

HEPA Filter 0.3 μm and Electrostatic Precipitator (EP) 0.01 μm

High Efficiency Particulate Air Filter (HEPA) and Electrostatic Precipitator (EP) are widely used for air purification purpose.

HEPA is a type of air filter. Filters meeting the HEPA standard have many applications, including use in medical facilities, automobiles, aircraft, and homes. The filter must satisfy certain standards of efficiency such as those set by the United States Department of Energy (DOE). To qualify as HEPA by US government standards, an air filter must remove 99.97% of all particles greater than 0.3 micrometre (μm) from the air that passes through. A filter that is qualified as HEPA is also subject to interior classifications. HEPA filters are composed of a mat of randomly arranged fibres. The fibres are typically composed of fiberglass and possess diameters between 0.5 and 2.0 μm . Key factors affecting function are fibre diameter, filter thickness, and face velocity. So all the HEPA are can not be washed, water may damage the material and structure of HEPA.

An Electrostatic Precipitator (EP) is a particulate collection device that removes particles from a flowing gas (such as air) using the force of an induced electrostatic charge. EP are highly efficient filtration devices that minimally impede the flow of gases through the device, and can easily remove fine particulate matter as small as 0.01 μm (30 times smaller than HEPA 0.3 μm) such as fine dust particles, smoke particles, bacteria and virus from the polluted air.

Plate precipitators are commonly marketed to the public as air purifier devices or as a permanent replacement for furnace filters,

EP offer benefits over other air purifications technologies, such as HEPA filtration, which require expensive filters and can become "production sinks" for many harmful forms of bacteria.

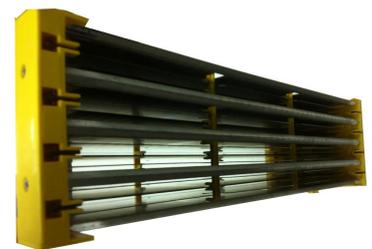
The EP collection plates are allowed to accumulate large amounts of particulate matter, the particles can sometimes bond so tightly to the metal plates that vigorous washing and scrubbing may be required to completely clean the collection plates.

A study by the Canada Mortgage and Housing Corporation testing a variety of forced-air furnace filters found that EP filters provided the best, and most cost-effective means of cleaning air using a forced-air system.

The first portable EP air filter systems for homes was marketed in 1954 by Raytheon. Conclusion: HEPA can remove 0.3 μm pollutant matters, EP can remove down to 0.01 μm pollutant matters, HEPA need to be replaced regularly, but EP is permanent use with regularly wash.



HEPA Filter



Electrostatic Precipitator