

# The truth about Plasma Filtration, Ozone and You.

When you turn on your ductless air conditioner in your home or place of business, did you know its air filtration system could potentially be doing more harm than good?

It could depend on whether the system you use has an ozone generating filter, such as a **plasma** filter, or a non-ozone generating filter, such as **catechin** and **catalytic** filters.

To understand the differences, it's important to know what ozone really is, what potential health effects it can cause, and how different filtration systems work.



## Ozone – is it good or bad?

Quite simply, ozone ( $O_3$ ) is an unstable and highly reactive form of oxygen ( $O_2$ ). And depending on where it is located, it can be good for us, or extremely bad.

### So, is ozone good for you or not?

In our upper atmosphere, ozone acts as a protective filter, helping to block harmful UV rays. At ground level, ozone is known to be the main ingredient in urban smog, and physical exposure to ozone can irritate us. "Ozone, good up high, bad nearby."

### Why is ground-level ozone bad?

**Health Canada and the EPA** (Environmental Protection Agency) in the U.S. state that breathing ozone can trigger a variety of health problems, including throat irritation, coughing, congestion and chest pain. It can also worsen bronchitis, emphysema, and asthma. Ground-level ozone forms in warm outdoor weather. Bringing outdoor air into your home could potentially cause indoor ozone levels to rise.

**The perceived danger of using ozone-generating filtration systems**, such as plasma filters, is that the amount of ozone emitted, even in small quantities, can increase existing indoor ozone levels to a point where it could potentially do more harm than good.

Up here, ozone protects us from the harmful UV rays of the sun.

The diagram features a central globe of Earth. Three concentric, semi-transparent rings are drawn around it. The outermost ring is green and is positioned high above the globe. The middle ring is yellow and is positioned closer to the globe's surface. The innermost ring is red and is positioned very close to the globe's surface, overlapping with a photograph of a modern living room interior.

Down here, ozone produced at ground level is a primary component of smog.

In here, ozone that seeps in or is produced can trigger a variety of health problems for your family.

## What is Catalyst?

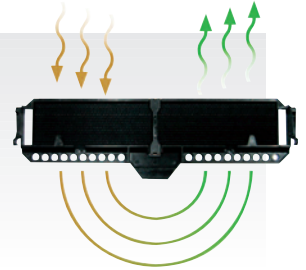
A catalyst is a substance that causes or speeds a chemical reaction without being changed itself. Catalytic air filtering means taking a volatile compound in the air and changing or converting it to a less, or non-hazardous one. For example, certain ground-level pollutants can be converted into harmless particles with carbon or platinum catalyst.

### Plasma

Plasma filters work by continually generating charged ions which cling onto airborne particles, while using an oppositely charged collection plate or filter designed to attract these particles. Ozone is produced as a byproduct, which then exits the plasma filter and flows into the room air.

### Catalytic

Catalytic systems, on the other hand, clean the intake air, removing ozone and other volatile compounds, and use an additional filter to remove particles that are not affected by the catalyst. The result? Clean air with no compromise.



## Doing Our Part

Mitsubishi Electric is a committed leader in environmental issues – not only the environment, but your environment, too.

Our high-efficiency, energy-saving heating and cooling systems use only non-CFC refrigerants, keeping us on the cutting edge to help keep our planet healthy.

We are also forward thinking when it comes to keeping you healthy. Instead of ozone-generating plasma filters used in many air purifying systems, Mitsubishi Electric uses the much safer and more efficient Catalytic Air Filtration system.

**It's better for the planet, and it's better for you.**

