

Blueair Performance Book

Blueair

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Blueair

Headquartered in Stockholm, Sweden, Blueair is the leading provider of air purification solutions for people who want to breathe clean air and live healthier lives. Sold in countries all over the world, our high-performance air purification solutions are energy-efficient and responsibly made. Through our unwavering commitment to excellence, research and constant innovation, Blueair is shaping the way the world breathes to make people feel more alert and alive – today and tomorrow.

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People often wonder how to select the best air purifier for their needs. There is a lot of information out there, and it can be hard to make sense of it all. The Blueair Performance Book provides you with hard facts about indoor air pollution and Blueair air purifiers – from performance, energy efficiency and noise levels, to pollutant removal, quality and safety standards.

Indoor air pollutants

Although some pollutants that affect indoor air quality originate outdoors, most come from sources inside buildings. While some are naturally occurring, such as dust, molds, pollen, viruses and pet dander, others are man-made. Activities such as cooking and heating produce pollutants, as do materials commonly used in our homes. All of these have the potential to harm our health.

Some pollutants of concern indoors include:

- Combustion byproducts such as carbon monoxide, particulate matter and environmental tobacco smoke
- Substances of natural origin such as radon and pet dander
- Biological agents such as molds
- Pesticides, lead and asbestos
- Various volatile organic compounds (VOCs) from a variety of products and materials

Health effects associated with indoor air pollutants include:

- Irritation of the eyes, nose and throat
- Headaches, dizziness and fatigue
- Respiratory diseases including asthma and allergies, heart disease and cancer

HEPASilent™ technology

Blueair's team of talented designers, filtration specialists, engineers and researchers have consistently chartered new directions and pushed the envelope in innovation. This quest for clean air has resulted in purification systems that deliver top rated results, while never making a noise louder than a whisper. Here, we take a closer look at Blueair's revolutionary filtration technology.

Filtration efficiency
The efficiency of an air purifier is measured on the amount of pollutants that are removed from the air after it has pass through the filter once.

Clean air delivery rate
The amount of clean air produced by an air purifier per unit of time.

Blueair's air purifiers use the trademarked HEPASilent™ filtration technology. This combines two types of particle filtration, electrostatic and mechanical, resulting in a filtration efficiency superior to either technology alone. Due to this combination, Blueair's air purifiers are able to use less dense filters, resulting in a high airflow and thereby a high Clean Air Delivery Rate (CADR). Less dense filter media and high airflow also ensure lower noise levels and energy consumption.

Blueair's HEPASilent™ technology captures at least 99.97% of airborne particles down to 0.1 microns in size.

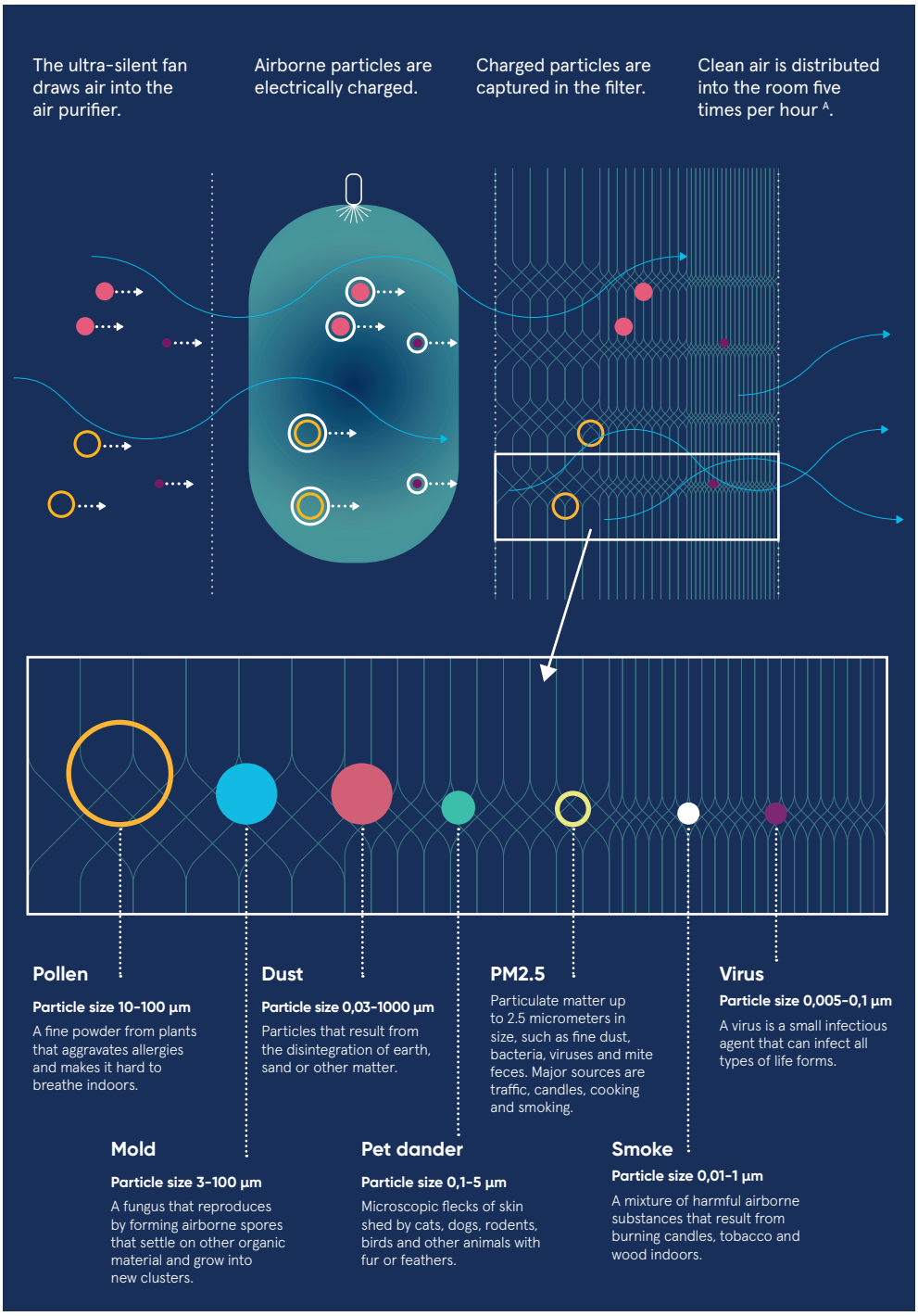
HEPASilentPlus™

The HEPASilentPlus™ technology includes an additional filter where larger particles are removed. Since that leaves fewer particles needing to be charged in the electrostatic filtering process, each particle receives a higher charge which further increases the unit's filtration efficiency.

Read more about the HEPASilent™ technology in the Particle removal chapter.

Particles captured on contact

Blueair's HEPASilent Technology is able to capture at least 99.97% of airborne particles down to 0.1 microns in size. This graph shows the filtration process, as well as how and where different types of pollution particles are efficiently captured.



[A] According to AHAM AC-1

Clean Air Delivery Rate

When choosing an air purifier, performance should be considered first. Blueair units are top performers in reducing indoor air pollution. The two major factors that should always be viewed together when evaluating the total performance of an air purifier are its ability to remove impurities in the air and the size of its airflow. Combined these determine how much clean air the air purifier produces.

TVOC (Total Volatile Organic Compounds) is a measurement of the total concentration of VOC's in the air.

PM0.3 is particulate matter that is 0.3 microns or less in diameter. These particles penetrate deep into the respiratory system, causing lung disease.

CADR stands for Clean Air Delivery Rate and is measured in cubic feet per minute, or cubic meters per hour. This measurement indicates how much 100% clean air is delivered by the air purifier and how well the system removes impurities from the air. The higher the CADR value, the more clean air is produced by the air purifier and the better it will be at cleaning the air in a room. Clean Air Delivery Rate can be measured for both particles and gases.

CADR Standards

There are different methods and standards for measuring and calculating the CADR value of an air purifier. Some methods focus on particle removal and some on removal of gaseous pollutants, while some measure both. The different methods may result in different CADR values. However, the CADR value will make it easier for the consumer to compare the performance of air purifiers tested according to the same method. Blueair products are tested according to various globally and locally used CADR standards. In China, tests on formaldehyde, VOC's and tobacco smoke are used to determine the CADR values. Potassium chloride (PM0.3) is measured in Korea. Dust and tobacco smoke is tested in Japan, and the Association of Home Appliance Manufacturers (AHAM) use tobacco smoke, dust and pollen to determine the CADR for different sizes of pollutants.

CADR

Clean Air Delivery Rate of Blueair products tested according to AHAM and standard GB/T 18801-2015

	ANSI / AHAM AC-1 (m³h / cfm)			CADR GB/T 18801-2015 (m³/h)			
Classic series	**Smoke**	**Dust**	**Pollen**	**Particlate**	**Formaldehyde**	**Toluene**	**TVOC**
205 PA	306/180	340/200	340/200	-	-	-	
205 SM	-	-	-	265	26	104	
280i PA	306/180	340/200	340/200	-	-	-	
280i SM	-	-	-	265	26	104	
405 PA	476/280	510/300	510/300	-	-	-	
405 SM	-	-	-	318	20	78	
480i PA	476/280	510/300	510/300	-	-	-	
480i SM	-	-	-	318	20	78	
505 PA	765/450	680/400	765/450	-	-	-	
505 SM	-	-	-	440	34	186	
580i PA	765/450	680/400	765/450	-	-	-	
580i SM	-	-	-	440	34	186	
605 PAC	850/500	850/500	1087/640	-	-	-	
605 SM	-	-	-	440	40	157	
680i PAC	850/500	850/500	1087/640	-	-	-	
680i SM	-	-	-	440	40	157	
Blue series							
121 [A]	-	-	-	639.9	103		86.4
211/211+/221 [B]	590/350	590/350	590/350	-	-		-
221 [A]	-	-	-	522.7	52.2		46.8
221 PA	590/350	590/350	590/350	-	-		-
411 [B]	180/105	200/120	200/120	-	-		-
Sense+ series							
Sense+ PAC	204/120	238/140	255/150	-	-	-	
Pro series							
Pro M PA	425/250	485/285	595/350				
Pro M SM	-	-	-				
Pro L PA	833/490	1070/630	1020/600				
Pro L SM	-	-	-				
Pro XL PA	1359/800	1614/950	1529/900				
Pro XL SM	-	-	-				

Tests according to ANSI/AHAM AC-1 performed on US version, 120V units with Particle filter on highest speed setting.

Tests according to GB/T 18801-2015 performed on 230V units on highest speed setting.

SM – Blueair SmokeStop Filter

PA – Blueair Particle Filter

PAC – Blueair Carbon Sheet

[A] With Particle and Honeycomb filter.

[B] With Particle and Carbon mesh filter.

AHAM Verifide program

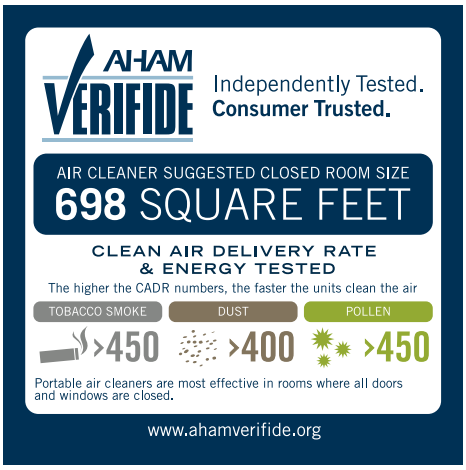
The AHAM Verifide Program is an independent program of the Association of Home Appliance Manufacturers (AHAM) that aims to ensure that performance testing results are accurate and impartial. The program is endorsed by both the U.S. Food and Drug Administration (FDA) and the U.S. Environmental Protection Agency (EPA). "AHAM Verifide" has become a globally respected performance indicator for air purifiers and is used by many leading air purifier manufacturers. Blueair is one of the member companies of AHAM and the air purifiers are regularly tested according to their specifications.

