

## Diesel particulate filter for the home

Portland Clean Air

HEPA filters appear to only capture particles .3 microns and larger. I called one Oregon dealer who had hundreds of models in stock but nothing that could remove .1 microns. Some models claimed to destroy particles that size and smaller but only to kill airborne mold, viruses, spores - they cannot destroy diesel particulate which is made of carbon. Therefore virtually all filters available cannot filter out diesel particulate which is as small as .1 microns.

I did a web search looking for ".1 micron" and "air filter". The only filter I could find that captures .1 micron particles was the blue air series:

[https://www.amazon.com/gp/product/B002A9JHBM/ref=as\\_at/?imprToken=3BTnpfdw7nKxaZTpbmV9rw&slotNum=2&ie=UTF8&camp=1789&creative=390957&creativeASIN=B002A9JHBM&linkCode=w61&tag=getl-20&linkId=3O3P6DWA5PBIUNL5](https://www.amazon.com/gp/product/B002A9JHBM/ref=as_at/?imprToken=3BTnpfdw7nKxaZTpbmV9rw&slotNum=2&ie=UTF8&camp=1789&creative=390957&creativeASIN=B002A9JHBM&linkCode=w61&tag=getl-20&linkId=3O3P6DWA5PBIUNL5)

Blue Air makes four models based on room size. I called Blue air and they told me a unit can only effectively filter one room. The filter medium last 6 months to one year and costs \$80 for a normal filter and \$120 for the addition of carbon which removes VOCs. Ironically diesel particulate is made of carbon and is doing the same thing as the carbon in the filter, capturing harmful VOCs. However diesel particulate delivers these poisons to our lungs where it can cross the blood barrier due to its microscopic particle size and enter the bloodstream. The Blue Air uses HEPA but gets a smaller particle capture than normal with the addition of an electrostatic charge generation which causes the .1 micron particles to stick to the filter medium even though they are small enough to pass through.

I researched an independent source to verify the technology can do what it advertises. I contacted CA Air Resources Board (CARB) website and Consumer Reports website. CARB only certifies the device in regard to ozone which I believe is created by all ionizers. The Blue Air line likely releases ozone but in quantities deemed safe by CARB. Consumer Reports charged me \$8 to view their air purifier ratings. Blue Air models have the top two spots in the air purifier ratings in Consumer Reports with a rating of 89 and 88. The next two spots were

the Honeywell HPA 300 with a rating of 76 (only captures .3 microns) and the Alen Breathsmart with a rating of 72 (made no claims about particle size capture). Blue Air told me all of their models capture to .1 microns even though this claim was more obvious on some Blue Air models than others on Amazon. Consumer Reports listed some negative aspects of the Blue Air series. These included:

1. High purchase and operating cost: \$250-750 per room depending on room size and \$90-240 per room per year for filter medium depending on whether unit is on 12 or 24 hours per day and a little extra for the inclusion of carbon in the filter.
2. Noise. Consumer Reports cited a higher than normal noise on low and normal noise on high. I called Blue Air and they told me to expect 30 db (30 db is almost inaudible - equivalent to a whisper four feet away according to Tom's hardware) on low and 55 db on high (the sound of a box fan). The idea is to keep it on low when you are home and high when you are away. More expensive Blue Air models have wifi so it can be turned off and on remotely.

Electrostatic ionization generally entails charging particles in the room so they fall to the carpet. I don't like this idea. The Blue Air devices seem preferable by capturing the particles in the filter medium. I believe replacement of the filter medium could be dangerous, releasing particles in the process. Doing this outside would be ideal - the heaviest unit weights about 30 pounds.

HVAC systems are also an option:

Trane CleanEffects

<https://www.trane.com/residential/en/products/add-on-components/cleaneffects/>

American Standard AccuClean Electronic Air Cleaner

<http://www.chicagolandunique.com/electronic-air-cleaners.shtml>

I could not find a consumer reports listing for HVAC electrostatic devices, only for the HVAC filter media itself.