

6 Best Air Purifier for VOCs and Formaldehyde In 2020

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Little do we know that our own sanctuary home is filled with household chemicals that we barely even know it exists. Each chemical would cause different side effects depending on the exposure level and period of time. In this **best air purifier for VOCs and formaldehyde** post, we will learn what is household chemicals, what are the solutions, and who is this for. We will judge each air purifier's effectiveness based on its Smoke CADR (if available), airflow speed, activated carbon filter, and any add-on chemicals specialty. At the end of the page, one of the air purifiers would bound to your needs in reducing the exposure to home chemicals.

What is Household Chemicals?

Household chemicals are common, non-food chemical contaminants that can be found in every household. You can find household chemicals in variety for sources including furniture, glasses, paints, hygiene and consumer goods such as detergent, body wash, pest control, nail polisher, air fresheners. As almost all household items emit chemicals, it is impossible to avoid them. Common chemicals that are emitted from household products including Ammonia, Acetone, Benzene, Formaldehyde, VOCs. Living in an unhealthy environment with a high degree of chemical exposure is hazardous to our health. Depending on how harmful and frequent you are in contact with the chemicals present in the air, short-term exposure includes mild symptoms such as itchy eyes, coughing, nausea, headache, red eyes, and wheezing. Long-term exposure can lead to serious, permanent damage (skin burn, blindness, organ failure), and death.

Who is this for?

People that are suffering from Multiple chemical sensitivity (MCS) would definitely benefit from the list. A family that stays nearby industrial area, factory, or places with high air quality index (AQI). Baby, children, elderly, or asthmatic person that have a weaker immune system. A person staying with or close to smokers also fits into the bill. Last but not least, you can use MCS air purifiers in any house as airborne chemicals and pollutants are everywhere.

2020 Best Air Purifier for VOCs and Formaldehyde

AIR PURIFIER	ONLINE PRICE (AMAZON)	FILTRATION	COVERAGE	SCORE
IQAir GC MultiGas Air Purifier	\$\$\$\$\$\$ <u>CHECK PRICE</u>	4-stage	1125 sq. ft. (105 m ²)	9
Blueair 605 Air Purifier	\$\$\$\$ <u>CHECK PRICE</u>	3-stage	775 sq. ft. (72 m ²)	9
Austin Air HealthMate Plus Air Purifier	\$\$\$\$\$ <u>CHECK PRICE</u>	4-stage	1500 sq. ft. (139 m ²)	8.3
Airmega 300S Air Purifier	\$\$\$\$ <u>CHECK PRICE</u>	4-stage	1256 sq. ft. (117 m ²)	9.1
Alen BreatheSmart FIT50 Air Purifier	\$\$\$\$ <u>CHECK PRICE</u>	3-stage	900 sq. ft. (84 m ²)	8
Winix 5500-2 Air Purifier	\$\$\$\$ <u>CHECK PRICE</u>	4-stage	360 sq. ft. (33 m ²)	8.5

How Do We Measure?



Smoke CADR

A good benchmark to assess the air purifier performance in removing VOS, smoke, and odors. AHAM (Association of Home Appliance Manufacturers) uses a standardized Clean Air Delivery Rate (measured by cubic feet per minute) where cross-comparison is possible between different brands. While not all manufacturers participate in this measurement, we do take CADR into serious consideration. We will evaluate it together with chemical filtration, purifying coverage, and selling price.



Airflow

When chemicals in smokes and odors flow rapidly into our lungs, it can cause severe, irreversible damage to our tissue and heart. What we want from the air

purifier is to have a decent airflow delivery rate with at least 200 cfm. The faster the airflow speed, the more harmful chemicals will be absorbed thus reducing the volume of exposure. We will judge the chemical air purifier based on the flexibility of its airflow output, applicable area and the price category it's in. Priority will be given to models that has an exceptionally high filtration output.