AHAM requires CADR tests and calculations to be performed in accordance with the ANSI/AHAM AC-1-2015 standard, which is the only air purifier standard recognized by the American National Standards Institute, ANSI. This specifies how the CADR of an air purifier is converted to relate to room size and how air purifying products are correctly marked. When this is done, an air purifying unit can be marked with the AHAM Portable Electric Room Air Cleaner Certification Seal. Blueair units carry this seal, proving that they are accurately tested. The seal also makes it easier to get information about the unit's performance and recommended room size.

AHAM requires CADR tests to be performed for tobacco smoke, dust and pollen. Smoke represents particles in the 0.1-1 µm range, while dust particles fall between 0.5-3 µm and pollen particles between 5-11 µm in size. The maximum stated CADR values allowed according to the ANSI/AHAM AC-1-2015 standard is 400 cubic feet per minute (cfm) for dust and 450 cfm for cigarette smoke or pollen. However, many Blueair products are able to deliver values far above these.

All AHAM Verified products are marked with the AHAM Verified symbol and a label stating the verified performance values. The label includes information about the recommended rooms size as well as the CARD values for Smoke, Dust and Pollen. The label also includes a link to the AHAM verified website where the CADR values for all verified model can be found.

Learn more about AHAM and find more information including CADR values for all verified air purifiers on AHAM's website: http://www.ahamdir.com



Recommended room size

Blueair units are designed for use in all types of environments, from small bedrooms to large open areas. The basic task of an air purifier is to remove the pollutants from the indoor air faster than they enter. To achieve this, it is necessary to choose a unit suitable for the size of the room where it is to be be used.

In normal indoor situations polluted air is constantly entered in to the room through ventilation or poorly sealed windows. An easy way to find out if an air purifier has the capacity to keep the air in the intended room constantly clean is to look at its recommended room size. In general, an air purifier with a higher clean air delivery rate will be able to clean a larger room than an air purifier with a lower clean air delivery rate.

Different standards have different methods for calculating the recommended room size. According to the standard ANSI/AHAM AC-1, the maximum room size recommendation is based on the air purifier's clean air delivery rate, using the formula CADR (for smoke) x 1.55, and on its possibility to keep the particle levels in the air constantly 80% lower than without an air purifier. In order to keep the amount of airborne particles at a constant level, the air purifier must, according to ANSI/AHAM AC-1, fully exchange all the air in the room five times per hour.

The Chinese standard GB/T 18801-2015 requires the recommended room size to be specified on the product's rating label. The recommended room size is based on the unit's CADR and takes local pollution variations into consideration. In order to keep the amount of airborne particles at a constant level, the air purifier must, according to GB/T 18801-2015, exchange the air in the room 3.6 or 6 times per hour, depending on whether it is used in less polluted or more polluted areas.

Recommended room size

Recommended room size according to ANSI AHAM AC-1 of Blueair Products – based on five air changes per hour

Classic series	AHAM recommended room size
200 series	26 m²/279 sq. ft
400 series	40 m²/434 sq. ft
500 series	65 m²/698 sq. ft
600 series	72 m²/775 sq. ft

Sense+ series	
Sense+ PAC	18 m²/186 sq. ft

Blue series	AHAM recommended room size
121 [A]	57 m²/620 sq. ft
211/211+/221 PA/ 221 [A] /221 [B]	50 m²/540 sq. ft
411 [B]	15 m²/161 sq. ft

Pro series	
Pro M series	36 m²/390 sq. ft
Pro L series	72 m²/780 sq. ft
Pro XL series	110 m²/1180 sq. ft

Test according to ANSI/AHAM AC-1 performed on US version, 120V units with Particle filter on highest speed setting.

PAC – Particle and Carbon Sheet

[A] With Particle and Honeycomb filter.

[B] With Particle and Carbon mesh filter.

Why Air Changes per hour matters

If the air purifier is placed in a larger room than it is recommended for, the number of air changes per hour (ACH) will be reduced and the air quality will be affected negatively. The opposite will be true if the air purifier is used in a room smaller than its recommended size.

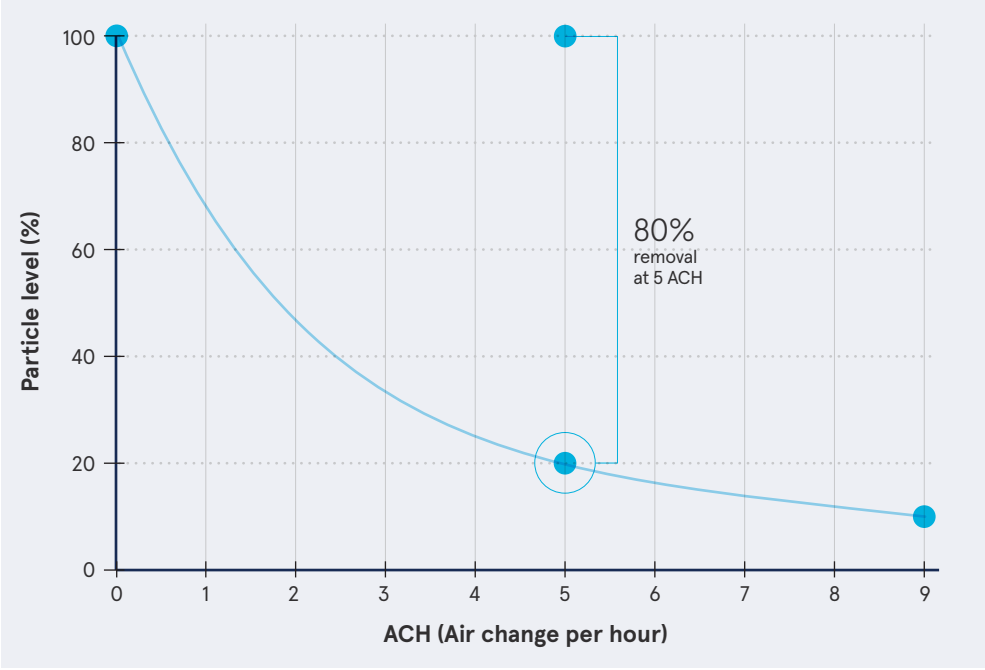
The below chart shows how the particle levels in a room are affected by the number of air changes per hour (ACH) according to ANSI/AHAM AC-1. The graph shows that the particle levels are reduced by approximately 30% with one air change per hour, or 1 ACH.

With 5 ACH, the particle level is down approximately 80% compared to a room without an air purifier. When comparing air purifiers from different manufacturers, make sure that the recommended room sizes are comparable and most importantly that the stated room size is specified at the same ACH.

An AHAM verified Blueair air purifier delivers 5 air changes per hour, based on recommended room size, ensuring the air quality in a room is excellent.

Particle levels at different Air Changes per hour

Remaining particle levels in a room with the recommended room size (according to ANSI/AHAM AC-1) at different number of air changes per hour.



Energy efficiency

To ensure maximum performance, an air purifier should run 24 hours a day, seven days a week. For this reason, Blueair products are developed with low power consumption in mind, making sure environmental impact – as well as cost of ownership – is as low as possible.

The HEPASilent™ technology used in all Blueair air purifiers allows the fan to push air more easily through the unit's filter. This ensures a high cleaning capacity also at lower fan speeds, resulting in lower power consumption. Naturally, air purifiers with a higher CADR, intended for use in larger areas, will have a higher power consumption than air purifiers for smaller areas. For this reason, the power consumption should always be compared to the CADR performance of the unit. A common way to compare the power consumption of different air purifiers is to look at the CADR/Watt measurement. The higher CADR/W, the better efficiency.

Energy Star

ENERGY STAR is a globally recognized program of the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy. The program was developed to help consumers save money and to protect the environment through energy efficient products. Criteria required for ENERGY STAR qualification for air purifiers include CADR based on AHAM values, CADR/Watt, standby power usage and ozone emission. More specifically, to meet ENERGY STAR qualifications, units require a ≥ 50 cubic feet per hour Clean Air Delivery Rate (CADR) and a ≥ 2.0 Dust CADR/Watt for dust, as well as a ≤ 2.0 Watts standby power usage. Blueair was among the first air purifier manufacturers to earn the ENERGY STAR designation for all its models and thanks to their high CADR, Blueair air purifiers significantly exceed the minimum ENERGY STAR requirements.

Learn more about the ENERGY STAR program for air purifiers and find more information about Blueair's ENERGY Star certified products in the Energy Star online directory at: https://www.energystar.gov/products/appliances/air_purifiers_cleaners

Marks and labels

Only products that meet the ENERGY STAR requirements and have become certified by ENERGY STAR are allowed to bear the ENERGY STAR Logo. The logo is placed on the product packaging or on unit and should be accompanied by the following statement:

> This product earned the ENERGY STAR by meeting strict energy efficiency guidelines set by the US EPA. US EPA does not endorse any manufacturer claims of healthier indoor air from the use of this product.

Local energy efficiency programs and certifications

In addition to being ENERGY STAR certified, Blueair products are also tested according to local energy efficiency programs such as MEPS (Minimum Energy Performance Standards) in Korea and GB/T 18801-2015 in China.

Energy consumption

Energy consumption values of Blueair Products, presented in watts

Classic series	Speed 1	Speed 3
205 PA	20	80
205 SM	20	80
280i PA	20	80
280i SM	20	80
405 PA	15	90
405 SM	15	90
480i PA	15	90
480i SM	15	90
505 PA	15	100
505 SM	15	100
580i PA	15	100
580i SM	15	100
605 PAC	15	100
605 SM	15	100
680i PAC	15	100
680i SM	15	100

Blue series	Speed 1	Speed 2	Speed 3
121[A]	30	-	61
211/211+/221 PA/ 221[A]/221[B]	30	-	61
411[B]	1.5	-	10
Sense+ series			
Sense+ PAC	7	20	45
Pro series			
Pro M PA	11	19	85
Pro M SM	11	19	85
Pro L PA	22	38	170
Pro L SM	22	38	170
Pro XL PA	33	57	256
Pro XL SM	33	57	256

SM – Blueair SmokeStop Filter
PA – Blueair Particle Filter
PAC – Blueair Carbon Sheet

[A] With Particle and Honeycomb filter.
[B] With Particle and Carbon mesh filter.

Noise

High noise can cause severe annoyance and can even affect health, causing physical and mental stress. Blueair's HEPASilent™ technology is able to deliver high performance with low noise, making our units the perfect air purifiers for rooms where silence is desirable, such as bedrooms.

Noise from air purifiers generally comes from the fan or motor and the air pressure through the filter. Blueair's whisper-silent operation is a result of the HEPASilent™ filtration technology and the use of less dense filters that allow the fan in our units to push air more easily through the filter, resulting in a high cleaning capacity while keeping the noise levels down.

When specifying an air purifier's noise level, an A-weighted decibel value, or dB(A), is commonly used. This value indicates how the loudness is perceived by human ears. "A-weighted" means that the measurement compensates for the ear's inability to perceive all acoustic frequencies in the same way.

It should be mentioned that the dB(A) value alone does not provide enough information in order to determine how "noisy" an air purifier is. The noise levels should always be seen in the light of the unit's overall performance, such as CADR. The characteristics of noise, tone and how the individual subjectively perceives the noise also weigh in. Blueair puts emphasis on all these aspects during development in order to create the best overall user experience.

Testing and results

At Blueair's testing facilities, all units are tested for noise by measuring A-weighted sound pressure levels, dB(A), in a normal sized room (around 74m³ or 2613 cubic feet in size). The testing room has a mix of soft and hard surfaces in order to simulate a normal living room or bedroom. See Appendix for Blueair product details.

