



# How to Maximize the Guaranteed Protection of a BSC Filter?

A biological safety cabinet is a containment device that utilizes either ULPA or HEPA filters to provide a sterile work zone. These filters trap microorganisms, dusts, and particulate matters to produce clean air.

**Ultra-Low Particulate Air (ULPA) filter** captures microscopic particle size between 0.1 to 0.2 microns and has a typical efficiency of 99.999% per American IEST-RP-CC001.3 guidelines. While **High-Efficiency Particulate Air (HEPA) filter** is 99.99% efficient at a particle size of 0.3 microns. When combined with a cabinet airflow system and design, HEPA filter provides ISO class 5 work-zone cleanliness and ISO class 3 for ULPA filter. The ULPA filter offers 10x better filtration efficiency than HEPA filter and is used in an advanced biosafety cabinet.

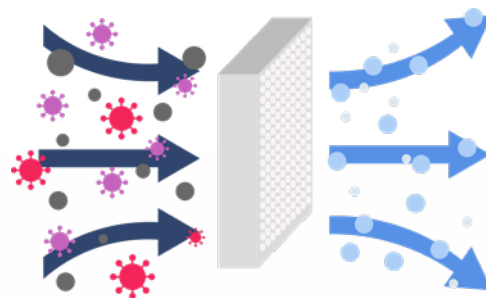


Figure 1. Movement of air with particulates passing through the ULPA filter.

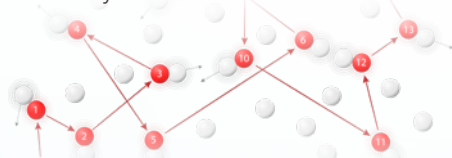


Figure 2. Movement of particles during Brownian Motion.

**The Brownian Motion** causes the particles to bounce around and collide with each other, making them move in a random pattern and eventually hit the filter fibers and become trapped. That's why smaller particles are in fact easier to catch in both HEPA and ULPA filters.

## HOW TO MAXIMIZE ULPA/HEPA FILTER EFFICIENCY?

**Proper and timely maintenance.** Services such as filter replacement, preventive maintenance, annual certification, and decontamination should be carried out regularly for optimal equipment performance. Thus, maximizes user protection, especially when used in a COVID-19 laboratory.

### PREVENTIVE MAINTENANCE

**Prevention is key.** This service procedure prevents unexpected downtimes and failures through routine maintenance and early detection of problems. The following are the procedures done when performing preventive maintenance:

- ✓ Cleaning the work surfaces and walls with an appropriate disinfectant
- ✓ Removing stubborn stains or spots on the worktop
- ✓ Testing the audible and visual alarms
- ✓ Checking the cabinet's mechanical and electrical functionality for any defect

### ANNUAL CERTIFICATION

**Hassle-free operation.** The certification of a biosafety cabinet must be done annually to lessen the risk of unanticipated failure and prevent the user from any danger. It is comprised of a series of tests which includes **filter integrity test** to verify continued efficiency of HEPA and ULPA filters. The following tests are performed per the manufacturer's specifications and relevant international standards such as NSF-49 for BSC:

- ✓ Inflow velocity test
- ✓ Downflow velocity test
- ✓ Filter integrity test
- ✓ Light intensity test
- ✓ Noise level test
- ✓ UV intensity test

### DECONTAMINATION

**Ready and safe usage.** Filter replacement, unit installation, and relocation require proper decontamination. The following sterilants are used:

- ✓ Chlorine Dioxide
- ✓ Hydrogen Peroxide Vapour
- ✓ Formaldehyde\*

\*Note: If requested by the client due to specific circumstances.

### IQOQ SERVICE

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