Activated Carbon filter

Chemicals comes different particles size, weight and some are notoriously known to be tricky to deal with. Different activated Carbon filter has different filtration grade against gas and odor particles. What we want from the air purifier is a high filtration carbon filter that would deal with household chemicals, VOCs, cooking odors swiftly and effectively regardless of the types of chemicals. Dedicated/ standalone carbon filter would also gain bonus point in our evaluation.

Specialized chemical's air purifier/ filter

Chemicals come in complex particle size, weight and are notorious to deal with. As such, different activated Carbon filter has different filtration grade against gas and odor particles. A higher grade carbon would not use glue or solvent to hold the filter as it might release back chemicals. That is what we want and we will pick an air purifier that has the best carbon filter to deal with household chemicals e.g. VOCs, formaldehyde, tobacco smoke. A dedicated/ standalone carbon filter would gain bonus points in our evaluation while a carbon sheet will straight be disqualified.

1. IQAir GC MultiGas Air Purifier



Living nearby industrial area that is constantly polluted with unwanted chemicals and contaminants? IQAir GC MultiGas is your answer. It is the best air purifier for VOCs and Formaldehyde with 1125 sq. ft. coverage supported by a powerful 510 cfm airflow delivery

rate. Apart from the strong airflow distribution and extra-wide purifying coverage, this NO1 multiple chemical sensitivities purifier features a unique dual-layer smoke filtration. The outer layer Post-filter Sleeves remove activated carbon and chemisorption abrasion particles via a charged fiber structure. The inner layer GC MultiGas Cartridges eliminate harmful household chemicals from VOCs, Ammonia, and Formaldehyde via an oxidation process. There's even space for the allergens remover HyperHEPA Pre-Filter capable of trapping ultra-particles as small as 0.003 microns. Holding all of that is the sturdy, zero-leak triple-seal body that guarantees no captured chemicals will be leaked out. Adding premium addons like remote control, advanced scheduling, and industrial leading 10 years warranty, IQAir GC MultiGas is undoubtedly the best by a long stretch.

There is a price for such greatness and it is simply unfeasible. IQAir GC MultiGas is very expensive at a cost of more than 1000 dollars before discount. To make matter worse, it is not carried by most of the online dealers due to the limited demand. Not everyone could fork out this big chunk of cash on an air purifier let alone the filter replacement cartridge. Another common issue with a high-performance air cleaner is the unavoidable large body and hefty weight. At 15 x 28 x 16 in dimension and 44 lb weight, moving GC MultiGas around can be challenging even with the casters. Alternatively, you can consider [IQAir HealthPro Plus](#) as your next MCS air purifier. It is also great against volatile organic compounds but with a slightly lower base price.

What's cool:

- The best air purifier for chemical sensitivity. period.
- 12 lbs (5.4 kg) V5-Cell MG granular activated carbon & impregnated alumina (AC/4 + IA/4).
- GC MultiGas Cartridges can last up to 2.5 years.
- PreMax pre-filter + HyperHEPA filter that covers up to 1125 sq. ft. of room size.
- Certified performance with a 6 speed airflow delivery up to 510 cfm.
- Triple-seal, impact-resistant ABS plastic body with 320 degree airflow distribution.
- Industrial leading 10 years warranty.

What's not:

- The most expensive VOC air purifier to own and maintain.

- No Auto mode or air quality indicator.
- Very bulky and heavy to move around even with the casters. Not suitable for small spaces.

MRSP/ RSP**

± 1299 ₪

Annual filter ^

± 196 - 390 ₪

Online price*

EST AMAZON PRICE

2. Blueair 605 Air Purifier



Blueair is another Europe made, premium brand air purifier that can remove harmful gases like VOCs. Unlike IQAir, it has a wide range of product selection from Blueair 203 to the top-of-the-line Blueair Pro XL. What makes Blueair 605 air purifier outstanding is the filter

arrangement setup. The free of chemical additives SmokeStop filter will capture chemicals plus odors like Tobacco smoke, formaldehyde, radon, asbestos, pesticide, and ozone. HEPA particle filter will focus on trapping non-smoke particles (0.1 micron/ 99.97%) like dust mites, dander, and germs instead. Not forgetting the ionizer that electrostatically charges particles to fall from the increased weight. In order for everything to work, a strong 650 cfm airflow speed and wide 775 square feet purifying coverage are needed. Cleaning air delivery rate tallies with the high airflow output with official smoke-free CADR at 500 cfm. The combined filtration will make it impossible for the trapped chemicals from escaping.

