IQAir® passes the World's Most Stringent HEPA-Filter Test

IQAir HyperHEPA® filters have been type-tested and classified in accordance with the world's most stringent HEPA filter test: EN 1822. The test shows that IQAir's HEPA filter not only meets the HEPA standard, but that it exceeds it.

The efficiency of HEPA filters has been traditionally measured at 0.3 microns (µm). However, over 90% of all airborne particles found in the air are smaller than 0.3 µm. Most air cleaner manufacturers make no performance claims for these important tiny particles which include bacteria and viruses. That is because the old 0.3 micron DOP test for particulate filters was developed in the 1950s, a time when the precise measurement of tiny particles was very cumbersome and costly. While the DOP test provided some performance indication for the efficiency of particulate filters, it did not establish a filter's efficiency for particles that are smaller than 0.3 µm, nor which particles the filter was least efficient at removing from the air stream. This is important information since a HEPA filter can filter 99.97% of particles at 0.3 microns, but may filter significantly less at smaller particle sizes. The revolutionary EN (European Norm) 1822 test, on the other hand, determines a filter's absolute minimum efficiency for particles, irrespective of size.

The EN 1822 test protocol (or "MPPS-test", as it is also known), was established in the year 2000 as the world's most advanced and stringent air filter standard for particulate filters. Many high-tech manufacturers such as Intel already require their filter suppliers to provide them with EN 1822 certification. Also many hospitals insist on this test to have been passed to ensure a filter's suitability and integrity for airborne infection control in critical environments.

In essence, the EN 1822 is a two-part test:

> The first part of the test determines which particle size penetrates the HEPA media most easily, hence the name MPPS (Most Penetrating Particle Size). Once the most penetrating particle size has been determined (e.g. 0.14 microns for the IQAir HyperHEPA filter), this information is used in the second part of the test.
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> To determine the filter's efficiency, part 2 of the test uses a test rig in which the HEPA filter is challenged only with particles of the previously determined most penetrating particle size (e.g. 0.14 microns). Since a filter's efficiency will also depend on the speed with which the air passes through the media, the test also determines efficiency at different air velocities, thus simulating actual conditions of use at different fan speed settings. This creates an absolute worst-case-scenario test for the filter.

In 2015 an independent German test laboratory rated IQAir's HyperHEPA filter to have a "worst case" efficiency exceeding 99.95% for airflow rates up to 240 m^3/h (141 cfm) and exceeding 99.5% for an air flow up to 560 m^3/h (330 cfm). In real terms this means that no matter how tiny an airborne particle may be, the IQAir's HyperHEPA filter will capture it with an efficiency exceeding 99.5%. In other words, the HyperHEPA filter captures even nano- and picometre sized particulates with at least 99.5% efficiency. This holds true for all of the system's fan speeds. As a result, the IQAir HyperHEPA systems capture up to 100 times more particles than conventional HEPA air cleaners.

IQAir's HyperHEPA filters are currently the world's only filters used in a mobile air cleaning system to have been type-tested inside the air cleaner's housing by an independent and accredited filter testing laboratory (*fiatec Filter & Aerosol Technologie GmbH*, Germany).

Note: For particles of 0.3 micron and larger, the IQAir HyperHEPA filter not only offers a 99.97% *filter* efficiency, but even guarantees an efficiency in excess of 99.97% for the entire air cleaning system (i.e. stating the air cleaner's *actual* efficiency in real working condition, even at the maximum fan speed). This is in contrast to most other air purifiers on the market, whose efficiency claims are *theoretical* and don't reflect the air purifier's actual performance.

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