

INDOOR AIR POLLUTION

By Ron Rendleman

Consumers Much-maligned ozone can rid your home or office of modern pollution that can be more dangerous than outside air.

Most folks know ozone by name, especially since the upper atmospheres protective ozone layer began disappearing. But a lot of misinformation, conjured up to further private agendas, would have you believe ozone is the bad guy of ground-level pollution. True, ozone is present in smog, partly because the processes that create pollution also create ozone. The more pollution, the more ozone. But demonizing ozone is like blaming the fireman for the fire. Without ozone, pollution would render cities uninhabitable.

Nature creates tremendous amounts of ozone each day with the help of ultraviolet rays of the sun or electrical discharges of thunderstorms that neutralize many biological problems like bacteria, viruses, mold or chemical out-gassing, and to some extent, man-made pollution. Take a walk after a thunderstorm and notice the clean smell in the air, that's ozone at work.

So what exactly is ozone? It's stable oxygen O₂ that has picked up an extra atom of oxygen and becomes O₃. Scientists call it activated oxygen. At 20-plus miles above Earth, the ozone layer plays a crucial geophysical role in protecting people from excessive solar UV radiation. Discovered in the 1840s, it wasn't until 1906 that the first ozone water purification facility was built in France. Today there are over 2,000 similar plants worldwide. Recently Los Angeles built the largest ozone purification plant in the world. The city chose ozone over chlorine because the latter has a bad health record. Chlorine has been found to cause various illnesses, from nose and eye irritation to possibly even cancer.

A few years ago more than 100 people living in Milwaukee died, and over 400,000 became ill in one *Cryptosporidium* outbreak that chlorine failed to control.

That ozone is a powerful air disinfectant is undisputed. Twin City Testing Labs in Minnesota demonstrated a steady decline in live strains of infectious micro-organisms in four hours with as little as .05 ppm of ozone. These germs incubating in dirty air ducts could be projected to be completely eliminated in 24 hours from the lab's data. It has been argued that the same disinfecting action takes place in the human sinus cavities where invading microbes first take hold.

Many people, especially the elderly, will retreat in doors, thinking they can avoid toxins from city air pollution, or if they are informed, from the products of chemtrails spewed out in recent years at 25,000 feet by tanker planes. But they may not be escaping at all.

As far back as 1989, the Environmental Protection Agency told Congress in hearings that indoor pollution is one of the nations most important environmental health problems. They found that most homes have airborne concentrations of hazardous and toxic chemicals two to five times higher than outdoors. In a five-year study, many homes even had pollution levels 70 times higher inside than outside!

Today's building methods and codes and the demand for energy conservation have created super-insulated airtight indoor spaces. Lower heating and cooling costs result, but natural air cleaning agents like ozone stay outside while pollution is trapped inside.

Two noted scientists, Drs. Gurbermskill and Dmitriev. found that air conditioning in office buildings caused workers to complain of headaches, weakness and oxygen deprivation that led to illness, and that colds, rheumatism and cardiovascular disorders significantly increased with conditioned air even in the absence of typical indoor air pollution.

The average home today contains more chemicals than were found in a typical chemistry lab at the turn of the century, much of it stored under kitchen and bathroom sinks, from bug sprays to detergents to oven cleaners. Most poisonings happen over a long period of time by daily exposure to toxins that enter the body through mouth or skin, and significantly, through breathing air loaded with chemical out-gassing.

In a study conducted over a 15-year period, women who worked at home had a 54 percent higher death rate from cancer than women who worked away from home. The reason? Daily exposure to hazardous chemicals in ordinary household products.

What are just some of the toxins the EPA and other researchers found in inside air?

- Benzene from paint, new carpet, new drapes and upholstery
- Ammonia in tobacco smoke and cleaning supplies
- Chloroform from paint, new carpet, new drapes and upholstery & nbs p

- Formaldehyde from tobacco smoke, plywood, cabinets, furniture, particleboard, office dividers, new carpet, new drapes, wallpaper, etc
- Sulphur dioxide, cyanide, and carbon monoxide from tobacco smoke
- Trichlorethylene from paints, glues, furniture and wallpaper
- Carbon tetrachloride from paints, new drapes, new carpet and cleaning supplies
- Nitrogen dioxide from stoves, furnaces
- Radon gas entering through foundations
- Pollen from plants and trees
- Mold spores from moisture and bacteria
- Dust mites from dust and bacteria
- Bacteria from all areas of the home

Exposure to these chemicals resulted in: headaches, memory loss, slow poisoning pulmonary irritation, fatigue, drowsiness, eye, skin and nasal irritation, dizziness, depression, respiratory irritation, gynaecological problems, shortness of breath, cancer and bronchial constriction.

For the first time in history, it's safer to be in the wilderness than in your own home.

It's alarming that indoor air has become so contaminate, especially when children are considered. Physiologically, they are more vulnerable to toxic vapors be cause of their higher metabolic rate. They breathe in more than twice as much oxygen (and therefore toxins) relative to body size than adults. They are more active, which increases their breathing rate and they play close to the floor where heavier pollutants settle.

Modern school buildings that are shut tight have the same problems. These findings are not comforting. But there is good news: a few years ago some astute scientists reasoned that just as nature uses ozone to protect life on Earth, it might be possible to produce ozone electronically for indoor protection against polluted air and water. Small portable generators were designed to decontaminate a whole house. The inventors were surprised to discover that ozone would remove, in hours, and sometimes minutes, very tough odor problems like smoke damage from fire, pet smells and stale tobacco odors often found in public places.

Practically overnight, the \$430 billion food industry began using ozone to protect produce from spoiling in transport by sanitizing packaging materials or adding to water to wash food. Meat packers found placing an ozone machine in a cooler kept meat fresher much longer. Myron James, Technology Centre Manager, said: Ozone is very efficient in killing pathogens and spoilage organisms, and its use by the food industry will be welcomed as another tool to ensure the production of safe and wholesome foods.

Far from being a bad guy, properly used ozone is a great remedy, even a Godsend perhaps, for modern society's ever-increasing contaminated air and water.

End