

Ozone Depletion is a Fact!

After more than twenty years of research, there is no doubt that the ozone layer is thinner than it used to be. A veil of gas that screens the Earth from powerful solar radiation, the ozone layer has been gradually eroded over populated areas worldwide, as well as over Antarctica. Higher levels of ultraviolet (UV-B) radiation at the Earth's surface have been recorded and could pose serious human health and ecological risks. Scientists around the world agree that increased UV-B radiation will lead to more cases of skin cancer and cataracts. Also, damage may occur to important crops, livestock, and marine ecosystems.

Chlorine from chemical refrigerants called chlorofluorocarbons (CFCs) is a major cause of ozone depletion. Although heavier than air, CFCs are transported by wind currents 10-30 miles up to the stratospheric ozone layer. Ultraviolet rays then break down the CFCs, freeing the chlorine atoms to destroy ozone. Remaining active for more than 100 years, chlorine from CFCs emitted today will continue to deplete ozone well into the next century. Fortunately, chlorine from other sources such as seawater, swimming pools, and volcanoes falls out with the rain before reaching the ozone in the upper atmosphere.

CFCs, however, do not act alone in this cycle of ozone depletion. HCFC refrigerants (hydrochlorofluorocarbons) also add chlorine to the stratosphere, but in smaller quantities than CFCs.

Another chlorine-based ozone depleter is methyl chloroform, a cleaning solvent. Other compounds destroy ozone because they contain bromine. The most common ozone depleters with bromine are halons, used in fighting fires, and the agricultural pesticide methyl bromide.

The New Clean Air Act

The Clean Air Act of 1990 contains many measures to protect the ozone layer. Most important, the law requires a gradual end to the production of chemicals that deplete the ozone layer. CFC refrigerants found in car air conditioners, household refrigerators, and dehumidifiers—also known as R-12—will no longer be produced after 1995. HCFC refrigerants for window and central air-conditioning units—also known as R-22—will be produced until 2020. The production of halons ended after 1993, while methyl bromide production will be limited beginning in 1994 and phased out by 2001.

The Clean Air Act also bans the release of ozone-depleting refrigerants during the service, maintenance, and disposal of air conditioners and all other equipment that contains these refrigerants. Individuals who work on such equipment must follow EPA regulations for ozone-safe service practices, including the recovery and recycling of refrigerant.

Vigorous refrigerant conservation will reduce emissions of these harmful chemicals and help assure a continued supply to service existing equipment.

The national program to protect the ozone layer also involves approving substitute chemicals, banning nonessential uses of ozone-depleting compounds, and labeling products containing or manufactured with ozone-depleting substances.

Protect Your Health

Common sense is the best defense. Some simple precautions can substantially reduce your risk of skin cancer and cataracts. Avoid over-exposure to the sun at mid-day when UV-B rays are the strongest. Wear sunscreen, sunglasses, hats, and other protective items.

To learn more about ozone depletion, call EPA's Stratospheric Ozone Information Hotline at 800 296-1996, 10:00 a.m. to 4:00 p.m. (Eastern), Monday through Friday.

A Checklist for Citizen Action

Before you turn on the air conditioner in your home and car this year, stop and think about the last time they were serviced. Leaky systems and careless service practices can lead to the release of refrigerant known to destroy the ozone layer. Proper maintenance and seasonal checkups of air conditioners and other appliances with refrigerant will help reduce this problem.



What you can do to protect the ozone layer

✓ Car Air Conditioners

• **Have your car air-conditioning system properly serviced.** Only certified technicians using approved recovery or recycling equipment may work on car air conditioners. Ask your service center if its technicians and equipment meet EPA requirements before agreeing to service.

• **Check for leaks.** Fixing leaks in car air conditioners before more refrigerant is added helps prevent unnecessary loss of CFC refrigerants and conserves supplies. While federal law does not require leak repair, your state might.

• **Ask about retrofitting.** Most car air conditioners sold prior to 1994 were designed to use CFCs, but can be modified to use a nonozone-depleting refrigerant. The decision to switch is up to you. A good time to retrofit might be when you make other major repairs to the air conditioner.

✓ Old Appliances

• **Dispose of old appliances containing refrigerant responsibly.** CFC and HCFC refrigerant must be removed from an appliance before it is discarded. Ask the public works department in your town or a home appliance dealer about appliance recycling and refrigerant-recovery programs.

Help start a refrigerant recovery and recycling program in your area. Contact EPA's Stratospheric Ozone Information Hotline at 800-296-1996 to learn about innovative steps some communities have taken.

✓ Home Air Conditioners and Other Appliances

• **Ensure that refrigerant is recovered from air conditioners, refrigerators, and dehumidifiers.** Refrigerant must not be "vented" during the servicing of home appliances. Used refrigerant can be recycled. Before agreeing to service, ask if the technician will use refrigerant-recovery equipment if the refrigerant needs to be removed. Also, ask if the technician is or plans to be certified by an EPA-approved testing organization.

• **Repair leaks.** Ask the service technician to locate and repair leaks before refilling (or "recharging") your system with refrigerant. While not required by law, this will save you money in the long run and prevent unnecessary refrigerant emissions.

✓ Violation Reports

• **Call the Hotline.** If you suspect or witness unlawful releases of refrigerant or other improper service practices, you can file a report easily and anonymously by calling the Stratospheric Ozone Information Hotline at 800-296-1996.

✓ Other Actions

• **Become active in your community.** Speak with your neighbors and friends about how their appliances with refrigerant can contribute to ozone depletion.

• **Be an informed consumer.** Look for labels identifying products manufactured with or containing ozone-depleting substances. Consider alternatives, where available, that do not damage the ozone layer.

