

Polarization vs. Ionization

- *Polarization* is very different from *Ionization*.
- Polarization does not produce ozone, which is a bi-product of ionization
- Polarized particles receive *both* positive and negative charges and are attracted *only to* other “bi-polarized” particles, and therefore are less apt to collect where they are not wanted
- Ionized particles are *either* positively *or* negatively charged and are attracted only to other oppositely charged surfaces such as the collector plates in precipitating EACs. Unfortunately, these charged particles may also attach themselves to other types of oppositely charged surfaces such as walls, ductwork, clothes, and other surfaces where they are not wanted.

Polarization is the most effective method to remove sub-micronic particles (less than 1 micron in size) from indoor air without the efficiency loss associated with ionizing EACs

The effectiveness of AspenAir’s Polarization technology is best measured by assessing particle levels in homes or buildings **over time**. This is due to a process called **agglomeration**. Trapped particles become polarized, as do the particles that happen to pass through the air cleaner. Through agglomeration, Bi-Polarized particles bond with other polarized particles as they collide in the air. As they increase in size, they are collected. This enables the air cleaner to capture even the very smallest sub-micron particles that tend to remain suspended in the air stream rather than larger, heavier particles that fall out of the air stream.

An air cleaning system’s effectiveness will be, in part, determined by:

1. air change rates
2. airflow patterns
3. contaminant generation rates

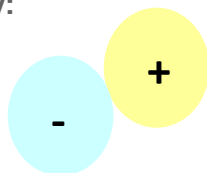
Typically in a house, it may take *a few days* to achieve significant particles reductions due to the low air change rate. In other environments where contaminant levels and generation rates are much higher, such as casinos and bars, the air change rates are over ten times higher than in a typical house, therefore significant reductions in particles occur much quicker.

Laser particle counters confirm this phenomenon. Over several days you will *notice a reduction in particles under .3 microns in size*. At the same *time there is an increase* in the number of larger particles as the smaller particles form larger particles, and then the total particle count will *drop off* significantly.

Quick Summary:

Ionization:

Other EACs



Particles are either positively or negatively charged

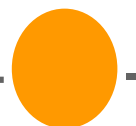
Attracted to oppositely charged surfaces

Produces Ozone

Efficiency decreases as EAC becomes dirty

Bi-Polarization:

AspenAir Inside



Particles are bi-polar which means they receive both a positive charge at one end (pole) and a negative charge at the other end (pole)

Attracted to other bi-polarized particles

No Ozone

Efficiency increases as the media loads