Another way to measure noise is to measure the product's sound power. Though using the same measuring unit of dB(A), sound power and sound pressure is measured and calculated in different ways and usually differ, even for a specific model. When sound power levels, dB(A), are required, Blueair performs tests according to ISO standard 3741:2010. These tests are done in a reverberation room with the volume 200 m³. See Appendix for Blueair product details.

Please note that the many different standards and methods for measuring sound can affect the sound levels and make comparing different models and brands more complicated.

The sound power is the acoustic energy emitted per unit of time by a source which creates a sound pressure at some distance. While the sound power level of a source is fixed, the sound pressure level depends upon the distance and direction from the source and the acoustic characteristics of the area in which it is located.

Noise

Noise levels of Blueair products, presented in decibel

Noise pollution is an excessive amount of unpleasant sound, mainly caused by traffic, industry and community activities. It can lead to stress, fatigue, hearing loss, cognitive impairment and heart disease.

The sound power is the acoustic energy emitted per unit of time by a source which creates a sound pressure at some distance. While the sound power level of a source is fixed, the sound pressure level depends upon the distance and direction from the source and the acoustic characteristics of the area in which it is located.

SM – Blueair SmokeStop Filter

PA – Blueair Particle Filter

PAC – Blueair Carbon Sheet

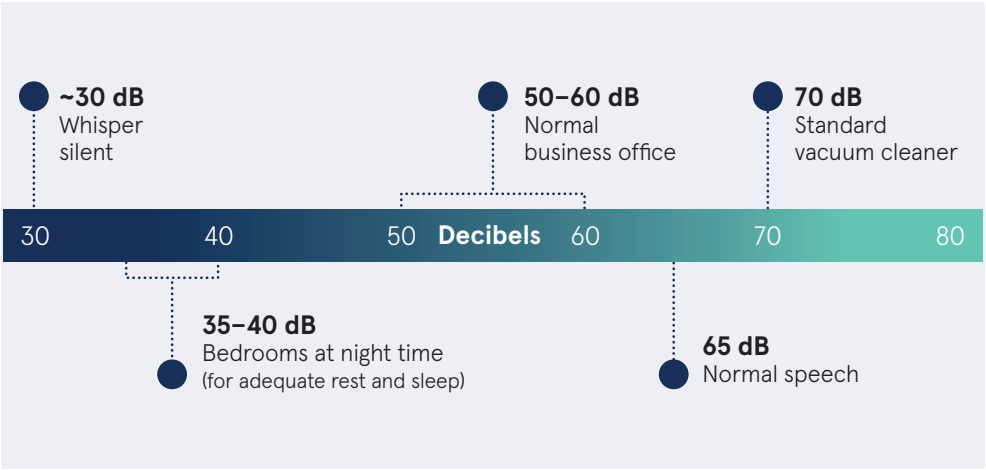
[A] With Particle and Honeycomb filter.

[B] With Particle and Carbon mesh filter.

	Sound Pressure (dB(A))			Sound Power (dB(A))		
Classic series	**Speed 1**	**Speed 2**	**Speed 3**	**Speed 1**	**Speed 2**	**Speed 3**
205 PA	32	-	56	34	45	56
205 SM	32	-	56	34	45	56
280i PA	32	-	56	34	45	56
280i SM	32	-	56	34	45	56
405 PA	32	-	52	30	37	61
405 SM	32	-	52	30	37	61
480i PA	32	-	52	30	37	61
480i SM	32	-	52	30	37	61
505 PA	32	-	62	28	45	65
505 SM	32	-	62	28	45	65
580i PA	32	-	62	28	45	65
580i SM	32	-	62	28	45	65
605 PAC	32	-	62	29	45	65
605 SM	32	-	62	29	45	65
680i PAC	32	-	62	29	45	65
680i SM	32	-	62	29	45	65
Blue series						
121[A]	31	-	56	40	54	63
211/211+/221 PA/ 221[A]/221[B]	31	-	56	40	53	63
411[B]	17	-	46	-	-	-
Sense+ series						
Sense+ PAC	29	40	50	35	50	56
Pro series						
Pro M PA	32	34	55	31	41	57
Pro M SM	32	34	55	31	41	57
Pro L PA	32	34	55	35	45	62
Pro L SM	32	34	55	35	45	62
Pro XL PA	32	35	58	36	46	62
Pro XL SM	32	35	58	36	46	62

Sound power levels

The following references can be used as guidelines when comparing noise levels:



Learn more about noise:

https://www.epa.gov/clean-air-act-overview/title-iv-noise-pollution

Particle, bacteria and virus removal

Air purifiers are designed to remove both ultra-fine and coarser particle pollutants from the air. Most particle pollutants come from the incomplete burning of fossil fuels in vehicle motors, industrial processes and power plants, from natural combustion sources like forest and brush fires, or from other natural sources such as dust, pollen, mold, pet dander, viruses and bacteria. Effective removal of these pollutants contributes to a healthier indoor environment.

Particulate Matter

Particulate matter, or PM, is the term for a mixture of solid particles and liquid droplets found in the air, whose major components are black carbon, sulfate, nitrates, ammonia, sodium chloride, mineral dust, and water. A synonym for particle matter commonly used when particles occur together with gases is aerosol.

Filtration Efficiency

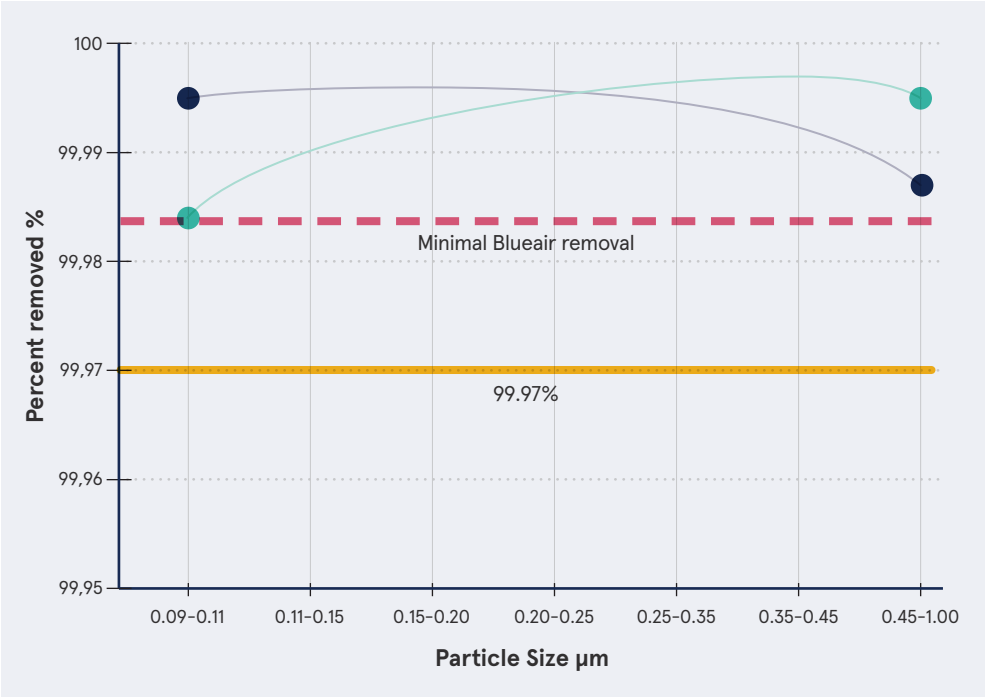
The efficiency of a filter is measured on the amount of pollutants that are removed from the air after it has passed through the filter once. The more pollutants that are removed after one air change, the higher the efficiency. The HEPASilent™ filtration technology used in all Blueair products is highly efficient and captures at least 99.97% of particles down to 0.1 microns in size.

Testing and results

In May 2017 and January 2018, tests were done at RISE Research Institutes of Sweden AB in order to verify the filtration efficiency of the HEPASilent technology. Two filter media used for the Blueair Classic and Pro air filters were tested with charged particles according to the method specified in the European standard EN 1822-5:2009. Similar to previously performed tests, the results confirmed that the HEPASilent technology has a filtration efficiency of at least 99.97% for particles down to 0.1 microns in size.

HEPASilent™ technology filtration efficiency

Graph shows how many percent of particles in varying sizes are removed by Blueair's HEPASilent™ technology



Filter Efficiency tests performed with filter media used in the Classic and Pro models according to standard EN 1822-5:2009 (Determining the efficiency of filter elements). The tests measured the filtration efficiency of charged particles.

Removal rate
How fast the unit is able to remove pollutants from the air.

Clean Air Delivery Rate

As described earlier in this document, the filtration efficiency of a system in combination with the air purifier's airflow determines how well the unit will clean the air. Only in combination with a high airflow will a high efficiency lead to good air purification. An air purifier's ability to remove particles is commonly specified by stating its Clean Air Delivery Rate, or CADR. The higher the CADR value, the more clean air is produced by the air purifier and the better it will be at cleaning the air in a room.

Removal rate

CADR not only indicates how much filtered air is delivered by the air purifier, but is also a measurement of how fast the unit is able to remove pollutants in the air. A unit with a high CADR will be able to clean the air in a room of a specific size faster than a unit with a lower CADR. The amount of pollutants that the unit removes during a specified period time is referred to as the unit's removal rate (%). The removal rate is calculated by comparing the initial amount of pollutants with the amount of pollutants remaining after the specified period of time has passed. The higher the removal rate, the fewer particles remain.

Testing and results

In July and December 2017, Blueair conducted extensive tests on the models in the Blue and Classic families. The removal rate of a wide range of particulates such as particle matter >0.3 microns, mold, virus and bacteria were tested. Tests were done by Guangzhou Testing Center of Industrial Microbiology, China and The Guangzhou CAS Test Technical Services Co., Ltd, China. They were done on particle filters as well as SmokeStop filters – or particle and carbon filters – according to the methods described in the Chinese standard GB/T18801-2015 and GB 21551.3-2010.

In February 2015 the particle removal rate of the SmokeStop filters for the Pro range were tested at the Central General Administration of Quality Supervision and Inspection for Environmental Protection Products in Shanghai, China. The tests were performed according to the Chinese standard GB/T 18801-2008.

Particle, bacteria and virus removal

Removal rate for Blueair products, including particle matter, bacteria, fungus and viruses

Classic series	Bacteria [A] Staphylococcus Aureus (60 min)	Bacteria [A] Escherichia Coli (60 min)	Fungus [A] Aspergillus Niger (60 min)	Virus [B] H1N1 (60 min)	Particles ≥0.3µm (20 min)
205 PA	99,93%	99,94%	99,99%	≥99.99%	96,47%
205 SM	99,91%	99,91%	99,95%	≥99.99%	94,95%
280i PA	99,93%	99,94%	99,99%	≥99.99%	96,47%
280i SM	99,91%	99,91%	99,95%	≥99.99%	94,95%
405 PA	>99.99%	>99.99%	>99.99%	≥99.99%	99,22%
405 SM	99,99%	99,99%	>99.99%	≥99.99%	97,2%
480i PA	>99.99%	>99.99%	>99.99%	≥99.99%	99,22%
480i SM	99,99%	99,99%	>99.99%	≥99.99%	97,2%
505 PA	>99.99%	>99.99%	>99.99%	≥99.99%	100%
505 SM	>99.99%	>99.99%	>99.99%	≥99.99%	99,28%
580i PA	>99.99%	>99.99%	>99.99%	≥99.99%	100%
580i SM	>99.99%	>99.99%	>99.99%	≥99.99%	99,28%
605 PAC	>99,99%	>99.99%	>99.99%	≥99.99%	100%
605 SM	>99.99%	>99.99%	>99.99%	≥99.99%	99,28%
680i PAC	>99,99%	>99.99%	>99.99%	≥99.99%	100%
680i SM	>99.99%	>99.99%	>99.99%	≥99.99%	99,28%

Pro series	PM2,5 (GB/T 18801-2008) (60 min)
Pro M SM	>99%
Pro L SM	>99%
Pro XL SM	>99%

Blue series	Bacteria [A] Escherichia Coli (60 min)	Fungus [A] Aspergillus Niger (60 min)	PM0.3 [B] (20 min)
121 [C]	-	-	99.9%
211/211+/221 [D]	99.98%	99.99%	99.9%
221 [C]	99.98%	99.99%	99.7%
411 [D]	99.96%	99.95%	87.4%

Staphylococcus aureus is a round-shaped bacterium found in the nose and respiratory tract and on the skin. It can cause infections of the skin, brain, bone, lungs and heart.

