

# Instruction Manual

## Mashida Air Sterilizer Conditioner MVC 5199

Thank you for purchasing **Mashida** product. Read these instructions carefully and carry out the installation /unit setting in the prescribed manner. After installation, keep it in a safe place for reference when required.

### 1) Safety - Important Safety Information!!!!

This unit is not made for continuous operation.

Place unit away from water. If water backs up into the unit it may cause damage, which is not covered by the warranty and could cause electric shock.

#### Read Before Use

- Read the safety information above and instruction manual carefully before use.
- Do not cover the air inlet on the back of the unit or the ozone vent on the top of the unit, improper ventilation may result in mechanical failure and will void the warranty.
- Store unit in a cool, dry area.
- Do not take apart the ozone generator and Ionizer unit. Mechanical failure may occur. Return unit directly to manufacturer for repair.

### 2) Feature:

**Sterilization - Disinfection – Deodorization – Formaldehyde -Purification**

### 3) Operating Instruction – LCD Display / Remote Control

Display	Function Description
	Fan Speed Mode
	Disinfection Mode
	UV light Mode
	Ozone Mode

Key	Function Description
	ON/OFF
	Timer setting
<b>Air Ion</b>	Ionizer ON/OFF Mode
<b>Mode L/M/H</b>	Low, Medium, High fan speed selection
<b>Swing</b>	Air flow direction
<b>UVC</b>	UV light ON / OFF Mode
<b>Ozone</b>	UVC light ON/ OFF Mode
<b>Timing</b>	+/- (1-24 hours)

### You can set your own favorite setting :

*Cover area: 1,000 sq. / per hour*

#### **For Ionizer - ON/OFF**

known to be effective against Covid-19.

They utilize a high voltage to generate and release charged negative ions into the air, which stick to the viruses, thereby killing them.

Once the viruses are destroyed and no longer pose further harm, they are then stuck to other charged surfaces like walls and tables which can be easily wiped down.

#### **For UV Light –ON/OFF**

As data has shown that UV light can kill the coronavirus. An effective way to kill viruses such as the coronavirus in the filter /air.

#### **For UV-C Light (ozone) –ON/OFF**

Radiation is a known disinfectant for air, surfaces, objects and water that can help mitigate the risk of acquiring an infection and has been used extensively for more than 40 years.

All bacteria and viruses tested to date (many hundreds over the years, including various coronaviruses) respond to UV-C disinfection .In laboratory testing, our UV-C light sources inactivated 99% of SARS-CoV-2 virus on a surface with an exposure time of 6 seconds.

#### **Disinfection and sterilization**

Both **decontamination** processes. While **disinfection** is the process of eliminating or reducing harmful microorganisms from inanimate objects and surfaces, **sterilization** is the process of killing all microorganisms.

# FACT SHEET:

## Using Precision-filtered Ultraviolet Light to Kill COVID-19 on Surfaces

A common expression in English says that “Sunlight is the best disinfectant,” but this has turned out to be much more than a figure of speech. **Ultraviolet light**, the same wavelength of sunlight that causes tanning or sunburns, has long been used to sterilize medical equipment and other tools without the need for chemical treatments that can potentially be harmful or produce chemical-resistant pathogens. It works because the high energy of UV light can break apart the chemical bonds of molecules inside microorganisms, preventing them from functioning or reproducing. These high energy levels, however, can also damage the cells in our bodies, so traditional UV disinfection systems must use closed containers to shield our skin and eyes, making them impractical for large areas and impossible for use in occupied rooms.

