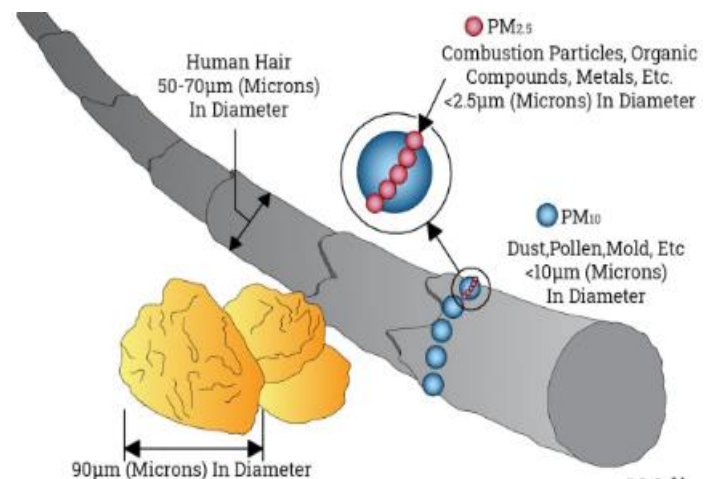


TECHNICAL DATASHEET – HEPA Filters

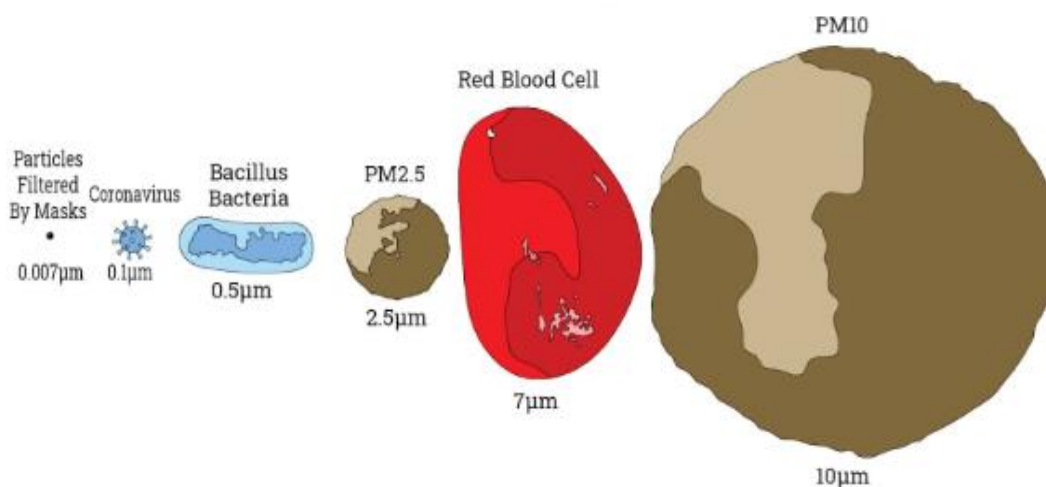
HEPA filter is a high efficiency pleated air filter capable of capturing extremely small particulate matter down to particles that are the size of a micron (μ), or a micrometre, which is 1/1000th of a meter. They are a common part of air purification systems since they strictly comply with the standards set for pollutant removal. The anagram HEPA stands for high efficiency particulate air, which is an efficiency standard that applies to air filtration equipment and systems capable of removing the most minute particulate matter.

For a filter to reach the HEPA standard, it has to be able to remove 99.9% of particles of all sizes down to ones as small as 0.3 micrometers or less. A HEPA rated filter is capable of removing impurities of any kind, including dust mites and particles, pet dander, pollen, smoke, mold spores, and other pollutants that are invisible to the naked eye.

A HEPA system forces air through a fine mesh in order to trap harmful contaminants. The mesh is made of thousands of fine fibers that capture microscopic sized pollutants. Although all HEPA filters must meet the same standards, there are different levels of classifications for HEPA filter efficiency.



Comparison of Human Hair, Sand and other particles



Progression of particles trapped by HEPA Filter



In 1998, European Standards (EN for Europäische Norm) developed the first set of standards for a filter classification system for HEPA filters based on the filters filtration process. It was labeled EN 1822 and introduced the evaluation system Most Penetrating Particle Size (MPPS), which refers to the size of particles that can easily pass through a filter.

The MPPS system is similar to the MERV system in that it classifies all filters from ones with an 85% effectiveness up to ones with ratings comparable to HEPA filters. The EN classification aims to bring standardization to the filter classification process. Unfortunately, that has not been the case since the United States, the International Organization for Standardization (ISO), and the Institute of Environmental Science and Technology (IEST) have each developed classification systems.

EN 1822 Classification of Filters

Filter Classes According EN 1822	Overall Value		Local Value	
	Efficiency	Penetration	Efficiency	Penetration
E10	≥85%	<15%	-	-
E11	≥95%	≤5%	-	-
	≥99%	≤1%	-	-
E12	≥99.5%	≤0.5%	-	-
	≥99.90%	≤0.1%	-	-
H13	≥99.95%	≤0.05%	≥99.75%	≤0.25%
	≥99.99%	≤0.01%	≥99.95%	≤0.05%
H14	≥99.995%	≤0.005%	≥99.975%	≤0.025%
	≥99.999%	≤0.001%	≥99.995%	≤0.005%
U15	≥99.9995%	≤0.0005%	≥99.9975%	≤0.0025%
	≥99.9999%	≤0.0001%	≥99.9995%	≤0.0005%
U16	≥99.99995%	≤0.00005%	≥99.99975%	≤0.00025%
	≥99.99999%	≤0.00001%	≥99.99995%	≤0.00005%
U17	≥99.999995%	≤0.000005%	≥99.99999%	≤0.00001%



Technical Data – Product Code 2390609

Technical Details	
Item Type	HEPA Filter
Product Code	2390609
Length	610mm
Breadth	610mm
Height	292mm
Filter Class	H13 (EN1822)
Efficiency	99.99%, 0.3 μ
Media Type	Glass Fibre
Seals Material	Nitrile
Weight	10 Kg
HS Code	84212900
Frame	AL 18G
Construction	Box Type
Filtration Area	20 Sqm (Approx)
Number of Pleats	36
Special Comments	NA
Brand	AVK Filtration

AVK-HEPA filters are made from polyester, polypropylene, or fiberglass fibers that are tightly interlaced with diameters of less than one micron. The fibers are twisted, turned, scattered, and randomly placed in different directions to create a mesh maze without a straight true path.

The openings between the fibers are smaller than a half micron, which is why HEPA filters can catch particles smaller than 0.3 microns. The image below is taken from a microscopic examination of the fibers of a HEPA filter. What can be clearly seen is the lack of uniformity in the placement of the fibers.



Fibers of HEPA filter seen through a microscope

