

How does it work?

Technology

The reasons why Electro Breeze Air Cleaner work so much better compared to other filters is because they take advantage of three scientific filtration principles combined in one product to clean the air and trap unwanted and harmful particulate. The three scientific principles at work in all Electro Breeze Air Cleaners are Impingement, Polarization and Agglomeration. Virtually every other filtration media type filters use only impingement. The combination and benefits of combining these three principles is explained below.

1) Impingement (passive mechanism)

Impingement is the process that all media filters use to trap dust. Simply stated, in order to trap particles the impingement process relies on media being placed in the path of oncoming airborne particulate and striking the particulate as it flows by in an effort to stop it. The degree of effectiveness of this method depends on the amount of material contained in the media filter placed in the path of these oncoming airborne particulate.

Commercial filters using this type of process cover the entire range of efficiencies. The finer and more dense the media used the greater the efficiency. High efficiency particulate air (HEPA) filters have high efficiencies along with very dense fibre packing, however the trade off associated with these filters is a reduced volume of filtered air - all things being equal.

Impingement type filters always have a built-in compromise between airflow and efficiency. The greater the efficiency of the filter, the lower the volume of air that is filtered. The greater the flow of air the lower the efficiency except in the case of Electro Breeze Air Cleaner which also use polarization and agglomeration to trap particulate. Electro Breeze unique induced polarized media Air Cleaner are the exception to this principle. Electro Breeze Air Cleaners are not subject to compromise between airflow and high efficiency, and they meet all the demands for increased airflow and high efficiency.

2) Polarization (Electrostatic attraction)

The second major scientific principle used in the Electro Breeze Air Cleaner is polarization. It is well known that an electrical charge will have an influence on any substance that comes in proximity to the charge. Electro Breeze polarization takes advantage of this principle to enhance the effectiveness of the filtration media.

In the case of Electro Breeze Air Cleaner, a strong but harmless (7,200 volt) charge is established on a centre carbon pad within the filter media itself. Very close to this static charge and directly influenced by the fibre filtering

media through which the airborne particulate must travel. As a direct result of this static charge, the fibres and the airborne particles that come close to them take on an electrostatic charge known as a "POLARIZED" charge. As a result the polarized airborne particles are drawn together with the fibre media in the same way polarized magnets are drawn together when held close to each other. The attraction is both certain and powerful. With tens of thousands of charged fibre strands in each filter the efficiency of this polarized process is greatly enhanced. In addition, as each particle attaches itself to the fibre strands, it becomes part of the collection process thereby increasing the effectiveness of the filter as it loads. Any particles that may escape through the influence of the polarized filter media travel through the system without any residual charge and will thus be free to travel through the system to be captured on a subsequent pass.

This polarization process accounts for a good portion of the dust trapping efficiency of all Electro Breeze Air Cleaners.

3) Agglomeration

Airborne particles as explained above enter the Electro Breeze Air Cleaner and are polarized by the induced static charge and take on characteristics of millions of tiny magnets. As a result four distinct possibilities can occur:

- 1) These magnetised particles can attach themselves to the charged fibre strands in the filter.
- 2) They can strike or become attached to each other and form larger particles. (Agglomeration)
- 3) These larger (Agglomerated) particles can become attached to the fibre filter strands.
- 4) The particles may pass through the filter and AGGLOMERATE and be captured on subsequent passes.

The combination of induced electrostatic polarization along with the process of agglomeration makes the Electro Breeze Air Cleaner completely unique and a highly efficient air cleaner and in many cases compares favourably with a HEPA filter. This is achieved with its very low resistance to airflow. To all this you can be ensured that Electro Breeze Air Cleaner will be a potent air cleaner that will remove 97% of all the particulate at 0.3 micron size, also it has activated carbon centre that will remove many Odours, also it will remove 40% of VOC"s in the air from new carpets, furniture. Electro Breeze Air Cleaner will trap Bacteria, Viruses from the air you breathe such as Influenza, Sars, Tuberculosis, Anthrax and many more.