Escherichia coli are bacteria found in the environment, foods and the digestive tract of humans and animals. Foodborne and airborne exposure can cause fever, nausea, diarrhea, vomiting, gastrointestinal and urinary tract infections.

Aspergillus niger, or black mold, is a common fungus, found in the air and soil and growing on fruit and vegetables. It can cause allergies, pneumonia and, in extreme cases, weakened immune systems and lung disease.

H1N1, or swine flu, is a highly contagious virus transmitted mainly during the winter months through the air by coughing and sneezing. It can cause fever, chills, diarrhea, narcolepsy and acute respiratory infection.

SM – Blueair SmokeStop Filter

PA – Blueair Particle Filter

PAC – Blueair Carbon Sheet

Pro series - According to GB/T 18801-2008 on 230V model with SmokeStop filter.

Classic and Blue series - According to GB 21551.3-2010 on 230V model - Highest speed.

[A] According to GB 21551.3-2010 on 230V model - Highest speed

[B] According to GB/T 18801-2015 on 230V model - Highest speed.

[C] With Particle and Honeycomb filter.

[D] With Particle and Carbon mesh filter.

Gaseous removal

Gaseous pollutants include organic and inorganic compounds. Organic chemicals known as Volatile organic compounds (VOCs) are emitted as gases from certain solids or liquids. Concentrations of many VOCs are consistently higher indoors than outdoors. VOCs are emitted by a long list of products and include a variety of chemicals, some of which may have short-and long-term adverse health effects. Inorganic compounds are common in gaseous pollutants and can be found indoors and outdoors. The may come from natural or man-made sources.

VOCs

Volatile organic compounds (VOCs) include thousands of different compounds. VOCs are organic chemicals found in both outdoor and indoor air. “Volatile” means that a compound is easily evaporated at normal temperatures and pressures.

VOC sources are widely used as ingredients in household products. Paints, varnishes and wax all contain organic solvents, as do many cleaning, disinfecting, cosmetic, degreasing and hobby products.

The irritating gases may play a role in a large number of illnesses, from respiratory disease to chemical sensitivity.

A quick reduction of gaseous pollutants is best achieved by SmokeStop™ or Particle and Carbon filters equipped with activated carbon.

Inorganic compounds

Inorganic compounds are any compounds that are not organic, i e does not contain hydrocarbon groups. Some inorganic compounds are carbon monoxide, carbon dioxide, Nitrogen oxide (NO_x) and Sulphur Dioxide (SO_x). NO_x is most common in air pollution. SO_x is a toxic gaseous compound that results from fossil fuel combustion. Once inhaled, it can spread deep into lung tissue, causing breathing difficulties and other health problems.

Clean Air Delivery Rate

The concept of Clean Air Delivery Rate is not limited to particles. The CADR value can also be used to indicate how well an air purifier will remove gaseous pollutants from the air. In the same way as for particles, the CADR for gaseous pollutants is determined by the unit's filtration efficiency and its airflow. The higher the CADR value, the more clean air is produced by the air purifier and the better it will be at cleaning the air in a room. CADR has also been described earlier in this document.

Testing and results

Blueair has done numerous tests in order to measure the CADR values for gaseous pollutants. In July and December 2017, Blueair tested the CADR values on the models in the Blue and Classic families. The CADR values were measured on different types of gases such as formaldehyde, VOC combinations and toluene in order to tests the filters' removal capabilities. The tests were performed on units with SmokeStop filters or particle and carbon filters according to the methods described in the Chinese standard GB/T18801-2015. CADR data for gases can be found in the CADR chapter.

Removal rate

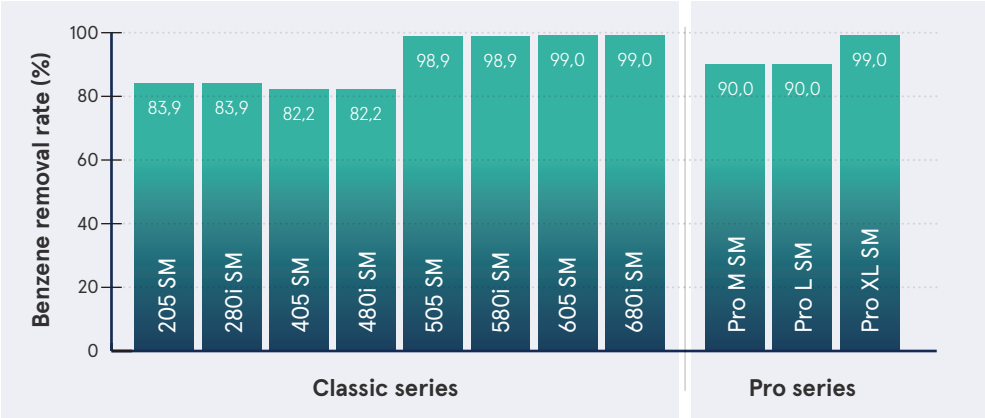
The Clean Air Delivery Rate indicates how much filtered air is delivered by the air purifier, but is also a measurement of how fast the unit is able to remove pollutants from the air. A unit with a high CADR will be able to clean the air in a room of a specific size faster than a unit with a lower CADR. The amount of pollutants that the unit removes during a specified period time is referred to as the unit's removal rate (%). The removal rate is calculated by comparing the initial amount of pollutants with the amount of pollutants remaining after the specified period of time has passed. The higher removal rate, the less gaseous pollutants remain.

Testing and results

In July and December 2017, Blueair conducted extensive tests on the models in the Blue and Classic families. The removal rate of a wide range of indoor and outdoor gases such as sulphur dioxide, benzene and styrene was tested. Tests were done by Guangzhou Testing Center of Industrial Microbiology, China and The Guangzhou CAS Test Technical Services Co., Ltd, China. They were done on SmokeStop filters or particle and carbon filters according to the methods described in the Chinese standard GB/T18801-2015. More information and the results from these tests can be found in the test summary later in this document.

Gas removal rate

Gas removal rate after 60 minutes for Blueair products



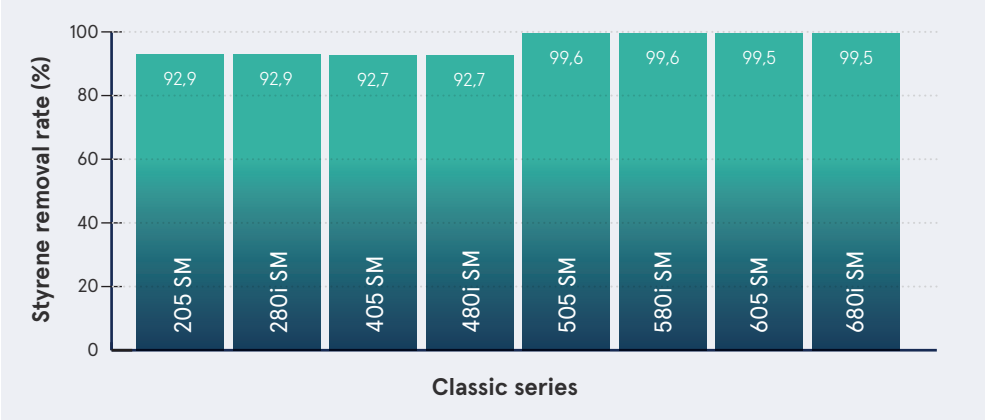
Benzene is a clear petroleum-based chemical that is widely used in the production of plastics, resins, detergents, pesticides, pharmaceuticals and synthetic fibers. It can cause dizziness, anemia, nausea, leukemia and cancer.

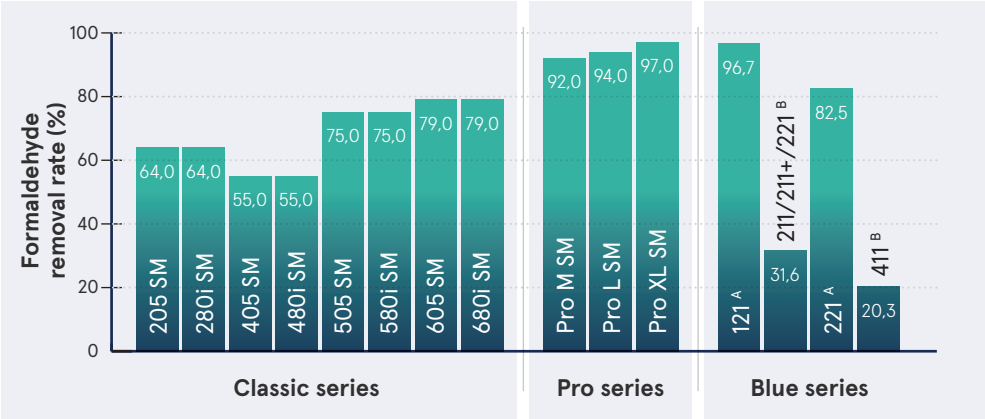
Styrene is a colorless oily liquid used in plastics, piping, insulation, fiberglass, packaging material and food containers. It can cause eye, skin and respiratory tract irritation as well as impact kidney, nervous system and gastrointestinal tract function.

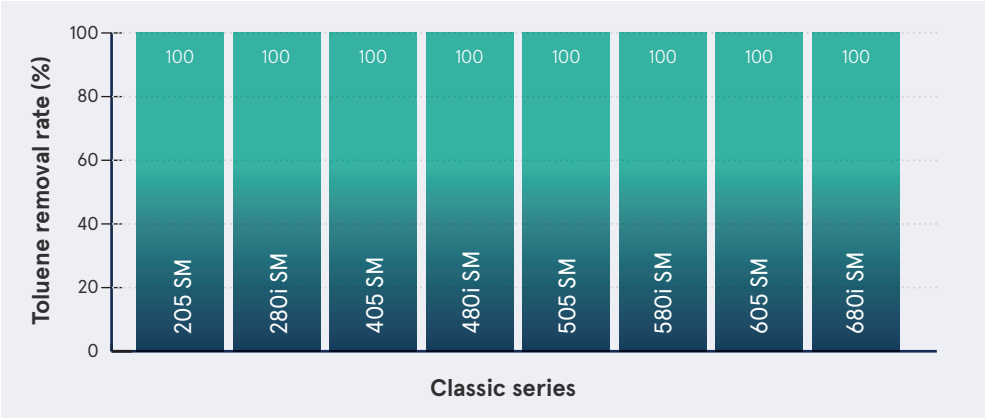
Formaldehyde is a colorless, strong-smelling chemical used in building materials, pressed-wood products, and home and personal care products. It can cause eye, nose, throat and skin irritation as well as birth defects, lung disease and cancer.

