



**Top Product Innovations, Inc.**

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## **Phenomenal Aire Cold Plasma Generator Technology**

### **Passes UL-867 Ozone test with flying colors**

#### **Ozone**

Ground-level or "bad" ozone is not emitted directly into the air, but is created by chemical reactions between oxides of nitrogen (NO<sub>x</sub>) and volatile organic compounds (VOC) in the presence of sunlight. Emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents are some of the major sources of NO<sub>x</sub> and VOC.

At ground level, ozone is a harmful pollutant. Ozone pollution is a concern during the summer months because strong sunlight and hot weather result in harmful ozone concentrations in the air we breathe. Many urban and suburban areas throughout the United States have high levels of "bad" ozone. But many rural areas of the country are also subject to high ozone levels as winds carry emissions hundreds of miles away from their original sources. Ozone is also created by electrical devices in homes and commercial buildings. Many air purifiers produce high levels of Ozone in combination with other reactive oxygen species ( ROS). This has an adverse effect on the long term health of inhabitants of these buildings. Many manufacturers of these devices claim that the ozone never reaches the environment or space. This is simply not true. The half-life of Ozone in the air is in excess of 8 hours. Half-life is the measure of the time it takes the concentration of ozone molecules to decay to half the concentration. However, with air purifiers that produce high levels of ozone, they are constantly producing the ozone and the concentration only increases to a level where the decay rate and production rate equilibrate.

#### **How Does "Bad" Ozone Affect Human Health and the Environment?**

Breathing ozone can trigger a variety of health problems including chest pain, coughing, and throat irritation. It can worsen bronchitis, emphysema, and asthma. "Bad" ozone also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. Healthy people also experience difficulty breathing when exposed to ozone pollution. Because ozone forms in hot weather, anyone who spends time outdoors in the summer may be affected, particularly children, older people, outdoor workers and people exercising. Millions of Americans live in areas where the national ozone health standards are exceeded.

**The recommended limit in indoor spaces for any electronic device producing ozone is 50 parts per billion.**

**Phenomenal Aire averaged 3-4 parts per billion in the recent UL-867-2007 Ozone testing done on our C-10 unit.**

The highest level of ozone or peak measurement during the 8 hour test was 13 parts per billion. The C-10 was run for 48 hours prior to the testing period. This is called run-in time.



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Illustration 1

