



Ground-level Ozone

http://www.epa.gov/glo/health.html
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Health

Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level ozone also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue.

The Clean Air Act requires EPA to set air quality standards to protect both public health and the public welfare (e.g. crops and vegetation). Ground-level ozone affects both.

Health Effects

People with lung disease, children, older adults, and people who are active can be affected when ozone levels are unhealthy. Numerous scientific studies have linked ground-level ozone exposure to a variety of problems, including:

- airway irritation, coughing, and pain when taking a deep breath;
- wheezing and breathing difficulties during exercise or outdoor activities;
- inflammation, which is much like a sunburn on the skin;
- aggravation of asthma and increased susceptibility to respiratory illnesses like pneumonia and bronchitis; and,
- permanent lung damage with repeated exposures.

See the [Air Quality Guide for Ozone](#) for ways to protect your family's health when ozone levels reach the unhealthy range and ways you can help reduce ozone air pollution.

[Learn more about asthma.](#)

Environmental Effects

Ground-level ozone can have detrimental effects on plants and ecosystems. These effects include:

- interfering with the ability of sensitive plants to produce and store food, making them more susceptible to certain diseases, insects, other pollutants, competition and harsh weather;
- damaging the leaves of trees and other plants, negatively impacting the appearance of urban vegetation, as well as vegetation in national parks and recreation areas; and
- reducing forest growth and crop yields, potentially impacting species diversity in ecosystems.

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For more information on ground-level ozone, health and the environment, visit:

[Ozone and Your Health \(PDF\)](#) (2 pp, 449 KB) This short, colorful pamphlet tells who is at risk from exposure to ozone, what health effects are caused by ozone, and simple measures that can be taken to reduce health risk.

[Ozone: Good Up High, Bad Nearby \(PDF\)](#) (2 pp, 1.3 MB) Ozone acts as a protective layer high above the earth, but it can be harmful to breathe. This publication provides basic information about ground-level and high-altitude ozone.

[Smog - Who Does it Hurt? \(PDF\)](#) (10 pp, 819 KB) This 8-page booklet provides more detailed information than "Ozone and Your Health" about ozone health effects and how to avoid them.

[Summertime Safety: Keeping Kids Safe from Sun and Smog \(PDF\)](#) (2 pp, 314 KB) This document discusses summer health hazards that pertain particularly to children and includes information about EPA's Air Quality Index and UV Index tools.

[Air Quality Criteria Document for Ozone \(February 2006\)](#): This comprehensive assessment of scientific data about the health and environmental effects of ground-level ozone is an important part of EPA's review of its ozone standards.