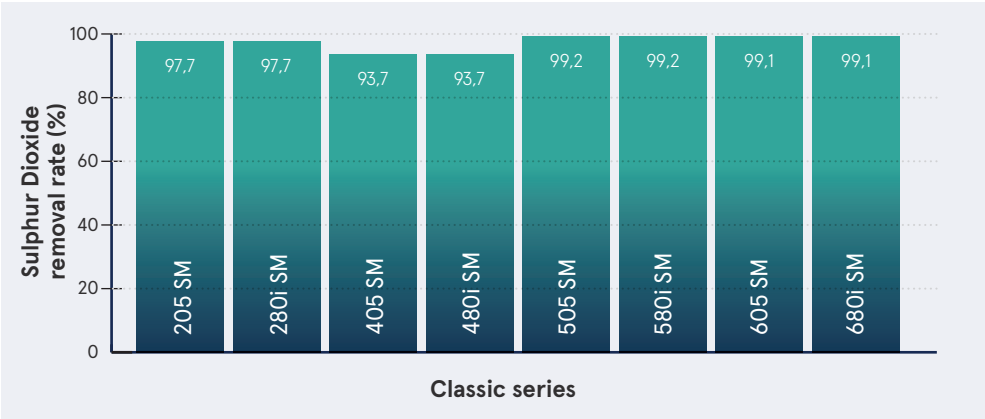
Toluene is clear, colorless liquid found in paints, solvents, disinfectants, sealants and fuels. It can cause headache, dizziness and eye, skin and respiratory tract irritation and impact the nervous and cardiovascular systems.

Sulphur dioxide is a toxic gaseous compound that results from fossil fuel combustion. Once inhaled, it can spread deep into lung tissue, it can cause breathing difficulties and other health problems.









Classic series - According to GB/T 18801-2015 with 230V model.

Pro series - According to GB/T 18883-2008 on 230V model with SmokeStop filter.

Blue series - According to GB/T 18801-2015 on 230V model - Highest speed.

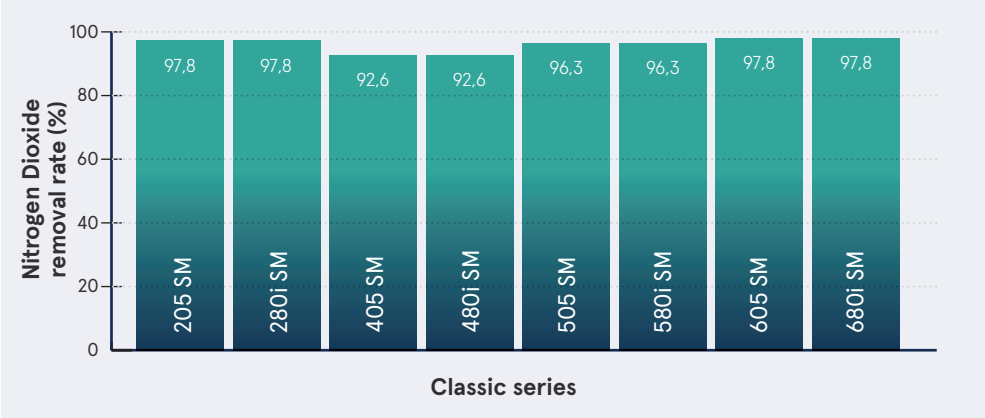
SM – Blueair SmokeStop Filter

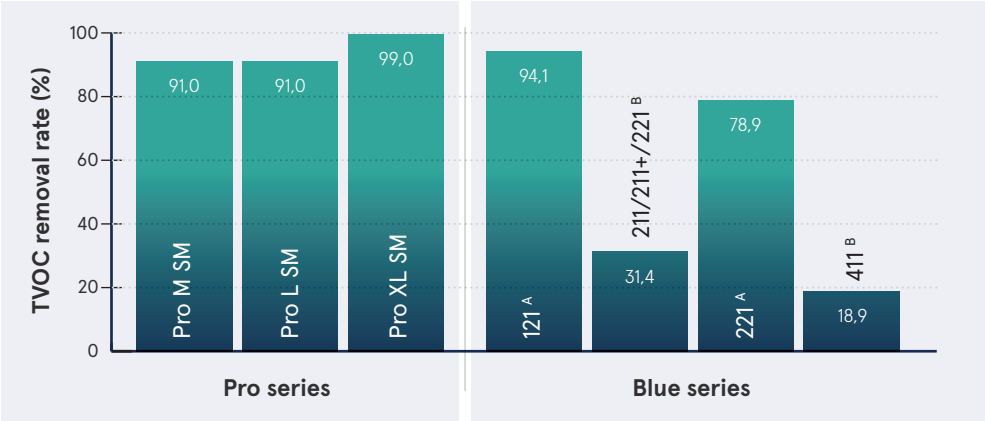
PA – Blueair Particle Filter

PAC – Blueair Carbon Sheet

[A] With Particle and Honeycomb filter.

[B] With Particle and Carbon mesh filter.





Nitrogen dioxide is one of a group of gases known as nitrogen oxides (NO_x) that results from fossil fuel combustion. It can cause breathing difficulties, respiratory tract irritation and respiratory disease, such as asthma.

TVOC (Total Volatile Organic Compounds) is a measurement of the total concentration of VOC's in the air.

Classic series - According to GB/T 18801-2015 with 230V model.

Pro series - According to GB/T 18883-2008 on 230V model with SmokeStop filter.

Blue series - According to GB/T 18801-2015 on 230V model - Highest speed.

SM – Blueair SmokeStop Filter

PA – Blueair Particle Filter

PAC – Blueair Carbon Sheet

A With Particle and Honeycomb filter.

B With Particle and Carbon mesh filter.

Deodorization

Most odors come from VOCs and can cause negative effects as well as unpleasant feelings. For example, strong odor has been shown to have a significantly negative effect on asthma. A quick reduction of odors is best achieved by SmokeStop™ or Particle and Carbon filters equipped with activated carbon.

Deodorization is the process of treating indoor air to prevent, trap, remove or neutralize odor molecules caused by gases and/or particulate matter.

Deodorization performance

Deodorization performance is measured in the same way as removal rate and measures how fast an air purifier is able to remove odors from the air. It is calculated by comparing the initial amount of odors with the amount of odors remaining after the specified period of time has passed. The higher the deodorization performance, the less odors remain in the air.

Testing and results

In July and December 2017, Blueair conducted extensive tests on the models in the Blue and Classic families. The deodorization performance was tested on a mix of odor indicators including ammonia, acetaldehyde and acetic acid by Guangzhou Testing Center of Industrial Microbiology, China, and The Guangzhou CAS Test Technical Services Co., Ltd, China, on SmokeStop filters or particle and carbon filters according to the methods described in the Chinese standard GB/T18801-2015 and the Japanese standard JEM 1467-2015.

Deodorization

Deodorization efficiency of Blueair Blue products

Blue series	Ammonina CADR (m³/h)	Ammonia removal rate (60 min)
121 [A]	78.1	93.1%
211/211+/221 [B]	9.2	28.3%
221 [A]	41.4	74.4%
221 PA	7.7	-
411 [B]	6.8	18.6%

Blue series - According to GB/T 18801-2015 on 230V model - Highest speed.

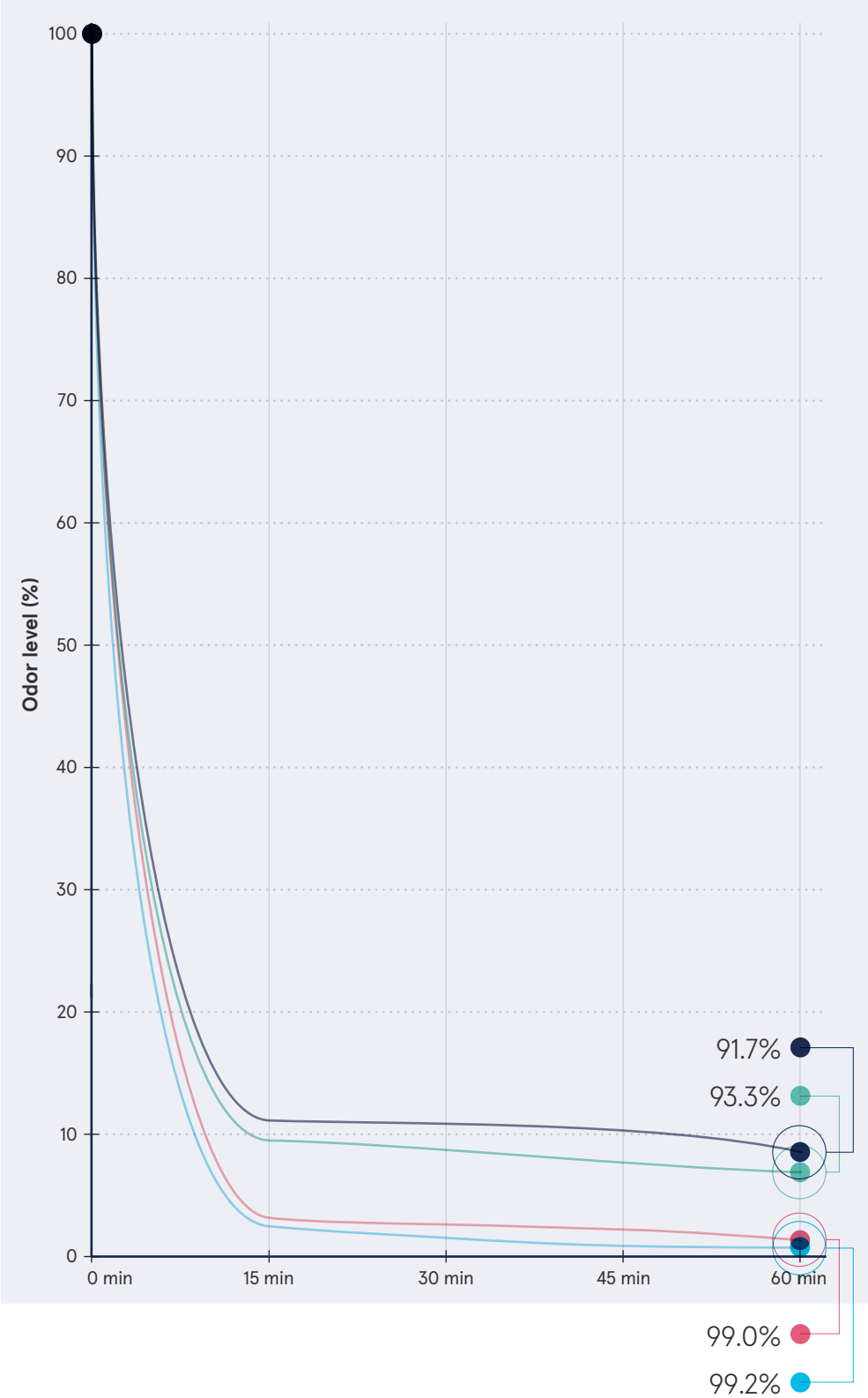
PA – Blueair Particle Filter

[A] With Particle and Honeycomb filter.

[B] With Particle and Carbon mesh filter.

Deodorization

Deodorization efficiency of Blueair Classic products



Classic 600 series
Classic 500 series
Classic 400 series
Classic 200 series

Classic series - According to JEM 1467-2015 with 230V model.

Ozone

Ozone occurs both in the Earth's upper atmosphere and at ground level. It can be good or bad, depending on where it is found. Tropospheric, or ground level ozone, is created by chemical reactions and can cause health effects even at relatively low levels.

Ground level ozone is a colorless gas formed during the reaction of nitrogen oxides from fuel combustion and volatile organic compounds in the presence of sunlight. It can cause eye irritation, coughing, wheezing, asthma and chronic obstructive pulmonary

While ozone is a molecule composed of atoms of oxygen, it should not be confused with the two-atom oxygen molecule (O_2) that we breathe to support life. Ozone, which connects three oxygen atoms (O_3) can decrease lung function and cause health effects such as chest pain, shortness of breath, throat irritation and increase the risk of respiratory health problems.