Bar the auto mode, Blueair 605 comes with plenty of add-on practicality such as remote control, timer, air quality indicator. Wi-Fi connectivity link with Blueair Friend App is only limited for e series. However, there's a hefty price for everything. One of the big drawbacks of Blueair purifiers is the expensive annual filter replacement cost. In long-run, the maintenance cost is even higher than the IQAir. Apart from that, the bulkiness can be a big obstacle for small spaces. Consider the smaller unit e.g. 405, 205 if you want to save up some cost and space while still enjoy breathing clean air. For those that want a strong chemical filtration air purifier with one of the lowest annual filter replacement costs, see the next item in the list.

What's cool:

- Thermally bonded high-porosity coconut carbon formulated with magnesium dioxide and copper oxide filter.
- Very effective against VOCs and formaldehyde with smoke CADR at 500 cfm.
- 3 speeds that deliver up to 650 cfm airflow delivery rate.
- HEPA-silent technology that covers up to 775 sq. ft. of room size.
- Wi-Fi ready that supports smartphone control.
- 5 years warranty including motor parts.

What's not:

- Very expensive around \$1000 dollars. Same goes with the filter replacement cost.
- No integrated sensors for Auto mode and air quality monitoring.
- The galvanized steel body pushes the weight to 35 lb or 15.9 kg.

MRSP/ RSP**

± 899 p

Annual filter ^

± 230 - 460 p

Online price*

EST AMAZON PRICE

3. Austin Air HealthMate Plus Air Purifier



Austin Air HealthMate Plus is an incredible formaldehyde air purifier in many ways. It has complete chemicals and odors filtration to protect you from VOCs plus other chemicals. It's dead easy to use and it has one of the lowest annual filter replacement costs in the segment. The strong chemicals filtration is made possible from the generous airflow and broad purifying coverage. At max speed, HealthMate 400 cfm airflow output can cover up to 1500 square feet of room space. It can clean the air of an entire apartment or floor with doors opened. The main contributor to chemical removal is 15 lbs. Impregnated Carbon and Zeolite Mixture filter. The filter is fantastic against household chemicals such as VOCS, Ammonia and Formaldehyde. Other airborne particles that are traveling with the chemicals will be captured by the multi-stage pre-filter, medium filter, or 60 ft HEPA filter.

A VOCs air purifier can help you with your headache, breathing discomfort, nausea, eye, nose or throat irritation at home. Austin Air HealthMate Plus is exactly that and so much more. What's not so good about Austin Air HM Plus is the plain vanilla setup that lacks any features like our favorite Auto mode and timer. It this also very boxy and despite the inclusion of casters, we have a hard time moving it from room to room. Pricing wise, it is on the high side unless you for the smaller Junior version. Either way, you will enjoy a very low filter replacement cost due to the long 5 years filter lifespan. It empty features is not something you can part with, consider the well-equipped AIRMEGA 300S.

What's cool:

- The best chemical air purifier that has been used during a wildfire disaster.
- 15 lbs. Activated carbon zeolite filter with the additional additive potassium iodide.
- Long last all-in-one filter that has an average 5 years lifespan.
- Pre-filter, medium particle filter, and 60 sq.ft. True Medical Grade HEPA filter.
- Up to 400 cfm airflow delivery rate with a wide 1500 square feet coverage.
- Comprehensive 5 years warranty from Austin Air.
- Durable powdered coated steel housing with multiple color options.

What's not:

- One of the heaviest air purifiers in the market.
- No auto mode, sleep mode, timer, or air quality indicator.
- Rather noisy operation so running at the lowest speed is a must for night use.

