

OZONE

the good and the bad

During spring and summer, news reports discuss ozone and how high levels of ozone cause health problems. In the fall, reports discuss the “ozone hole” and how loss of ozone causes health problems. Which one is correct?

Ozone is a molecule of three unstable oxygen atoms. It easily reacts with many substances.

Near ground level, ozone is formed by automobile and industrial emissions containing nitrous oxides (Nox) and volatile organic compounds (VOC's). The presence of these substances, along with sunlight and warm temperatures, creates ground level, or tropospheric, ozone.

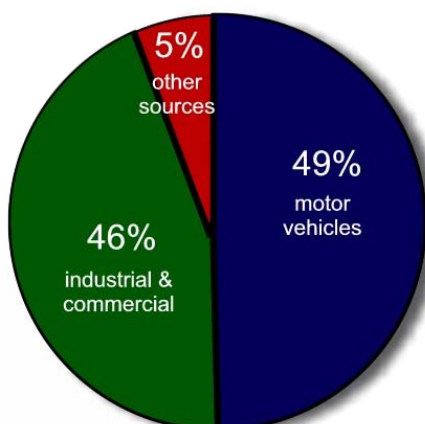
Ground level ozone irritates and damages lung tissue, leading to respiratory problems. Excessive ground ozone will also damage plants. For these reasons, excessive ground ozone is considered “bad” ozone.

Most of earth's concentration of ozone is located many miles above ground, in the stratosphere. At this elevation, ozone provides a great benefit by absorbing many ultraviolet rays of the sun. This is the “good” ozone. Without ozone at this level, plants, animals, and humans would suffer extensive damage from the sun.

Every fall, stratospheric ozone concentrations around Antarctica fall dramatically. Several complex chemical interactions occur during this time. These reactions involve byproducts of chemicals such as chlorofluorocarbons (CFC's).

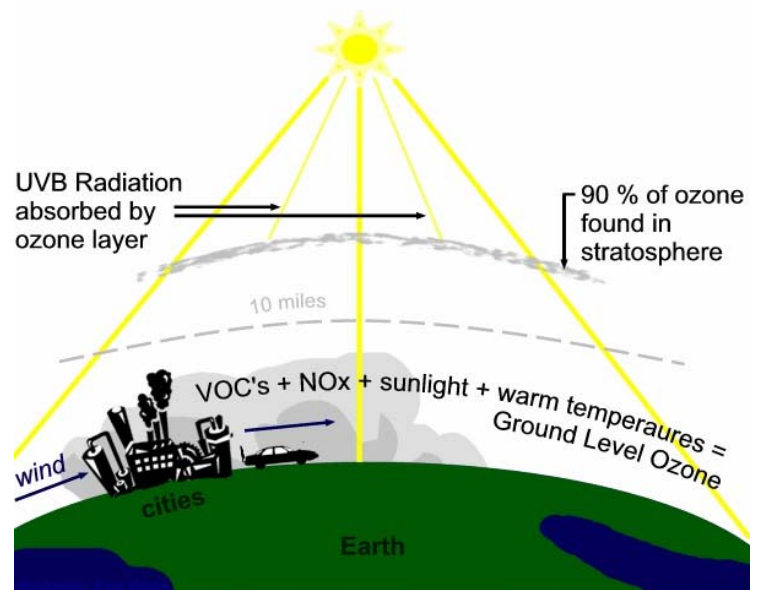
Several international agreements have required manufacturers to stop producing most ozone depleting chemicals allowing ozone levels to return to normal over time.

SOURCES OF NITROUS OXIDES



source: U.S.E.P.A.

GOOD AND BAD OZONE



To avoid ground level ozone, check the Air Quality Index (AQI) daily. The index measures ozone, sulfur dioxide, and several other air pollutants. A reading of 0 to 50 is good, while anything above 100 merits reduced outdoor activity.

To limit or reduce the creation of ground level ozone, the following actions can be taken:

- Do not light fires or grills during high sun periods
- Mow in the evenings, when the sun is lower
- Avoid fueling your car in the afternoon
- Keep your car or boat tuned

Things that you can do to make sure ozone depleting chemicals are not added to the atmosphere include:

- Make sure that the technicians working on your car air conditioner, home air conditioner, or refrigerator are certified by an EPA approved program to recover the refrigerant (this is required by law).
- Have your car and home air conditioner units and refrigerator checked for leaks. When possible, repair leaky air conditioning units before refilling them. Contact local authorities to properly dispose of refrigeration or air conditioning equipment.

For more information on ozone, visit the U.S. EPA website on ozone at <http://www.epa.gov/oar/oaqps/gooduphigh/>.