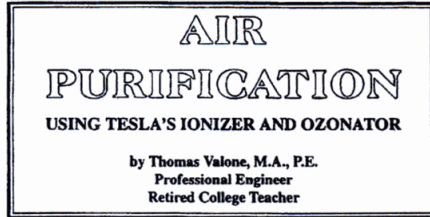


16 Tesla's Ionizer and Ozonator

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OVERVIEW

Indoor and outdoor air quality has deteriorated due to airtight homes, more artificial materials and excessive air particulates in every major city. Oxygenating and ionizing the air has been shown to be a superior technique for purification, even surpassing the best air filtration methods. Nikola Tesla's patent on a method for generating ozone was issued in 1896. With a better invention than one would believe, we acknowledge Tesla for inventing the medically-approved method for producing ozone during its centennial. His method has been incorporated into Alpine air purifiers along with a mysterious invention of Dr. Pat Flanagan's that produces ionization at a distance. The merging of ion and ozone production in one machine, both based on Tesla technology, is a remarkable outgrowth of two separate inventions.

TESLA'S OZONE PATENT

At the turn of the century, there was a great deal of high voltage in Tesla's laboratory, as is seen in several photographs of Tesla seated in the midst of high voltage discharge which

generated a good amount of ozone. Tesla was exposed to ozone ("triatomic oxygen") for years throughout his work. The circuit that Tesla used to produce ozone is very simple. The diagram (from Tesla's 1896 patent #568,177) in Fig. 1 shows two parallel plates connected to a high voltage transformer, along with a fan to move the air through the parallel

plates. The patent examiner reviewing this case cited three patents for synthesis of ozone to purify liquids from as early as 1882. It is worth noting that ozone was discovered in 1785 by Van Marum who passed air through an electric discharge.

Since 1896, three classes of ozone generators have become available: electric spark discharge; ultraviolet (UV) light; and "cold plasma discharge." As noted in *Explore More!* (No. 7, 1994, p.30) only the cold plasma discharge method (which is the technical name for Tesla's invention) produces the purest ozone, with virtually no nitrogen oxides, and "is the type used by German medical doctors and health clinics worldwide for the treatment of disease."

OZONE/OXYGEN THERAPY

The book *Oxygen Therapies* by

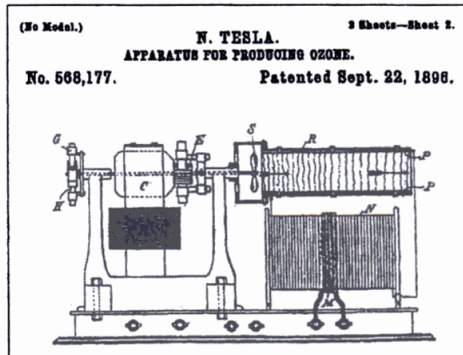


Fig. 1 - Tesla's Original Patent Application for the Ozone Machine

Ed McCabe (available from **The Tesla Resource Center**) is an excellent review on the subject. Journal articles such as "Ozone Selectively Inhibits Growth of Human Cancer Cells" (Sweet et al., Science, Vol. 209, 1980, p.931) and "Do Oxygen Therapies Work?" (East West Jour., Sept. 1989, p.70) have attracted much attention to the therapeutic effects of ozone, even for blood dialysis treatment of AIDS (more information available on the Internet). Dr. Andrija Puharich (a speaker at the 1984 ITS Symposium) presented a paper at the Sixth World Ozone Conference in 1983 on the successful treatment of neoplasms (cancer) with ozone. He stated, "if gaseous ozone is administered directly into cancerous tissue in mice, the tumor would dissolve in a matter of seconds to minutes leaving the surrounding tissue unaffected."