MRSP/ RSP**

± 649 p

Annual filter ^

± 65 p

Online price*

 EST AMAZON PRICE

4. Airmega 300S Air Purifier



One of the best air purifier for VOCs and MCS. Solely based on AIRMEGA 300S exterior design would be a good enough reason to own this magnificent unit. If you include the dual pre-filter and Max2 filter (Green True HEPA filter + activated carbon filter), this air purifier should definitely be in your bucket list. Let's focus back on the filtration. Airflow will be coming from both sides, the dual pre-filter with block dust, hair the other large particles from traveling further. With most PM10 particles filtered out, the HEPA filter will focus on removing tiny particles as small as 0.3 microns with an efficiency of 99.97%. Finally, the activated carbon filter reduces more than 99% of fumes and odors in the air including household chemicals, volatile organic compounds (VOCs), cooking odors, NH₃, and CH₃CHO. Adding the impressive CADR at 260 cfm and wide purifying coverage of 1256 sq. ft. (2 air changes hourly), you no longer have fear of breathing into toxin chemicals in your home.

Other notable features in Airmega 300S includes Wi-Fi connectivity with smartphone pairing (Only available in 400S). Auto mode, sleep mode, front display air quality indicator, and filter life timer are also bundled in the package. With so many pros on AIRMEGA 300S, what's stopping most people from owning one? The expensive price tag is one thing, subsequent

annual filter replacement cost is also another big factor. At 13.6 x 21.2 x 13.6 in dimension and 21.4lb weight, there are much smaller MCS air purifiers in the list. If you want to save up more, consider the Wi-Fi less AIRMEGA 300 or the next item in the list.

What's cool:

- Best air purifier for MCS with JEM 1467:2013 standard Activated Carbon Filter.
- 260 cfm CADR with a wide 1256 square feet coverage.
- Max2 filtration including a Pre-filter and True HEPA filter.
- Wi-Fi enabled that supports loCare app and Amazon Alexa.
- Smart mode with real-time air quality display indicator and adjustable sensitivity.
- 5 years warranty.

What's not:

- Tad expensive to own and maintain.
- Most functions are only available through the apps.
- No built-in light sensor and ionizer.

MRSP/ RSP**

± 749 ₪

Annual filter ^

± 100 ₪

Online price*

 BEST AMAZON PRICE

5. Alen BreatheSmart FIT50 Air Purifier



Any version of the BreatheSmart air purifier will be a good VOCs and formaldehyde air purifier. In this post, we pick Alen BreatheSmart Fit50 as it is "The balanced one" between value and filtration performance. It is cheaper than classic BreatheSmart yet still packed with identical features. The only criteria the must-have HEPA-FreshPlus filter upgrade pack. The all-in-one filter comes with a pre-filter and enhanced HEPA-FreshPlus filter to target smoke and non-smoke particles. With the filter upgrade pack, Fit50 will effectively remove all chemicals, cooking odors, and allergens in the area. Perfect for a hyper allergic person that is sensitive to chemicals, odor, dust, mold, or pet dander. As for the airflow performance, you'll get a mandatory high 900 square feet coverage, up to 231 cfm airflow at max speed, and 220 cfm smoke CADR. Other than the cosmetic customizable front panel, Alen BreatheSmart Fit50 comes with many practical features to help better manage your chemical situation. Ever useful features like Auto mode, air quality indicator, timer, and remote control are all-inclusive. Being an Alen air purifier, there is a lifetime warranty on motor and parts for future peace of mind ownership. The longer than average filter lifespan is welcome as it would save you money and time in dealing with household pollutants.

One of the main challenges of owning Fit50 as your chemical air purifier is definitely the cost. While is not the costliest in this list, you could go with a cheaper air purifier from Winix that comes with a comprehensive 5-stage filtration. The noise level is slightly loud at high

speed but still manageable. Nevertheless, the invaluable lifetime warranty and longer filter lifespan could work in BreatheSmart Fit50 favor in the long-run.