Though the HEPASilent™ technology uses electrostatic filtration to capture and remove particles from indoor air, Blueair's system should not be associated with dangerous indoor ozone that could be formed by air cleaning techniques based on only ionization, or with systems using ozone to clean the air. Since many customers are concerned with the negative effects of ozone, Blueair takes this matter seriously and is committed to making sure that our air purifiers are safe and do not add ozone to the room.

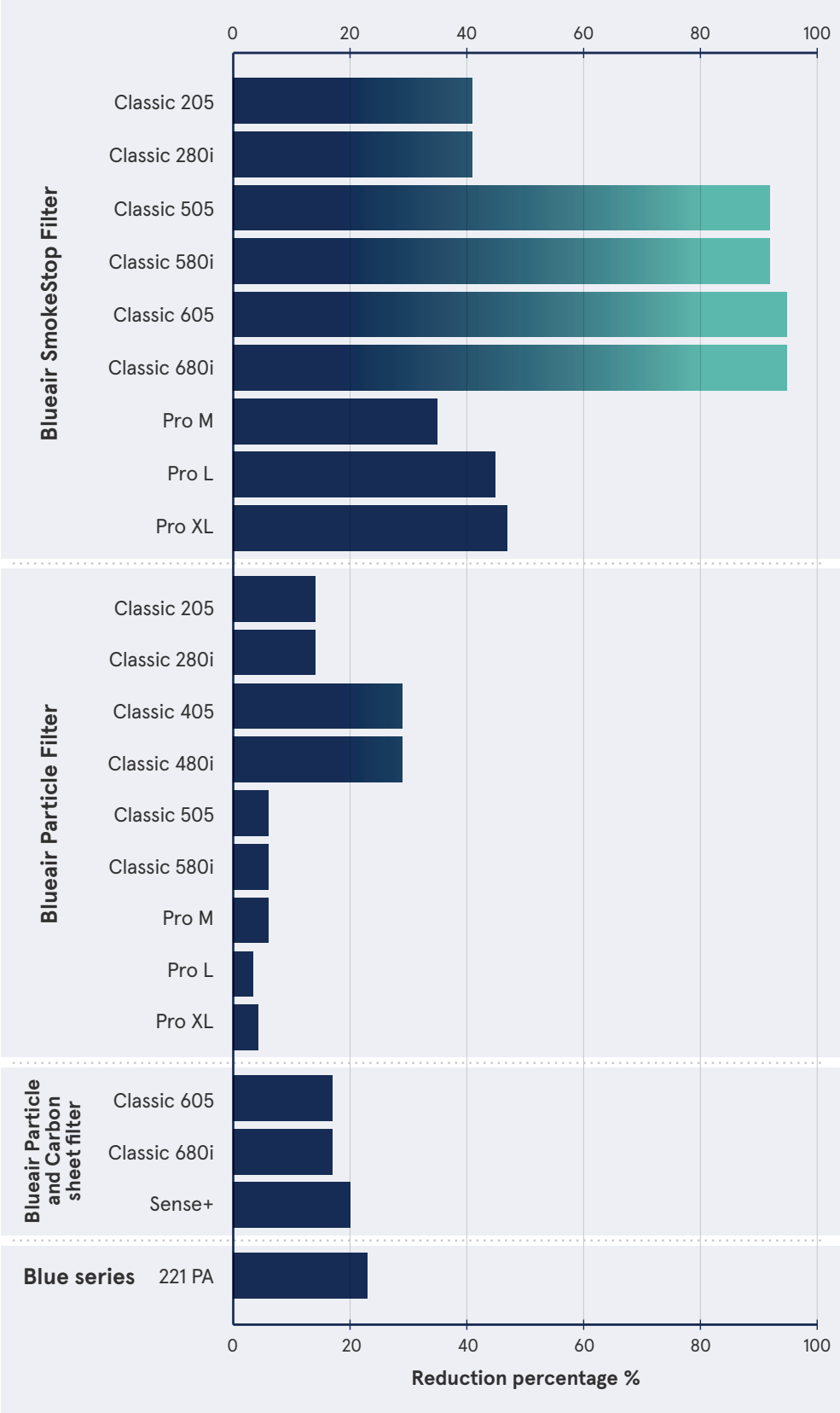
Reduction of ozone

In 2016, the ozone reducing capabilities of all Blueair models were tested. The tests were performed on units fitted with particle filters, carbon filters as well as SmokeStop filters, and concluded that ozone concentrations in the air directly after passing through Blueair's filters were lower than the ozone concentrations in the surrounding air. While these positive results were evident on units fitted with both particle filters, carbon filters and SmokeStop filters, results were most obvious with the SmokeStop filters. The design of the filter in combination with its structure of porous activated carbon most efficiently reduces ozone in indoor air.

The tests were performed at SP Technical Research Institute of Sweden in a closed chamber with the dimensions 3,0 x 3,5 x 2,5 meters. An ozone generator was used to achieve a suitable

Ozone

Ozone reduction of Blueair products, in percent



Classic, Pro and Sense+ series tested on 230V model on lowest speed.

International ozone requirements

The international air purifier standard IEC60335-2-65:2010 requires that air purifiers do not generate excessive amounts of ozone. This is tested by running the unit in a closed chamber with the dimensions 3,0 x 3,5 x 2,5 meters for 24 hours. During the test the ozone concentration must not exceed 50ppb (parts per billion). All Blueair air purifiers are tested and comply to IEC60335-2-65:2010. The standard is adopted by many countries around the world such as Taiwan, Korea, Japan and the European Union.

To earn the ENERGY STAR the unit's ozone emission must meet UL Standard 867, the U.S. government's criteria for ozone emission, which for air purifiers is ≤50 ppb (parts per million).

ARB Certified

All Blueair air purifiers are tested and certified in accordance with the California Air Resource Board (ARB) certification program. In order to be ARB certified, the tested products are required to produce an ozone emission concentration that does not exceed 50 ppb as stated in standard UL867, section 40. This threshold is decided by the U.S. Food and Drug Administration (FDA). During the certification process the products undergo a comprehensive series of tests in a closed chamber to measure ozone emissions. The tests go on for 8-hour long test periods, at high and low speed and with and without the filter installed. All Blueair models are ARB certified showing ozone emissions far below the FDA threshold. Certified units are listed on the ARB website: https://www.arb.ca.gov/research/indoor/aircleaners/certified.htm

ARB certified products are identified by the ARB-mark printed on the product packaging with the following text:

> This air cleaner complies with the U.S. federal ozone emissions limit. ARB certified

Local requirements

All Blueair products comply to the ozone concentration requirements on the markets where they are sold. This means that the products are tested in order to make sure that they do not exceed ozone concentration levels.

European Union

In order to CE-mark air purifiers, the ozone concentration must not exceed 50ppb.

China

Chinese air purifier standard 21551.3-2010 requires ozone concentrations not to exceed 0.1mg/m³.

Canada

Canadian air purifier standards C22.2 187-15 and CAN/CSA-E60335-2-65:11 requires ozone concentrations not to exceed 50ppb.

Quality and safety

As a part of a rigorous product development process, Blueair performs extensive tests on all models, with equal emphasis given to all aspects of performance. In addition, all products are proofed and vetted by independent certification bodies. Our products meet all requirements for electronic appliances regarding health, quality, safety, function and environment and have gone through the control procedures required by the varying standards in the countries where they are sold.

Standards and certifications

All Blueair products are tested and certified by independent certifications bodies. This way, Blueair can guarantee that the tests are performed in a controlled environment and the results are unbiased.

Safety marks

CB Scheme

Since Blueair products are available worldwide, it is essential that global and local requirements are followed. However, applicable standards and certification needs often vary between markets. The CB Scheme is an international program for certification of electrical and electronic products. CB certification in accordance with international (IEC) standards, allows worldwide market access and reduces the need for further testing when applying for local certifications. For more information, go to the IECEE website: http://www.iecee.org/about/cb-scheme/

CE mark

All products sold within the European Economic Area (EEA) must be marked with the CE mark. With this mark, the manufacturer ensures that the product complies with essential requirements of EU directives such the LVD (Low voltage directive), EMC (Electromagnetic compatibility), ROHS (Restriction of the use of certain hazardous substances in electrical and electronic equipment), R&TTE/RED (Radio and telecommunications terminal equipment) and WEEE (Waste electrical & electronic equipment).

All Blueair products follow the Restriction of Hazardous Substances (ROHS) directive from the European Union. Each product is tested in order to make sure it does not contain any substances prohibited according to the directive. Amongst the prohibited substances are lead, mercury and cadmium. For more information, see: http://ec.europa.eu/enterprise/policies/single-market-goods/ce-marking/index_en

Swedish S mark

The voluntary S mark is a complement to the CE-mark and certifies that a product complies with European safety standards for fire, electric shock, mechanical injuries, radiation injuries, burns and certain types of environmental damage. The S Mark show that the products have been independently tested and that they fulfill valid safety requirements.

Newly developed Blueair products do not carry the S mark but all tests and certification are carried out by independent certification bodies. For more information, go to: http://www.intertek.com/marks/s/

China

Air purifiers sold in China must comply with applicable safety standards, including electrical and mechanical safety (GB 4706.1-2005 and GB 4706.45-2008), EMC and ROHS requirements. Blueair products sold in China comply with mandatory regulatory requirements.

Japanese S mark

The Japanese S mark is a voluntary certification administered in Japan for electrical products. Tests are conducted in accordance with the standards J60335-1, J60335-2-65 and J55014-1. This means that the products comply with material control law and the Japanese product liability law. The certification is issued by a third part certification body such as TÜV, UL or JQA, that is a member of the Steering Council of Safety Certification for Electrical and Electronic Appliances and Parts of Japan (SCEA). For more information, go to: http://www.ul.com/global/eng/pages/corporate/aboutul/ulmarks/mark/

cETLus mark

A product carrying the cETLus mark complies with North American safety standards and has met the U.S. and Canadian minimum requirements. The mark indicates that the manufacturer's products and included components conform to set standards and is continuously inspected. Only laboratories recognized by Occupational Safety and Health Administration (OSHA) are allowed to test and certify products for the ETL mark. For more information, go to: http://www.intertek.com/marks/etl/

PSE Mark (DENAN)

The PSE mark is a mandatory mark for Japan according to the Electrical Appliance and Material Safety Law (DENAN) administered by Japan's Ministry of Economy, Trade and Industry (METI). Products regulated under the DENAN law are categorized as either specified products (shown as a diamond PSE-mark) and non-specified products (circle PSE-mark). Only products complying to the Denan law and that have been independently tested may bear the PSE mark. For more information, go to the METI website: http://www.meti. go.jp/english/policy/economy/consumer/pse/index.html

RCM mark

The Regulatory Compliance Mark indicates compliance with electrical safety, electromagnetic compatibility (EMC) and telecommunications requirements. The RCM is registered to the Australian Communications and Media Authorities (ACMA). For more information, go to: http://www.acma.gov.au/Industry/Suppliers/Product-supply-and-compliance

KC mark

The KC mark is mandatory for certain electrical products sold in South Korea. The purpose of the KC mark is to protect consumers from the hazardous aspects of appliances (electric shock, fires, mechanical, thermal, radiation and chemical hazards etc.). Since 2011 the KC mark is also applied to broadcasting and communications equipment, thereby replacing the KCC-mark. The KC mark also includes a factory inspection once a year. For more information, go to: http://hongkong.intertek-etlsemko.com/services/ek/

BSMI mark

Many electrical products and household appliances sold in Taiwan must conform to safety and EMC requirements. BSMI (Bureau of Standards, Metrology and Inspection) is the certifying authority for this purpose. The BSMI mark indicates that the product meets safety standards for criteria such as electric shock, excessive temperature, radiation, implosion, mechanical hazard and fire. For more information, go to http://www.cerpass.com.tw/en-us/bsmi.aspx

Radio and communications certification

As a manufacturer of Wi-Fi-connected products, Blueair is committed to assuring that its products do not risk interfering with other equipment or causing any harm. All Wi-Fi-connected Blueair products are certified according to global and local requirements such as CE, FCC, IC, MIC, SRRC, MSIP, NCC, SIRIM, WPC, DGPT and NTC.

