

Oxyplasma® Technology review

Ozoneair Purify unique photo-electrochemical air disinfection technology Oxyplasma® successfully destroys pollutants in air. Oxyplasma® is formed when UV light excites a specially designed nanoparticle coated plate. This action of light on the surface creates a reaction that is able to completely oxidize pollutants in air. Pollutants that are 1000 times smaller than particles that can be filtered by a HEPA filter. Through third party independent testing, the technology has shown great efficacy in the destruction of airborne bacteria, viruses, mold, and VOCs.

Introduction

Ozoneair Purify's unique new air purification technology known as Oxyplasma® has been tested on a broad range of indoor air pollutants, including VOCs, viruses, bacteria, and mold. Unlike conventional filter technologies which relies on trapping some pollutants, Oxyplasma® can destroy a various of indoor air pollution including airborne bacteria, viruses, mold, allergens, and volatile organic compounds (VOCs). VOCs are among the most difficult pollutants to remove from air being 1000 times smaller than particles filtered by a HEPA filter. VOC can be emitted from wall paint, furniture, smoke, outdoor air and other consumer products. In the concentration levels measured indoors, it is mainly smell, sensory irritation in the eyes and upper respiratory tract, and the experience of poor air quality that can be caused by VOCs.

Oxyplasma® is formed when UV light excites a uniquely developed nanoparticle coated plate, creating a chemical reaction on the surface of the plate that results in the creation of Oxyplasma®. Oxyplasma® both oxidize pollutants and convert them into harmless elements like trace amounts of water and carbon dioxide. The reaction both occurs inside the cleaning chamber, continuously neutralizing the air that is passing through the machine, but Oxyplasma® is also distributed out into the room, actively destroying pollutants in the air and on surfaces.

Testing summary

A series of laboratory tests have been conducted by an independent third-party laboratory. A variety of microorganisms and air pollutants has been tested both in air and on surfaces to verify the purification technology Oxyplasma®. The experiments and sampling techniques followed standard laboratory procedures.

Tests has been conducted on bacteria such as Escherichia coli (E.coli) both in air and on surfaces. E.coli is a very common intestinal bacterium in both humans and warm-blooded animals. The spread of infection often occurs via contaminated food. A log 4 reduction 99,99% was seen after 4 hours when tested on surfaces. Other microorganisms such as Staphylococcus albus, Staphylococcus aureus (stomach flu, food poisoning) and Influenza A H1N1 (swine flu) had a log 2 destruction after 2 hours. Aspergillus niger, also known as black mold was tested and successfully removed 95,13% after 2 hours. The performance of Oxyplasma® has also been tested on VOC which showed a purification efficiency of 97,9% after 48 hours.

Oxyplasma® successfully removes up to 99,24% of virus, bacteria and mold from air in a laboratory testing environment

Which product?	The test approved the effectiveness of the Oxyplasma® technology in Ozoneair Purify 60 model in destroying virus, bacteria and mold spores.
How did we test?	Purify was placed inside a sealed space, the different groups of contaminations were sprayed into the sealed chamber. Temperature and humidification were controlled during the testing period. The natural decay of the microorganisms in air has been eliminated in the result. After two hours a six mesh type air microorganism sampler was used for testing.
Test method	GB 21551.3-2010A referring to GB 21551.3-2010 Appendix A
What was the result?	A log 2,12 reduction was achieved after two hours of treatment, Oxyplasma® is a reliable technique for reducing microorganisms, virus and spores.

Microorganism	Initial concentration	Time	Sterilization rate
H1N1 Influenza A virus	2,33 x 10 ⁶ cfu/m ³	2 hours	99,24 %
Staphylococcus albus	1,4 x 10 ⁵ cfu/m ³	2 hours	96,67 %
Escherichia coli 8099	1,5 x 10 ⁵ cfu/m ³	2 hours	96,72 %
Staphylococcus aureus	1,2 x 10 ⁵ cfu/m ³	2 hours	96,46 %
Aspergillus niger	7,9 x 10 ⁴ cfu/m ³	2 hours	95,13%

Oxyplasma® successfully destroys bacteria; 99,99% reduction of E.coli on surfaces in a laboratory testing environment

Which product?	The test approved the effectiveness of the Oxyplasma® technology in Ozoneair Purify 60 model, in destroying bacteria on surfaces.
How did we test?	Purify was placed inside a sealed chamber. Temperature and humidification were controlled during the testing period. During the test, the bacteria carrier was placed 6 cm away from Purify. The natural decay of the microorganisms has been eliminated in the result. The test was conducted for four hours.
Test method	Technical Standard for Disinfection (2002 Ministry of Health P.R.China)- 2.1.5.4
What was the result?	With a log 4 reduction after four hours of treatment, Oxyplasma® is a reliable technique for destroying bacteria on surfaces.

Microorganism	Initial concentration	Time	Sterilization rate
Escherichia coli 8099	4,2 x 10 ⁶ cfu/m ³	4 hours	> 99,99 %

Oxyplasma® successfully reduces 97,90% of VOC from air in a laboratory testing environment.

Which product?	The test approved the effectiveness of the Oxyplasma® technology in Ozoneair Purify 60 model on removal of total volatile organic compounds (TVOC).
How did we test?	Purify was placed inside a sealed chamber. Temperature and humidification levels were controlled during the testing period. The natural decay of the microorganisms in air has been eliminated in the result. The test was conducted for 48 hours.
Test method	GB 36893-2018 A referring to GB 36893-2018 Appendix A
What was the result?	After 48 hours treatment TVOC was reduced with 97,90%, proving that Oxyplasma® is a reliable technique for destroying VOC.

Pollutant	Initial concentration	Time	Purification efficiency
TVOC	6,11 mg/m ³	48 hours	97,90 %
