



» APPLICATION BULLETIN

MagIQ™ Nonwoven Electret Additives for High-efficiency Particulate Air (HEPA) Filters

The nonwoven electret additives are necessary for the manufacture of polypropylene meltblown nonwoven, used to make fresh air system filters with long-lasting filtration properties.

HEPA

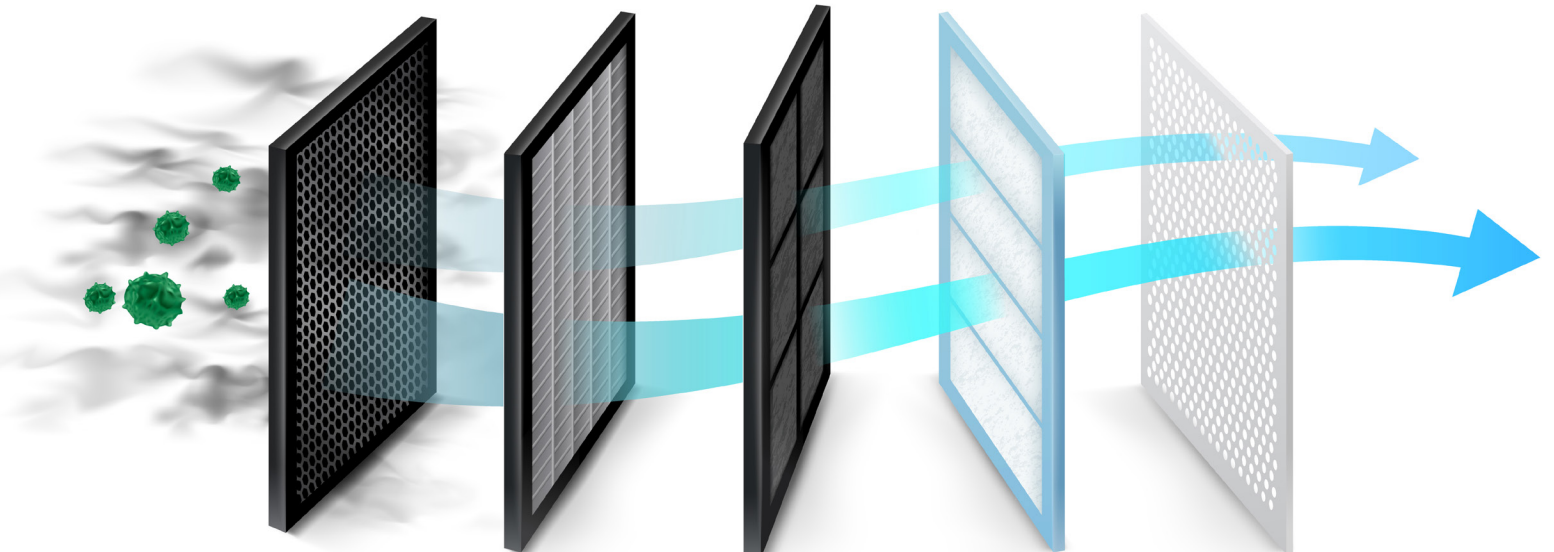
HEPA is a type of pleated mechanical air filter. It is an acronym for “high efficiency particulate air [filter]” as officially defined by the U.S. Department of Energy. This type of air filter can remove at least 99.97% of dust, pollen, mold, bacteria, and any airborne particles as small as 0.3 microns (µm).

FILTRATION

Filter media perform the specific functions in filter appliances by separating gases (air) and solids (particles). The core parts of filter media are engineered structures produced from PP meltblown nonwoven material. The finer the fiber, the greater the specific surface area and the better the filtration performance. The smallest particles are extracted from the air by electrostatic attraction to the fibers. This requires the addition of a specific additive to the masterbatch prior to the meltblown stage, followed by a process known as hydro electret charging.

| FILTER GRADE | FILTRATION EFFICIENCY |
|--------------|-----------------------|
| EPA 10/E10 | 85% |
| EPA 11/E11 | 95% |
| HEPA H12 | 99.5% |
| HEPA H13 | 99.97% |
| HEPA H14 | 99.975% |
| HEPA H15 | 99.9975% |
| HEPA H16 | 99.99975% |
| ULPA H17 | 99.9999% |

EPA: efficient particulate air filtration
 HEPA: high efficiency particulate air filter
 ULPA: ultra-low penetration air filter



HOW IT WORKS

Hydro electret charging works by improving the crystallinity and mechanical deformation of a material to prevent electret charging from drifting. By introducing additives with charge storage properties, “charge traps” are created. These capture the electret charge that is applied to the meltblown nonwoven material. Charging only works when the correct masterbatch is utilized which, together with the fiber denier, gram weight and number of layers, ensures that the middle layer of protective masks can effectively trap smaller particles.

AVAILABILITY

MagIQ™ Nonwoven Electret additives for HEPA filters are available globally and are supplied from Asia and Europe.

www.avient.com



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