What's cool:

- MCS air purifier with the 1 BF35-VOC Activated Carbon layer HEPA-FreshPlus filter.
- 110-231 cfm airflow delivery rate with up to 900 square feet coverage.
- 4 fan speeds with advanced SmartSensor, timer, and auto mode.
- All-in-one HEPA filter that can last up to 18 months.
- Many variation and interchangeable panel with plenty of design to go for.
- Lifetime limited warranty excluding filter.

What's not:

- Audible noise level at max speed.
- The default HEPA-pure filter lacks the odor filtration needed to remove VOCs and chemical gases.
- Can be costly if you include the filter upgrade and optional designer panel.

MRSP/ RSP**

± 499 ₪

Annual filter ^

± 53 - 158 ₪

Online price*

BEST AMAZON PRICE

6. Winix 5500-2 Air Purifier



In today standard home, there is a great percentage of chemicals in our indoor air that we might not even notice. Exposing to the toxin gases can lead to unwanted allergic reactions such as headache, dyspnea, nose and throat irritation. If you are on a tight budget yet need a reputable air purifier to clear off chemicals like VOCs, Formaldehyde, Ammonia, Radon in your home, look no further. Firstly, Winix 5500-2 cost half of other chemical air purifiers here with little compromise on performance. Secondly, it has a dedicated Advanced Granular Carbon Filter that works great against household chemicals and cooking odors. Supporting the AOC filter is a pre-filter and HEPA filter that can trap large to microscopic particles. PlasmaWave technology is also here to help with the air cleaning process. Adding the high smoke-free 232 cfm CADR and 360 sq. ft. purifying coverage into the equation, there is no better budget-friendly air purifier to stand beside you against this never-ending battle.

Despite coming at an attractive price point, you will get an air quality indicator, 4 speed with auto mode, and sleep mode as standard. There is even a remote control thrown in for added convenience. As mentioned earlier, there is a dip in airflow performance and quality of the filtration when compared with the premium model. Filter cost is not the lowest, but it is expected for a chemical air purifier. Take nothing away from the air purifier capability in removing VOCs and formaldehyde. Considering the price and add-on features you will get, Winix PlasmaWave 5500-2 would not disappoint you.

What's cool:

- Washable AOC Carbon Filter with activated carbon granules that is great at removing pungent smell.
- Less than 200 yet comes with Auto/ Sleep mode, timer, remote control, and AQ indicator.
- 4-stage PlasmaWave filtration with a decent 360 sq. ft. coverage and 232 cfm smoke free CADR.
- Classic permanent pre-filter + True HEPA filter.
- "Only" 2 years warranty while newer model comes with 5 years.

What's not:

- Performance and filtration are not the best, but suitable against household chemicals.
- Filter replacement cost is slightly on the higher side.

MRSP/ RSP**

± 249 p

Annual filter ^

± 80 p

Online price*

BEST AMAZON PRICE

** MRSP (Manufacturer's Suggested Retail Price)/ RSP (Retail selling price) is provided by cleanairprice.com. Accurate at the time of posting.

^ Annual filter cost is calculated based on filter price and 12 hours of usage. Pricing could vary depending on air quality, usage frequency, and speed.

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What Are VOCs And Why Are They Dangerous?

Volatile Organic Compounds (VOCs) are a group of organic chemicals that have a high vapor pressure at room temperature. The chemicals are colorless, sometimes odorless depending on the products it is mixed with. VOCs can be found in a wide array of household products such as paints, varnishes, caulks, adhesives, vinyl flooring, foam, and

composite wood products. Home & personal care products include wax, perfume, air fresheners, cleaning/ disinfecting products, cosmetics, fuel oil, gasoline, carpet, upholstery, and furniture. Activities such as smoking, cooking, dry cleaning, photocopiers, remodeling, painting, hobbies, or burning wood will also off-gas VOCs. There are three groups of VOCs assigned by the boiling point of each chemical: Very Volatile Organic Compounds (VVOCs), Volatile Organic Compounds (VOCs), and Semi Volatile Organic Compounds (SVOCs). Common VOCs that can be found in our daily lives include formaldehyde, benzene, ethylene glycol, methylene chloride, tetrachloroethylene, toluene, xylene, and 1,3-butadiene.

