

Our air purifier's HEPA filter is or is not True HEPA filter?

Most of the air purifiers on market are design with HEPA filter. 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. BUT, the fact is most of the air purifier's HEPA filter on market can not meet the standard requirement, means that's not a True HEPA.

As a consumer, we can never know the actual efficiency of our machine's filter, despite how we check with our eye or hand, we can not define the HEPA filter is a True HEPA or not including an experience specialist, then user may just only can consider or reference from the manufacturer or brand's experience and documents etc...

Of course, if the machine HEPA is a True HEPA, the performance of the air purifier should be good enough for us, but it also need to depends on the whole machine design and fabrication, because it may just a little air leakage from the gap between the filter and the machine body, it may drop down the total filtration efficiency of the air purifier so much.

So, we would like to suggest a user that because we can never define the filter performance, a little gap may affect the machine performance so much, then we should focus back on the whole machine filtration performance rather than the HEPA filter only

because we're going to use the whole air purifier machine but not only the HEPA filter. On market, most of the professional supplier can show the performance of the machine with measurement equipment e.g. real timer to measure the PM2.5 and PM10 level in the environment before and after the machine operate, which is one of the main & also most harmful air pollutant parameters that EPD always emphasis. (**Note:** except the environment is hospital's OT room or ICU, or cleanroom, we should not reference from any measurement figure of $0.3\mu\text{m}$ dust particles at the air purifier's air outlet location, $0.3\mu\text{m}$ can not reflect the actual pollutant fact of the environment except the above specific location, $0.3\mu\text{m}$ is original used to classify the HEPA filter performance / grade but not apply for normal indoor air quality (IAQ) measurement. Also, despite the measure result show us the filtration efficiency from the machine air outlet is very high, it's not means the machine can effective for the whole room purification. For detail, please further study another MEDAIR paper "One Pass Filtration Efficiency Vs CADR. Who's the best?")

