**What is Smog?**

Smog is a mixture of air pollutants—[nitrogen oxides](http://environment.about.com/od/pollution/fl/What-Is-Nitrogen-Oxide-Pollution.htm) and volatile organic compounds—that combine with sunlight to form [ozone](http://environment.about.com/od/ozonedepletion/a/whatisozone.htm).

[Ozone can be beneficial or harmful](http://environment.about.com/od/pollution/fl/Ozone-and-Global-Warming.htm), good or bad, depending on its location. Ozone in the stratosphere, high above the Earth, acts as a barrier that protects human health and the environment from excessive amounts of solar radiation.

On the other hand, ground-level ozone, trapped near the ground by heat inversions or other weather conditions, is what causes the respiratory distress and burning eyes associated with smog.

**What Causes Smog?**

Smog is produced by a set of complex photochemical reactions involving [volatile organic compounds](http://greencleaning.about.com/od/GreenCleaningResources/g/Volatile-Organic-Compounds-Vocs-What-They-Re-All-About.htm) (VOCs), nitrogen oxides and sunlight, which form ground-level ozone.

Smog-forming pollutants come from many sources such as automobile exhaust, power plants, factories and many consumer products, including paint, hairspray, charcoal starter fluid, chemical solvents, and even plastic popcorn packaging.

In typical urban areas, at least half of the smog precursors come from cars, buses, trucks, and boats.

Major smog occurrences often are linked to heavy motor vehicle traffic, high temperatures, sunshine, and calm winds. Weather and geography affect the location and severity of smog. Because temperature regulates the length of time it takes for smog to form, smog can occur more quickly and be more severe on a hot, sunny day.

When [temperature inversions](http://geography.about.com/od/climate/a/inversionlayer.htm) occur (that is, when warm air stays near the ground instead of rising) and the wind is calm, smog may remain trapped [over a city for days](http://weather.about.com/od/imagegallery/ig/Beijing--China-Smog-Images/Smog-in-the-Forbidden-City.htm). As traffic and other sources add more pollutants to the air, the smog gets worse.

Ironically, smog is often more severe farther away from the sources of pollution, [because the chemical reactions](http://chemistry.about.com/od/chemicalreactions/f/What-Is-A-Chemical-Reaction.htm) that cause smog take place in the atmosphere while pollutants are drifting on the wind.

**What Are the Effects of Smog?**

Smog is made up of a combination of air pollutants that can compromise human health, harm the environment, and even cause property damage.

Smog can cause or aggravate health problems such as asthma, emphysema, chronic bronchitis and other respiratory problems as well as eye irritation and reduced resistance to colds and lung infections.

The ozone in smog also inhibits plant growth and can cause widespread damage to crops and forests.

**Who Is Most at Risk from Smog?**

Anyone who engages in strenuous outdoor activity—from jogging to manual labor—may suffer smog-related health effects. Physical activity causes people to breathe faster and more deeply, exposing their lungs to more ozone and other pollutants. Four groups of people are particularly sensitive to ozone and other air pollutants in smog:

* **Children**—Active children run the highest risks from exposure to smog, as children spend a lot of time playing outside. As a group, children are also more prone to asthma—the most common chronic disease for children—and other respiratory ailments than adults.
* **Adults who are active outdoors**—Healthy adults of any age who exercise or work outdoors are considered at higher risk from smog.
* **People with respiratory diseases**—People with asthma or other chronic respiratory diseases are more sensitive and vulnerable to the effects of ozone. Typically, they will experience adverse effects sooner and at lower levels of exposure than those who are less sensitive.
* **People with unusual susceptibility to ozone**—Some otherwise healthy people are simply more sensitive to the pollutants in smog than other people, and may experience more adverse health effects from exposure.