Unfortunately, the FDA has classified ozone as a drug, even though it is a naturally occurring gas at about 0.03 parts-per-million (ppm) concentration worldwide in country fresh air. FDA approval for ozone therapy as a treatment modality has still been withheld. In fact, a few years ago I saw an issue of the FDA newsletter which featured an illustrated cover story about an ozone machine which they had seized. (DISCLAIMER: We are legally only allowed to mention anecdotal information and emphasize that ozone can be used only on an experimental basis, without recommending or prescribing.) Companies such as OZ-TECH (POB 730, Alton, NH 03809) or Excalibur (314 W. 53rd St., NY, NY 10019) sell water treatment ozone generators which some people have configured

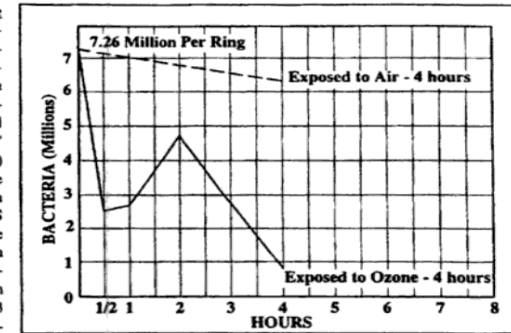


Fig. 2 - STAPHYLOCOCCUS AUREUS

for rectal insufflation or body bag exposure for skin absorption. The Bradford Institute (800-227-4473) is a good source of quality information on ozone therapy, operating their own hospital in Mexico, where it is legal. Canada and Europe are also countries where ozone therapy is legal and effective for a wide range of diseases. Dr. Michael Prytula, with a clinic in Niagara Falls, Canada, states in his article "Ozone Therapy: Using Oxygen to Heal" (*Holistic Health Journal*, Vol.2, No.4, 1995), "The only problem ozone has in being fully accepted is that, like all naturally occurring products, it cannot be patented. Imagine how the manufacturers of pharmaceutical products and manufacturers of radiation equipment would feel about ozone getting equal press coverage."

EPA FINDS INDOOR AIR CAN BE WORSE THAN OUTDOOR AIR

Nature only produces ozone with

thunderstorms and alternatively with sunlight. Indoor air, however, contains no ozone whatsoever. Laboratory tests have shown (Fig. 2) that only 0.05 ppm of ozone will kill mold, E. coli, salmonella, and staph germs in 4 to 6 hours. At the same time, trace amounts of ozone (0.01 to 0.03 ppm) reduce odors, and increase oxygen absorption by hemoglobin. Consequently, the use of ozone generators in homes, offices, beauty parlors, hotels, and even in the President's limousine, is becoming more popular.

Since the average person spends over 90% of their time indoors, he/she should be treating the problem more seriously. In 1987, an EPA report ranked indoor pollution at the top of the list of environmental risks that Americans face. In one of the most exhaustive studies ever, the EPA fitted 800 people around the country with battery-operated sensors, in 1980, to measure levels of 20 chemicals in the air around them. In a few cities, the lev-

els of 11 of those chemicals were higher in the family den (up to 70 times higher!) than were found outside the huge petrochemical plants and refineries nearby.

Indoor air is filled with pollutants such as benzene, carbon monoxide, sulfur dioxide, trichlorethylene, carbon tetrachloride, mold spores, pollens, fungi, etc. However, during the energy crisis a few decades ago, we started to build houses and office buildings that are airtight. Airtight buildings do not breathe and must rely upon a certain number of air exchanges per day. It is distressing to note that most hotels are not designed for any air exchange or circulation at all! Further compounding the problem is the finding reported in *Science*