VOCs on its own is dangerous that can pose huge health problems when inhaled. During inhalation, VOC molecules will travel into our lungs, spread through the bloodstream, and body's soft tissues. Every chemical in VOCs has a different level of toxicity with adverse health effects. Children and elderly are at a higher risk due to their weakened immune system. VOCs also contribute to the formation of Tropospheric ozone and smog. Tropospheric ozone is a reaction between nitrogen oxides (NOx), carbon monoxide (CO), and volatile organic compounds (VOCs) in the atmosphere. During the winter season, VOCs is responsible for causes smog formation due to temperature inversion.

Can VOCs Make You Sick?

Breathing in VOCs can make you sick particularly people with asthma or Multiple chemical sensitivity (MCS) disease. Acute/ short term exposures of VOCs can cause breathing difficulty, headache, nausea, dizziness, loss of coordination, aggravating asthma, eyes, nose, and throat irritation. Chronic/ long term exposure to VOCs arises to health effects from cancer to the liver, kidney, and central nervous system damage. As Volatile organic compounds can easily become gases or vapors, the health effects risk varies depending on the type of chemicals, exposures, and the volume in the air. Since VOCs may or may not be odorless, you should not use the smell as a health risk indicator.

What Level Of VOC Is Dangerous?

Less than **0.3 mg/m³** of TVOC concentration level is considered safe. TVOC concentration level between **0.3 to 0.5 mg/m³** is acceptable. TVOC level between **0.5 to 1 mg/m³** is considerably high and TVOC concentration level from **1 mg/m³** onwards is very dangerous and should cause concern. TVOC stands for total VOC or total volatile organic compounds. It is a common reporting term for grouping multiple organic chemical compounds present in the air or emissions. TVOC is measured in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), milligrams per cubic meter (mg/m^3), parts per million (ppm) or parts per billion (ppb).

How To Remove VOCs And Formaldehyde From Indoor Air

As VOCs will start off-gassing in a product for an estimated 10-20 years, you will need to act quickly to reduce the exposure of the chemicals. Here are ways you can swiftly remove VOCs from indoor air.

- Install an air purifier with a carbon filter in every room.
- Increase room ventilation by opening windows and HVAC system.
- Place air-filtering, potted plants around the house.
- Use natural household cleaning products.
- Never smoke indoor.
- Never use an ozone generator.
- Replace the plastic product, ceiling board, wallpaper or paint with low VOC alternatives.
- Hire professionally cleaner to clean the house.

Can HEPA filter Remove VOCs or Formaldehyde?

A HEPA filter cannot remove VOCs, Formaldehyde, or any gaseous pollutants. It is designed to remove non-smoke particles like airborne dust, mold, pollen, pet dander, and germs that pass through the filter. A True HEPA filter can capture 99.97% of particles as small as 0.3 microns, chemical gaseous is around 1000 times smaller than what a HEPA filter can capture. HEPA filter also does not use adsorption technology therefore VOCs or smoke particles will not stick to the filter. Instead, you will need an activated carbon or granulated carbon filter to capture VOCs and prevent any off-gassing.

Can Activated Carbon Filters Remove VOCs and Formaldehyde?

An activated carbon filter can remove VOCs and other gaseous from the air through adsorption. Adsorption is not the same as absorption. Do not be confused by it. During adsorption, pollutants are chemically bonded to the tiny carbon particles on the outer surface bed. Because carbon filters consist of many carbons or charcoals, there will be plenty of hollow holes for the gaseous to chemically stick to. As for absorption, the gaseous pollutants are trapped inside the carbon filter structure, just like a sponge. With absorption,

it is still possible for the VOCs and Formaldehyde gases to release back into the air as it is less secure.

