or local air quality agency when ozone levels are forecast to reach unhealthy levels. These programs, often in partnership with local businesses, encourage voluntary actions to reduce emissions of pollutants that contribute to ground-level ozone formation.

How You Can Keep the Air Cleaner

Every day tips:

- Conserve energy—at home, at work, everywhere.
- Follow gasoline refueling instructions for efficient vapor recovery. Be careful not to spill fuel and always tighten your gas cap securely.
- Keep car, boat, and other engines tuned up according to manufacturers' specifications.
- Be sure your tires are properly inflated.
- Car pool, use public transportation, bike, or walk whenever possible.
- Use environmentally safe paints and cleaning products whenever possible.
- Some products that you use at your home or office are made with smog-forming chemicals that can evaporate into the air when you use them. Follow manufacturers' recommendations for use and properly seal cleaners, paints, and other chemicals to prevent evaporation into the air.

Ozone Action Day tips:

- Conserve electricity and set your air conditioner at a higher temperature.
- Choose a cleaner commute—share a ride to work or use public transportation. Bicycle or walk to errands when possible.
- Defer use of gasoline-powered lawn and garden equipment.
- Refuel cars and trucks after dusk.
- Combine errands and reduce trips.
- Limit engine idling.
- Use household, workshop, and garden chemicals in ways that keep evaporation to a minimum, or try to delay using them when poor air quality is forecast.