

# Ozone Generators as Indoor Air Cleaners

**Many people purchase air cleaners to remove odors and to improve the quality of the air inside of their homes but may unknowingly *make it worse* by using ozone generating air cleaners.**

## **What is ozone?**

Ozone, or O<sub>3</sub>, is a gas containing three oxygen atoms. Ozone is an unstable chemical that is highly reactive with other gases in the air. Ozone at ground level is unhealthy and is a component of smog. Ozone found high up in the atmosphere, called stratospheric ozone, protects us by shielding us from harmful ultraviolet (UV) light. This “high in the sky” ozone and its beneficial effects should not be confused with the harmful effects of ground level and indoor ozone.

## **What are ozone-generating air cleaners?**

Some indoor “air cleaners” emit ozone either intentionally or as a by-product of their design. Those that intentionally emit ozone are often called “ozone generators” Manufacturers and marketers of air cleaners or purifiers sometimes use words like “activated oxygen,” “super oxygen,” “trivalent oxygen,” “allotropic oxygen,” “saturated oxygen,” “mountain-fresh air,” “energized oxygen” or other terms when talking about ozone.

## **Are there other types of air cleaners that produce ozone?**

Ionizers and electrostatic precipitators are other types of air cleaners that can produce ozone as a by-product of their design and function. These devices are designed to electrically charge particles and remove them from the air. Ozone may be released through the charging process. These devices typically emit less ozone than ozone generators.

## **What are some of the health effects from exposure to ozone?**

Adults and children who breathe high levels of ozone for a short period of time (minutes or hours) can experience eye, nose and throat irritation, shortness of breath, chest pain and coughing. Breathing high levels of ozone can worsen asthma symptoms. Breathing ozone for a short period of time may worsen symptoms in people with heart disease. Ozone can react with other chemicals in the air to produce additional chemicals and fine particles that can also be irritating to the eyes, nose, throat and lungs.

Children who breathe ozone for long periods of time (years) may suffer permanent lung damage, but this health effect is less certain. Some information suggests that children who participate in outdoor sports in areas of high ozone levels have an increased chance of developing asthma.

## **What alternate actions can I take to minimize indoor air pollutants and to avoid using an ozone air cleaner?**

- Reduce or eliminate the indoor use and storage of odorous products and chemicals.
- Keep your household clean
- Do not smoke indoors
- Reduce or eliminate the use of candles
- Move activities that generate pollutants to outdoors or to an area with proper ventilation
- Increase ventilation
- Upgrade furnace and air conditioning system filters to higher efficiency
- Control excessive moisture and leaks to avoid mold growth.
- Consider using stand-alone portable filtration units and adsorbent filters (charcoal and/or zeolite).

**Ozone generators come in many shapes and sizes**



## Where can I get more information?

*On the Web:*

### **California Air Resources Board**

Hazardous Ozone- Generating "Air-Purifiers"

<http://www.arb.ca.gov/research/indoor/ozone.htm>

Air Cleaning Devices for the Home: Frequently Asked Questions

<http://www.arb.ca.gov/research/indoor/acdsumm.pdf>

### **U.S. Environmental Protection Agency**

Ozone Generators That Are Sold as Air Cleaners: An Assessment of Effectiveness and Health Consequences

<http://www.epa.gov/iaq/pubs/ozonegen.html>

### **Building Energy and Environmental Systems Laboratory at Syracuse University (BEESL)**

Effectiveness of Portable Room Air Cleaners for Removing Volatile Organic Compounds (VOCs) from Indoor Air

<http://beesl.syr.edu/pdf/IAQtrifold2.pdf>

### **Connecticut Department of Public Health**

Environmental and Occupational Health Assessment Program

<http://www.dph.state.ct.us/EOHA/index.html>

### **New York State Energy Research and Development Authority (NYSERDA)**

Homeowners Guide to Ventilation

<http://www.nyserdera.org/publications/guide.pdf>

Indoor Air Quality and Your Home

<http://www.nyserdera.org/publications/iaq.pdf>

Effectiveness of Portable Room Air Cleaners for Removing Volatile Organic Compounds from Indoor Air

<http://www.nyserdera.org/publications/IAQMAY2003.pdf>

### **New York State Department of Health**

Outdoor Ozone Fact sheet

<http://www.health.state.ny.us/environmental/outdoors/air/ozone.htm>

### **Federal Interagency Committee on Indoor Air Quality**

<http://www.epa.gov/iaq/ciaq/>

*Or Call:*

### **New York State Department of Health**

Indoor Health Assessment Section

1-800-458-2258 ext. 27810 or

(518) 402-7810.