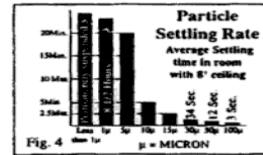
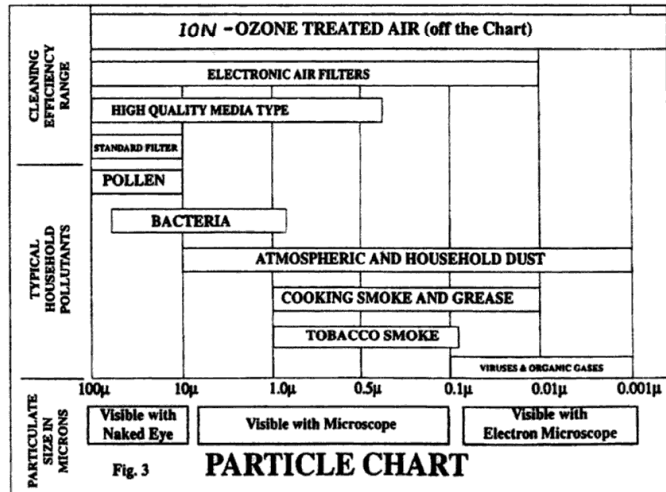
News (March 27, 1993) for sick buildings, labeled "The Ventilation Conundrum." In a double-blind study which doubled the flow of outdoor air, from 30 to 64 cubic feet per minute (cfm), into a building already reporting complaints of "sick building syndrome", there was no decrease in worker symptoms. The concentration of volatile chemicals had decreased but the workers "perceived absolutely no difference."

Clothing, furnishings, construction products, paint, plywood, and particle board all "outgas" chemicals. Also, heating and cooling systems "can grow microbial products such as bacteria, fungi, and protozoa" (*Indoor Air Review*, Oct., 1992, p. 11). These colonies

of microbes grow more often in the ventilation systems or air ducts which return air to the furnace, because they are not subject to filtering until just before the furnace.

"DIRTY AIR CAN SHORTEN YOUR LIFE," STUDY SAYS

A front page article from the *Washington Post* (Mar. 10, 1995, p.1) used the above title for the largest study ever conducted on the health effects of airborne particles which found that people in the nation's most polluted cities are 15 to 17 percent more likely to die prematurely than those in cities with the cleanest air, like Topeka, Kansas, thus losing approximately one year of life expectancy. The study cited particles 2.5 microns (millionths of



a meter) and smaller as the culprits, because they stick in the deep recesses of the lungs and limit oxygen exchange.

In July, 1995, *Science News* (Vol. 148, p.5) reported that "a spate of studies show that daily hospital admissions and deaths from respiratory disease tend to fluctuate nearly lockstep with variations in airborne dust—even when particulate levels fall within federal limits." Their findings indicate that the increase in hospital admissions for congestive heart failure matched the increase in small particulate levels of 10 microns and smaller. A revealing sideline was the fact that the same effect was seen from an increase in carbon monoxide levels in the air. Therefore, it may be possible that very small particulates affect the respiratory system in a way similar to carbon monoxide poisoning.

In a report in the November 1, 1996 *Washington Post*, it was written that the EPA is trying to change the standards for the industry from 10 Parts per Million (ppm) to 2.5 ppm so that finer particulates will be captured before they are emitted to the atmosphere. However, the National Association of Manufacturers (NAM) has been fighting against the new standards to control "particulate matter." Joining this opposition to tighten controls are the American Petroleum Institute, Geneva Steel, Chevron,

DuPont, Xerox, American Automobile Manufacturers Association and others.

What are these particles and how do they affect us indoors? Most studies, including those from local environmental testing firms, confirm that indoor air can be more polluted than outdoor air. One report, from the testing of the Takoma Park Library (in Maryland) by Aerosol Monitoring & Analysis, Inc., found on the average, 7000 to 10,000 particles per cubic centimeter (cc) throughout the library. Our nose and lungs have to process all of these particles which can consist of dead skin, bacteria, pollen, dander, dust mite droppings, viruses, etc. The lungs and the cilia of the cells can expel particles that are bigger than one micron.

Many people rely upon air filtration, and even high efficiency "HEPA" filters, to grab those nasty particles. However, the best filters will only arrest particles that are bigger than one micron, with varying retention rates. Clients inform me that even with the best electronic or electrostatic filters on their furnaces, they find very fine dust on everything. In Fig. 3, we notice that most dust particle concentration is in the sub-micron (below one micron) range, where the majority of the 7000 to 10,000 particles per cc reside. *Consumers Digest* (Oct. 1992, p.40) reports that "sunbeams in a home wouldn't be visible if it weren't for the suspended airborne particles that scatter the light in the beam's path." In Fig. 4, we see that it is the sub-micron particles which