Most carbon filters can remove smoke particle sizes between 0.5 to 50 micrometers. The longer the air purifier is running, the more chemical particles and odors will be trapped by the carbon filter. The efficiency of the carbon filters depends on the filter lifespan, humidity, and ambient temperature. Most activated carbon filters need to be replaced quarterly or yearly to prevent off-gassing. This is because the surface area of the activated carbon filter will be filled up until there is no space for the filter to capture the VOCs. High humidity can also decrease the filter lifespan as the water molecules will take up the space that is supposed to mean for chemical gases. Last but not least, high room temperature may cause the trapped VOCs and Formaldehyde released back out. We may have inhaled the chemical gases before the air purifier has a chance to recapture the pollutants.

How To Select An Air Purifier For VOCs And Formaldehyde

Picking the best air purifier for formaldehyde and VOCs can be a little bit tricky if you are a first-time purchaser. There are less known VOCs air purifiers in the market compared with a HEPA air purifier. To help you choose the already limited option out there, here are some of the features you should look into when purchasing an air purifier for chemicals.

- **Room size coverage** - A good VOCs air purifier will need to have a strong smoke CADR and at least 200 cfm to cover for a large living room, master bedroom, basement, or garage. If you intend to neutralize VOCs and odor in a specific place, calculate the room size including ceiling height. Pick an air purifier that can support that with at least 2 air changes per hour.
- **Activated carbon filter** - The most important filter for a chemical air purifier. To effectively remove VOCs and smoke particles, only go with a carbon filter designed for chemical adsorption. Research and compare what absorbent media is used in the carbon filter. Addictive like impregnation, zeolite pellet, alumina, potassium, coconut shells, or coal can increase the filter effectiveness against smoke particles. Never go with a carbon pre-filter that uses a thin carbon sheet, sponge type or baking soda.
- **HEPA filter** - Having a reliable HEPA filter will complement well with an activated carbon filter. Even though a True HEPA filter cannot remove smoke particles, it will capture 99.97% of the airborne particles as small as 0.3 microns. With a HEPA filter, inflow air filled with mold, pollen, dust mites, pet dander, bacteria, and viruses will be purified before it reaches the carbon filter.

- **Other filtration technology** - Pre-filter, PCO, Ionizer, UV-light also play a role in improving indoor air quality. By neutralizing VOCs and odors carrying contaminants, it prevents the chemicals from spreading in the air. It also protects and reduces the workload of the activated carbon filter.
- **VOC sensor** - Some air purifier comes with a built-in VOC or odor sensor that will monitor surrounding VOCs and gases. Paired with an Auto mode, the air purifier will automatically adjust the fan speed based on the volume of chemicals in the air. Alternatively, you can purchase a separate TVOC and Formaldehyde sensor to monitor and detect VOCs in the room.
- **Noise level and power** - A factor that can be critical for some people. Some air purifiers generate more noise than others due to their high airflow output. If you plan to use the air purifier throughout the night, go with a model that has a noise output of less than 30 dB at low speed. The power consumption impact is not as great as the noise level. As chemical sensitive people with leave the air purifier on 24x7, a non-energy efficient will drive up the electricity bill slightly. So pick a model with Auto mode that can better manage the air purifier energy usage.
- **Never purchase an Ozone Generator** - For no reason you should purchase one. Not only the ozone generator will not remove VOCs, the unstable ozone molecules generated can react badly with VOCs. It will cause damage to your lungs tissue cells and worsen asthma symptoms.
- **Warranty** - Electronic devices will breakdown especially if you use it on a regular basis. The longer the warranty period, the better assurance you will get on the product's durability. 1-year warranty is standard and most air purifiers now come with 2-5 years warranty. Brands like Alen air purifiers even offered a lifetime warranty for parts and labors. Look into the details on what does the warranty covered, is there a 1 to 1 exchange, and where is the service center.

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Health