

What is Ozone?

Ozone is molecular form of oxygen, made up of three oxygen atoms. Ground-level ozone (harmful ozone) is created when sunlight generates a reaction between hydrocarbons and nitrous oxides.

Hydrocarbon emissions come from a variety of sources including cars, trucks, lawn mowers, industries, oil-based paints, solvents, and charcoal lighter fluid. Nitrous oxide emissions come from motor vehicles and industries, but also from fossil-fuel-powered boilers and generators.

At ground-level, high ozone concentrations can be a health-threatening air pollutant. Reducing hydrocarbon and nitrous oxide emissions is necessary to reduce this type of ozone formation.

Why is the Ozone Problem a Summer Phenomenon?

Ozone is a highly unstable and highly reactive compound. Within moments of its formation, it tends to react with something else. It is only when ozone is forming faster than it is self-destructing that high ozone levels are possible. This occurs during warm weather because atmospheric reactions that produce ozone are accelerated by warm temperatures. This is true for many chemical reactions. As an example, think how long it takes to make “sun tea” versus the much faster time it takes to make traditional tea using boiling water. Although the reactions leading to ozone formation occur year-round, warm temperatures are required for ozone accumulation.

This is why Ozone Action Days typically occur between May and September. The highest daily concentrations generally occur between mid and late afternoon. A team of local air quality experts declare Ozone Action Days when conditions are most likely to produce ground-level ozone. You can expect declaration when summer days are hot, sunny, and stifling, with little wind.

Aren't We Trying to Protect Ozone?

Stratospheric ozone (good ozone) is different from ground-level ozone (harmful ozone). The stratospheric ozone layer, 6-30 miles above the earth, is beneficial because it filters out harmful ultraviolet radiation from the sun. However, when ozone occurs at ground-level in the air we breathe, it can be a health hazard. Unfortunately, ground-level ozone will not replenish the stratospheric ozone layer because it is destroyed in our lower atmosphere.

It is all a matter of location.

Who Sets the Standards for Air Quality?

The United States Environmental Protection Agency has provided a guide to measure the levels of ozone concentrations in the air. The guide is called the Air Quality Index (AQI) and these ratings determine the quality of the air.

U.S. EPA Air Quality Guide for Ozone			
Air Quality Index	Color	Air Quality	Prediction
0 to 50	Green	Good	No health impacts are expected.
51 to 100	Yellow	Moderate	Unusually sensitive people should limit prolonged outdoor activity.
101 to 150	Orange	Unhealthy for sensitive groups	Active people and those with respiratory disease should limit prolonged outdoor activity.
151 to 200	Red	Unhealthy	Active people and those with respiratory disease should avoid prolonged outdoor activity; all others should limit prolonged outdoor activity.
201 to 300	Purple	Very unhealthy	Active people and those with respiratory disease should avoid all outdoor activity; all others should limit outdoor activity.

NOACA declares **Ozone Action Days** when the AQI is over 100. This value represents ozone in the air of more than 85 parts per billion somewhere in the Cleveland-Akron-Lorain area, measured as an 8-hour average. Such a level is above the national standard that is set to protect public health.

What is the Purpose of the Ozone Action Day Program?

The purposes of this program are to increase awareness of the possible health impacts of ground-level ozone pollution and to improve air quality by reducing the emissions that contribute to it.

Similar to recycling programs, the Ozone Action Day program is voluntary and it is aimed at encouraging people to make behavioral changes that will benefit them and the air we breathe. The chances of maintaining clean air are improved if businesses, governments, and individuals voluntarily take action to reduce emissions on Ozone Action Days. In fact, many no-cost or low-cost voluntary actions will make our air cleaner and healthier.

Why is the Program Important?

Although Northeast Ohio achieved the former US EPA standard for ozone pollution during the mid-1990's, US EPA has now identified a revised, lower standard for the entire country to meet. Northeast Ohio does not meet the new standard and has been declared to be in “nonattainment” for ozone.

The new standard is based on 8-hour average concentrations, which are more protective of human health and more accurately reflect the intent of the federal Clean Air Act.

The Northeast Ohio nonattainment area includes the counties of Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, and Summit.

What Can You Do To Help?

- Sign up on-line to receive email or fax notifications of declared Ozone Action Days at www.noaca.org/oad.html.
- Inform your neighbors, friends and family when an Ozone Action Day has been declared.
- Ride the bus or take the train.
- RIDESHARE! Carpool or Vanpool (1-800-825-RIDE).
- Walk or bike whenever possible.
- Combine trips and eliminate unnecessary trips.
- Refuel vehicles before or after an Ozone Action Day. If you must refuel on an Ozone Action Day, wait until after 7:00 p.m.
- Don't top off that tank. Make certain gasoline caps are tightly sealed.
- Drive smoothly. Avoid "jack rabbit" starts that waste fuel and emit more hydrocarbons.
- Delay lawn cutting and other yard maintenance activities until after until after 7:00 p.m on Ozone Action Days.

How Do I Find Out if Tomorrow Will be an Ozone Action Day?

- Sign up on-line to receive email or fax notification of ozone alerts. A link to the on-line registration form can be found at www.noaca.org/oad.html.
- Check your local newspaper for the Ozone Action Day logo.
- Listen to morning and evening traffic reports.
- Listen to weather forecasts from television personalities.
- Visit www.noaca.org/oad.html and check "Today's Air Quality."
- Or contact NOACA at 216-241-2414.



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