Awards and endorsements

The union of visually pleasing form and effective function is a hallmark of Swedish design, and Blueair is pleased to live up to that tradition. Sleek and stylish, Blueair air purifiers are designed to fit in with your lifestyle and decor, which means you can place your unit anywhere you like in any room. Our commitment to design, innovation, usability and cutting edge technology has led to recognition from a number of prestigious institutions across the world.

Design Awards

Good Design (Japan)

The Japanese Good Design Award (G-mark) is considered one of the world's most prestigious awards for new product design. Blueair Sense received the Good Design Award in 2012 with the following motivation: "The shape of this air purifier is designed so the perimeter gently bulges out when seen from the top to give it a slightly curvy look. The straightforward construction together with the clever use of materials brings perfection to its beautiful design, proving the creator's strong designing skills. The simple design is further enhanced by making the air ow openings on the sides vary in shape and size in order to avoid significant temperature changes and by incorporating a non-touch control panel on the glass top."

Design S

Design S by Svensk Form is the successor to the Excellent Swedish Design award. It singles out creative and innovative solutions in every imaginable area of products, services and environments, regardless of the design field. Design S is awarded to products and services that best exemplify Swedish design and quality and like its successor, it is considered the top design award in Sweden. In 2012, Blueair Sense was nominated for the Design S award with the following motivation: "A high-efficiency air purifier in a thoughtful design and with innovative functionality. The air purifier is operated via a motion-detecting control panel and has the same low electricity consumption as a compact fluorescent lamp."

Good Design (USA)

Founded in 1950, Good Design is the oldest and the most recognized program for design excellence worldwide. The annual Good Design awards are awarded by the Chicago Athenaeum: Museum of Architecture and Design and the European Centre for Architecture Art Design and Urban Studies. It covers new consumer products designed and manufactured in Europe, Asia, Africa, and North and South America. Blueair Sense earned the Good Design Award in the Household product category in 2012. In 2015 it was given to Blueair Pro, and in 2016 Blue earned the award.

Red Dot Design

Germany's Red Dot Design Award has been awarded by the Design Zentrum Nordrhein Westfalen in Essen since 1955 and today it is one of the world's largest and most distinguished design competitions. Winners are selected by competent expert juries in the areas of product design, communication design, and design concepts. Blueair Sense is one of only 1.2% of products to be honored the Red Dot: Best of the best product design, which it received in 2013, an award reserved for products with groundbreaking design.

German Design Award

The German Design Award aims to identify, highlight and honor unique design trends around the world. Award winners are elected for above and beyond design quality, through a long list of criteria such as ergonomics, functionality and user-friendliness, design quality, innovativeness, brand value, symbolic and emotional content, technical quality and ecological compatibility. Blueair Sense earned the fifth top design accolade by being nominated for the German Design Award in 2014. The following year, the Blueair Sense air purifier won the award, and received a special mention in the Home Interior Category, while the Pro indoor air purifier series was honored with the German Design Award 2016, again with a special mention distinction.

Plus X Award

The Plus X Award is given to new and innovative technologies, extraordinary design and intelligent, easy to use operating systems. Blueair Sense+, New Classic 680i and Blue have all been awarded the Plus X Award during 2016. For its innovation, design, high quality, ease of use and functionality, Blueair Sense+ was also selected 'Best Product 2016/2017'.

Envisioneering Innovation and Design Award

The Blueair Sense+ air purifier and the Aware air quality monitor were both honored with Envisioneering Innovation and Design Awards during the press event Showstoppers at the global electronics fair IFA in September 2015. In January 2016, the Blueair Sense+ air purifier, the Blueair Aware air monitor and the Blueair Friend app won the three prestigious Envisioneering innovation, Design and Style awards at the International Consumer Electronics Show in Las Vegas, Nevada, where the awards spotlight, evaluate and judge the most innovative products present.

Gold Housewares Design Awards

In January 2018, the Blue Pure 411 won "Best in Category" in the Home Environment & Floor Care Appliances category at the Housewares Design Awards. Criteria was based on aesthetics, innovative materials and technology, user benefits and marketability. It was also selected for the top award, "Best of the Best" Gold, spanning all categories.

Sustainability

Sustainability is at the heart of the Blueair business model. In fact, to improve the health and well-being of people is the very reason we exist. To bring our purpose to life, we invest time and resources in developing best-in-class air purifiers that make the minimum impact on the environment, and by awareness-raising around the positive health effects of breathing clean air.

Our air purifiers are made from responsibly sourced, recyclable materials. They are designed to consume a minimum of energy but at Blueair we always strive to improve our carbon footprint and as a result, we have set ourselves ambitious targets of halving the energy use of our products by 2020. Needless to say, we follow local and global voluntary programs and regulatory requirements to help our customers protect the environment.

As a company we want to make a positive imprint on society. We are proud to have a gender-balanced organisation with 50/50 men and women in senior leadership. To improve the health and well-being of those most in need, our initiative Clean air for children supports schools, nurseries, kindergartens and children's hospitals around the world.



Energy Star

ENERGY STAR is a globally recognized program of the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy. The program was developed to help consumers save money and to protect the environment through energy efficient products. Blueair was among the first air purifier manufacturers to earn the ENERGY STAR designation for all its units and thanks to their high CADR, Blueair air purifiers significantly exceed the minimum ENERGY STAR requirements.



BBB Accreditation

Blueair is a Better Business Bureau Accredited Business with an A+ rating, meeting and exceeding BBB standards with accreditation based on company transparency, customer service, and integrity.



Eco-friendly design

Blueair took part in a Swedish government sponsored initiative to evaluate and improve sustainable business practices. Blueair was awarded based on the development of environmentally friendly products and practices, promising to continuously improve our company's sustainable standards.

Performance distinctions

AHAM Verifide Program

The AHAM Verifide Program is an independent program of the Association of Home Appliance Manufacturers (AHAM) that aims to ensure that performance testing results are accurate and impartial. The program is endorsed by both the U.S. Food and Drug Administration (FDA) and the U.S. Environmental Protection Agency (EPA).

Best in test by Testfakta

In September 2017, the Nordic independent test institute Testfakta awarded the Blueair Classic 405 Best in test for highest capacity and performance. Out of 11 tested air purifiers, the Blueair Classic 405 received the highest overall score of 4,2 points out of 5. The test included air purifiers on the Nordic and UK markets.



Monoqlo Magazine

Monoqlo, an independent review magazine in Japan for electronics, named the 650E a product and category “Best Buy”.



All About Consumer Electronics Award

The Blueair Classic 450E air purifier was awarded Gold in the air purifiers category by the Japanese website, AllAbout.com, for its superior Clean

Consumer Rights Protection Commission

Based on the independent testing of 22 popular air purifier models and their performance removing formaldehyde and PM2.5 from the air, the Consumer Rights Protection Commission of Shanghai found that the Blueair 503 performed the best.

Consumer Reports

Consumer Reports is an independent, nonprofit member organization that works side by side with consumers for truth, transparency, and fairness in the marketplace. Selected Blueair air purifiers have been tested by Consumer Reports, check out how they rate on consumerreports.org

Lovie Awards

The Lovie Awards honour the best of the European Internet. Blueair’s digital service Air View was awarded gold in the category Health & Wellness in the 2017 awards. Air View is a free, interactive web service that allows users to enter an address to visualize the air they breathe in real time.

Parenting Award

Award based on parenting trends.

Voted on by six different parenting magazines in Japan, the Blueair 203 was chosen to receive the Parenting

U.S. Embassy in Beijing

Due to the extreme levels of outdoor air pollution in the area around the U.S. Embassy in Beijing, China, the embassy supplies Blueair purifiers to its employees to manage indoor air quality in their Beijing homes.

ARB Certified

All Blueair air purifiers sold in the US are tested and certified in accordance with the California Air Resource Board (ARB) certification program. In order to be ARB certified, the tested products are required to produce an ozone emission concentration that does not exceed 50 ppb as stated in standard UL867, section 40. This threshold is decided by the U.S. Food and Drug Administration (FDA). Certified units are listed on the ARB website: https://www.arb.ca.gov/research/indoor/aircleaners/certified.htm

ARB certified products are identified by the ARB-mark printed on the product packaging with the following text:

> This air cleaner complies with the U.S. federal ozone emissions limit. ARB certified





Appendix

Blue series

Noise	121 [A]	211/211+/221 [B]	221 [A]	221 PA	411 [B]
Sound Pressure (dB(A))					
Speed 1	31	31	31	31	17
Speed 3	56	56	56	56	46
Sound Power (dB(A))					
Speed 1	40	40	40	40	-
Speed 2	54	53	53	53	-
Speed 3	63	63	63	63	-
CADR AHAM (m³h/cfm)					
Smoke	-	590/350	-	590/350	180/105
Dust	-	590/350	-	590/350	200/120
Pollen	-	590/350	-	590/350	200/120
AHAM recommended room size (m²/Sq ft)					
Recommended Room Size	57/620	50/540	50/540	50/540	15/161
CADR GB/T 18801-2015 (m³/h)					
Particlate	639.9	-	522.7	-	-
Formaldehyde	103,0	-	52.2	-	-
TVOC	86.4	-	46.8	-	-
Energy consumption (W)					
Speed 1	30	30	30	30	1.5
Speed 3	61	61	61	61	10
Ozone reduction (%)					
Removal efficiency	-	-	-	23	-
Particle removal rate (%)					
Bacteria - Escherichia Coli (60min)	-	99.98	99.98	-	99.96
Fungus - Aspergillus Niger (60min)	-	99.99	99.99	-	99.95
PM0.3 (20 min)	99.90	99.90	99.70	-	87.40
Gas removal rate (%)					
VOCs					
Formaldehyde (60 min)	96.7	31.6	82.5	-	20.3
TVOC (60 min)	94.1	31.4	78.9	-	18.9
Deodorization					
Ammonina CADR (m³/h)	78.1	9.2	41.4	7.7	6.8
Ammonia removal rate 60 min (%)	93.1	28.3	74.4	-	18.6

SM – Blueair SmokeStop Filter

PA – Blueair Particle Filter

PAC – Blueair Carbon Sheet

[A] With Particle and Honeycomb filter.

[B] With Particle and Carbon mesh filter.

Sound Power - According to ISO 3714:2010. Tested on 230V model with Particle Filter.

CADR AHAM (cfm) - According to ANSI/AHAM AC-1-2015 on 120V model with Particle Filter - Highest speed.

AHAM recommended room size (Sq ft) - According to ANSI/AHAM AC-1-2015 on 120V model with Particle Filter - Highest speed.

CADR GB/T 18801-2015 (m³/h) - According to GB/T 18801-2015 on 230V model - Highest speed.

Bacteria - Escherichia Coli - According to GB 21551.3-2010 on 230V model - Highest speed.

Fungus - Aspergillus Niger - According to GB 21551.3-2010 on 230V model - Highest speed.

PM0.3 - According to GB/T 18801-2015 on 230V model - Highest speed.

Formaldehyde - According to GB/T 18801-2015 on 230V model - Highest speed.

TVOC - According to GB/T 18801-2015 on 230V model - Highest speed.

Ammonina CADR (m³/h) - According to methid described in GB/T 18801-2015 on 230V model - Highest speed.

Ammonia removal rate - According to GB/T 18801-2015 on 230V model - Highest speed.

Aspergillus niger, or black mold, is a common fungus, found in the air and soil and growing on fruit and vegetables. It can cause allergies, pneumonia and, in extreme cases, weakened immune systems and lung disease.