## Adapting Ozone to Fight COVID-19 in the Air

Oxygen is perhaps the most vital element for human life, but it can also be a powerful weapon against coronavirus. The oxygen we breathe is actually molecular oxygen, which is made up of two oxygen atoms tightly bonded together. When on their own, lone oxygen atoms will react with, or oxidize, nearly anything, making them extremely effective for killing bacteria. **Ozone** is special but easy-to-produce form of oxygen made up of three atoms bonded together. Because the molecule is unstable, it quickly breaks apart into a two-oxygen molecule and a microorganism-killing single oxygen atom. Ozone released into the air reverts back to ordinary molecular oxygen within a short time, leaving no harmful residues behind, making it a much more environmentally friendly disinfectant than bleach or other chlorine-based cleansers. Additionally, microorganisms cannot build up resistance to oxygen as they can to antibiotics. Based on this knowledge, Professor Takayuki Murata of Fujita Medical University in Aichi Prefecture, not far from Nagoya, Japan began investigating whether ozone could be safely used as a preventive measure against coronavirus.

**Ozone** had been tested as a disinfectant in the past, and had been shown to be effective against viruses like the one that causes COVID-19. Unfortunately, ozone can be harmful if inhaled in high enough concentration, and previous testing had only been done at levels that would be dangerous for people. These tests had shown that ozone was effective for quickly disinfecting closed-off spaces, but they were impractical for disinfecting spaces used by many people throughout the day, or which could not easily be sealed off.

Professor Murata’s team looked into whether ozone could be effective against coronavirus at concentrations low enough to be safe for people. **The maximum limit for ozone was set at 0.1 part per million (ppm)**, so they began their investigations with concentrations of just 0.1ppm. **What they found was that maintaining a continuous low concentration could kill about 95% of infectious viruses.** Furthermore, at concentrations of just **0.05ppm, a level that is completely safe for people, the same reduction in virus levels.** This meant that very low concentrations of ozone could be used to continuously disinfect high-traffic areas. Professor Murata’s findings have already led several hospitals to install ozone generators in their waiting areas and patient rooms, and they are starting to be adopted for use in taxis and public transportation.

## Creating a Better New Normal

Now that a vaccine has been developed, hope is growing that the end of the pandemic is in sight. But there is still a way to go, and millions of vulnerable people who need to be protected. Even after COVID-19 has passed, innovations like these will help to keep our workplaces and public spaces safer from new and existing pathogens, so that the next potential pandemic may be easier to control and prevent.

In Straits times news

<https://www.straitstimes.com/asia/east-asia/japan-researchers-say-ozone-effective-in-neutralising-coronavirus>

# SAFETY : Indoor ozone chart

## Ozone

Parts per million (ppm) 0.0 -----0.05 ----- 0.20-----0.6

Human	Safe	Safe ( 2 hours )	Harmful
Ozone	Natural	Against virus	Danger
Effectiveness - O <sub>3</sub>	Non effective	1 hour	Less than 1 hour
Space (sq.)	1,000	1,000	1,000

In US regulations:

## Ozone and OSHA

OSHA guidelines for O<sub>3</sub> in the workplace are based on time-weighted averages. Ozone levels should never exceed the following average: 0.1 ppm (parts per million) for 8 hours per day exposure. For more detailed information on safe ozone levels, see the bullet points below.

The OSHA website cites several ACGIH (American Conference of Governmental Industrial Hygienists) guidelines for ozone in the workplace:

- 0.2 ppm for no more than 2 hours exposure
- 0.1 ppm for 8 hours per day exposure doing light work
- 0.08 ppm for 8 hours per day exposure doing moderate work
- 0.05 ppm for 8 hours per day exposure doing heavy work

For more information, see the OSHA webpage regarding ozone:

<https://www.osha.gov/chemicaldata/chemResult.html?RecNo=9>

**NIOSH** safety and health standards are not enforceable under US law. However, NIOSH does "develop recommendations for health and safety standards" that may influence future law and OSHA regulations. The NIOSH recommended exposure limit for ozone is 0.1 ppm (0.2 mg/m<sup>3</sup>). According to NIOSH, Ozone levels of 5 ppm or higher are considered immediately dangerous to life or health.

For more information: [NIOSH Pocket Guide to Chemical Hazards: Ozone](#)

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