

Plasma Air Bipolar Ionization Solutions are Safe & Effective *Get the Facts*

Do Plasma Air bipolar ionization solutions create volatile organic compounds (VOCs) or harmful airborne chemicals when in use?

FACT:

- Plasma Air's bipolar ionization solutions do not create VOCs nor do they break down VOCs into smaller, harmful airborne chemicals. ¹
- Testing was performed by Intertek, a Nationally Recognized third-party laboratory following international VOC test standards (ISO16000-3 and ISO16000-6).

THERE IS NO EVIDENCE IN EXISTENCE THAT SHOW PLASMA AIR BIPOLAR IONIZATION SOLUTIONS CREATINGS VOCs OR OTHER HARMFUL CHEMICALS.

Have the Plasma Air bipolar ionization solutions been tested and proven effective at reducing pathogens, like viruses and bacteria?

FACT:

- Plasma Air's bipolar ionization solutions have been tested in large bioaerosol chambers and proven to reduce airborne pathogens and pollutants, including MS2 Bacteriophage (a surrogate for SARS-CoV-2 – *the virus that causes COVID-19*, H1N1 Flu Virus and Norovirus). ²
- Plasma Air's bipolar ionization solutions reduced MS2 bacteriophage by 99.39%.
- Plasma Air has conducted and shared numerous successful third-party test results on it's bipolar ionization solutions – testing includes H1N1 flu virus, bacteria, bacterial spores and mold.

Do Plasma Air bipolar ionization solutions create ozone?

FACT:

- No. Plasma Air's entire portfolio of needlepoint bipolar ionization solutions have been UL 2998 certified for zero ozone production. ³ This certification meets the UL qualification standard for ozone-free emissions and is compliant with ASHRAE standards.
- Plasma Air's entire portfolio of bipolar ionization solutions have also been certified by the California Air Resources Board (CARB) to be compliant with their standards. In 2008, CARB enacted an air cleaner regulation to limit the **ozone emissions** from indoor air cleaning devices.

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From the ASHRAE Journal - Technical Feature - November 2021

Studies have demonstrated that air ionization is effective at removing aerosols and particles from the environment, providing significant reductions in particulate concentrations. Bipolar ionization has also been studied and **shown to be effective at both increasing the filtering rate of aerosolized pathogens as well as effectively increasing the decay of certain viruses and pathogens in testing.**⁴



UL 2998 for Zero Ozone Production

In addition, the CDC recommends that if you are considering the acquisition of bipolar ionization equipment, you will want to be sure that the equipment meets UL 2998 standard certification (Environmental Claim Validation Procedure (ECVP) for Zero Ozone Emissions from Air Cleaners) which is intended to validate that no harmful levels of ozone are produced.

ASHRAE Standard 62.1-2019, Ventilation for Acceptable Indoor Air Quality, details these restrictions with stringent requirements stating that air cleaning devices shall be labeled and listed in accordance with UL 2998 for zero ozone production.³



International Journal of
Molecular Sciences

From the International Journal of Molecular Sciences by Shu-Ye Jiang, Ali Ma and Srinivasan Ramachandran

Over the years, bipolar ionization has come under scrutiny due to some misconceptions over the lack of independent research showing the safety and effectiveness of ionization in real-world settings. However, there exists an extensive list of peer-reviewed articles. In particular, the Jiang Paper reviewed 263 peer-reviewed articles on the subject. Jiang's conclusion after a meta-analysis of known literature and studies on air ionization was that there was **no evidence of ionization harming humans.**⁵

- 1 None of the Plasma Air products generated organic byproducts (byproducts defined as compounds which can be analyzed by ISO 16000-3 or ISO 16000-6).
- 2 This study was conducted by Aerosol and Engineering Research (ARE) and evaluated the efficacy of the device against aerosolized MS2 bacteriophage in an air duct system installed on the stainless steel bioaerosol chamber.
- 3 ANSI/ASHRAE Standard 62.1-2019, Ventilation for Acceptable Indoor Air Quality, Section 5.71.
- 4 ASHRAE Technical Feature, ASHRAE Journal, November 2021 - [A Bipolar Ionization Primer for HVAC Professionals](#).
- 5 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6213340/>