Escherichia coli are bacteria found in the environment, foods and the digestive tract of humans and animals. Foodborne and airborne exposure can cause fever, nausea, diarrhea, vomiting, gastrointestinal and urinary tract infections.

H1N1, or swine flu, is a highly contagious virus transmitted mainly during the winter months through the air by coughing and sneezing. It can cause fever, chills, diarrhea, narcolepsy and acute respiratory infection.

Staphylococcus aureus is a round-shaped bacterium found in the nose and respiratory tract and on the skin. It can cause infections of the skin, brain, bone, lungs and heart.

TVOC (Total Volatile Organic Compounds) is a measurement of the total concentration of VOC's in the air.

Pro series

Noise	Pro M PA	Pro M SM	Pro L PA	Pro L SM	Pro XL PA	Pro XL SM
Sound Pressure (dB(A))						
Speed 1	32	32	32	32	32	32
Speed 2	34	34	34	34	35	35
Speed 3	55	55	55	55	58	58
Sound Power (dB(A))						
Speed 1	31	31	35	35	36	36
Speed 2	41	41	45	45	46	46
Speed 3	57	57	62	62	62	62
CADR AHAM (m^3h/cfm)						
Smoke	425/250	425/250	833/490	822/490	1359/800	1359/800
Dust	485/285	485/285	1070/630	1070/630	1614/950	1614/950
Pollen	595/350	595/350	1020/600	1020/600	1529/900	1529/900
AHAM recommended room size (m^2/Sq ft)						
Recommended Room Size	36/390	36/390	72/780	72/780	110/1180	110/1180
CADR GB/T 18801-2015 (m^3/h)						
Particlate	-	-	-	-	-	-
Formaldehyde	-	-	-	-	-	-
Toluene	-	-	-	-	-	-
Energy consumption (W)						
Speed 1	11	11	22	22	33	33
Speed 2	19	19	38	38	57	57
Speed 3	85	85	170	170	256	256
Ozone reduction (%)						
Removal efficiency	6	35	4	45	5	47
Particle removal rate (%)						
PM2,5 (GB/T 18801-2008) (10 min)	-	>99	-	>99	-	>99
Gas removal rate (%)						
VOCs						
Benzene (GB/T 18883-2002)						
60 min	-	90,0	-	90,0	-	99,0
120 min	-	97,0	-	99,0	-	>99
TVOCs (GB/T 18883-2002)						
60 min	-	91,0	-	91,0	-	>99
120 min	-	97,0	-	99,0	-	>99
Formaldehyde (GB/T 18801-2008)						
60 min	-	92,0	-	94,0	-	97,0
120 min	-	94,0	-	96,0	-	99,0

PM0.3 is particulate matter that is 0.3 microns or less in diameter. These particles penetrate deep into the respiratory system, causing lung disease.

Benzene is a clear petroleum-based chemical that is widely used in the production of plastics, resins, detergents, pesticides, pharmaceuticals and synthetic fibers. It can cause dizziness, anemia, nausea, leukemia and cancer.

Formaldehyde is a colorless, strong-smelling chemical used in building materials, pressed-wood products, and home and personal care products. It can cause eye, nose, throat and skin irritation as well as birth defects, lung disease and cancer.

Toluene is clear, colorless liquid found in paints, solvents, disinfectants, sealants and fuels. It can cause headache, dizziness and eye, skin and respiratory tract irritation and impact the nervous and cardiovascular systems.

Styrene is a colorless oily liquid used in plastics, piping, insulation, fiberglass, packaging material and food containers. It can cause eye, skin and respiratory tract irritation as well as impact kidney, nervous system and gastrointestinal tract function.

Sulphur dioxide is a toxic gaseous compound that results from fossil fuel combustion. Once inhaled, it can spread deep into lung tissue, it can cause breathing difficulties and other health problems.

Nitrogen dioxide is one of a group of gases known as nitrogen oxides (NOx) that results from fossil fuel combustion. It can cause breathing difficulties, respiratory tract irritation and respiratory disease, such as asthma.

Classic series

Noise	205 PA	205 SM	280i PA	280i SM	405 PA	405 SM
Sound Pressure (dB(A))						
Speed 1	32	32	32	32	32	32
Speed 3	56	56	56	56	52	52
Sound Power (dB(A))						
Speed 1	34	34	34	34	30	30
Speed 2	45	45	45	45	37	37
Speed 3	56	56	56	56	61	61
CADR AHAM (m³h/cfm)						
Smoke	306/180	-	306/180	-	476/280	-
Dust	340/200	-	340/200	-	510/300	-
Pollen	340/200	-	340/200	-	510/300	-
AHAM recommended room size (m²/Sq ft)						
Recommended Room Size	26/279	26/279	26/279	26/279	40/434	40/434
CADR GB/T 18801-2015 (m³/h)						
Particles ≥0.3μm	-	265,0	-	265,0	-	318,1
Formaldehyde	-	26,3	-	26,3	-	20,3
Toluene	-	103,5	-	103,5	-	78,3
Energy consumption (W)						
Speed 1	20	20	20	20	15	15
Speed 3	80	80	80	80	90	90
Ozone reduction (%)						
Removal efficiency	14	41	14	41	29	-
Particle removal rate (%)						
Bacteria						
Staphylococcus Aureus						
15 min	87,65	83,85	87,65	83,85	95,55	93,35
30 min	97,81	97,26	97,81	97,26	99,78	99,37
45 min	99,80	99,61	99,80	99,61	99,96	99,96
60 min	99,93	99,91	99,93	99,91	>99.99	99,99
Escherichia Coli						
15 min	88,21	86,14	88,21	86,14	95,84	93,46
30 min	98,07	97,56	98,07	97,56	99,84	99,44
45 min	99,87	99,72	99,87	99,72	99,96	99,94
60 min	99,94	99,91	99,94	99,91	>99.99	99,99
Fungus - Aspergillus Niger						
15 min	83,95	82,17	83,95	82,17	94,74	89,15
30 min	97,43	96,36	97,43	96,36	99,82	99,08
45 min	99,86	99,54	99,86	99,54	99,97	99,95
60 min	99,99	99,95	99,99	99,95	>99.99	>99.99
Virus - H1N1 (60 min)	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99
PM0.3 (20 min)	96,47	94,95	96,47	94,95	99,22	97,20
Gas removal rate (%)						
VOCs						
Benzene (GB/T 18883-2002)	-	43,4	-	43,4	-	44,9
15 min	-	65,3	-	65,3	-	52,6
30 min	-	77,8	-	77,8	-	71,3
45 min	-	83,9	-	83,9	-	82,2
60 min						
Styrene						
15 min	-	53,8	-	53,8	-	52,7
30 min	-	77,8	-	77,8	-	75,6
45 min	-	88,5	-	88,5	-	86,7
60 min	-	92,9	-	92,9	-	92,7
Formaldehyde (GB/T 18801-2008) (60 min)	-	64,0	-	64,0	-	55,0
Toluene (60 min)	-	100	-	100	-	100
Outdoor pollutants						
Sulphur Dioxide						
15 min	-	41,6	-	41,6	-	42,0
30 min	-	90,7	-	90,7	-	67,3
45 min	-	95,0	-	95,0	-	82,1
60 min	-	97,7	-	97,7	-	93,7
Nitrogen Dioxide						
15 min	-	83,4	-	83,4	-	48,5
30 min	-	96,4	-	96,4	-	72,6
45 min	-	97,3	-	97,3	-	85,6
60 min	-	97,8	-	97,8	-	92,6
Deodorization						
15 min	-	89,2	-	89,2	-	90,8
30 min	-	90,0	-	90,0	-	91,7
45 min	-	90,0	-	90,0	-	92,5
60 min	-	91,7	-	91,7	-	93,3

480i PA	480i SM	505 PA	505 SM	580i PA	580i SM	605 PAC	605 SM	680i PAC	680i SM
32	32	32	32	32	32	32	32	32	32
52	52	62	62	62	62	62	62	62	62
30	30	28	28	28	28	29	29	29	29
37	37	45	45	45	45	45	45	45	45
61	61	65	65	65	65	65	65	65	65
476/280	-	765/450	-	765/450	-	850/500	-	850/500	-
510/300	-	765/400	-	765/400	-	850/500	-	850/500	-
510/300	-	765/450	-	765/450	-	1087/640	-	1087/640	-
40/434	40/434	65/698	65/698	65/698	65/698	72/775	72/775	72/775	72/775
-	318,1	-	439,6	-	439,6	-	440,3	-	440,3
-	20,3	-	33,5	-	33,5	-	40,1	-	40,1
-	78,3	-	185,8	-	185,8	-	156,6	-	156,6
15	15	15	15	15	15	15	15	15	15
90	90	100	100	100	100	100	100	100	100
29	-	6	92	6	92	17	95	17	95
95,55	93,35	99,46	96,35	99,46	96,35	99,54	97,29	99,54	97,29
99,78	99,37	99,92	99,70	99,92	99,70	99,88	99,69	99,88	99,69
99,96	99,96	99,97	99,96	99,997	99,96	99,99	99,99	99,99	99,99
>99.99	99,99	>99.99	>99.99	>99.99	>99.99	>99,99	>99.99	>99,99	>99.99
95,84	93,46	99,48	96,48	99,48	96,48	99,61	97,37	99,61	97,37
99,84	99,44	99,89	99,65	99,89	99,65	99,91	99,73	99,91	99,73
99,96	99,94	99,97	99,95	99,97	99,95	99,99	99,99	99,99	99,99
>99.99	99,99	>99.99	>99.99	>99.99	>99.99	>99.99	>99.99	>99.99	>99.99
94,74	89,15	99,73	97,90	99,73	97,90	99,79	98,95	99,79	98,95
99,82	99,08	99,93	99,91	99,93	99,91	99,94	99,93	99,94	99,93
99,97	99,95	>99.99	>99.99	>99.99	>99.99	>99.99	>99.99	>99.99	>99.99
>99.99	>99.99	>99.99	>99.99	>99.99	>99.99	>99.99	>99.99	>99.99	>99.99
≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99	≥99.99
99,22	97,20	100	99,28	100	99,28	100	99,28	100	99,28
-	44,9	-	77,2	-	77,2	-	76,9	-	76,9
-	52,6	-	94,0	-	94,0	-	93,2	-	93,2
-	71,3	-	96,9	-	96,9	-	97,0	-	97,0
-	82,2	-	98,9	-	98,9	-	99,0	-	99,0
-	52,7	-	83,8	-	83,8	-	85,4	-	85,4
-	75,6	-	96,8	-	96,8	-	97,4	-	97,4
-	86,7	-	98,8	-	98,8	-	99,1	-	99,1
-	92,7	-	99,6	-	99,6	-	99,5	-	99,5
-	55,0	-	75,0	-	75,0	-	79,0	-	79,0
-	100	-	100	-	100	-	100	-	100
-	42,0	-	83,1	-	83,1	-	85,7	-	85,7
-	67,3	-	98,5	-	98,5	-	98,6	-	98,6
-	82,1	-	99,0	-	99,0	-	98,9	-	98,9
-	93,7	-	99,2	-	99,2	-	99,1	-	99,1
-	48,5	-	48,5	-	48,5	-	83,4	-	83,4
-	72,6	-	72,6	-	72,6	-	96,4	-	96,4
-	85,6	-	90,6	-	90,6	-	97,3	-	97,3
-	92,6	-	96,3	-	96,3	-	97,8	-	97,8
-	90,8	-	96,9	-	96,9	-	97,5	-	97,5
-	91,7	-	97,9	-	97,9	-	98,3	-	98,3
-	92,5	-	97,9	-	97,9	-	99,2	-	99,2
-	93,3	-	99,0	-	99,0	-	99,2	-	99,2


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