



WACO Corp.

MADE IN KOREA



Convenient **Wearable** Type

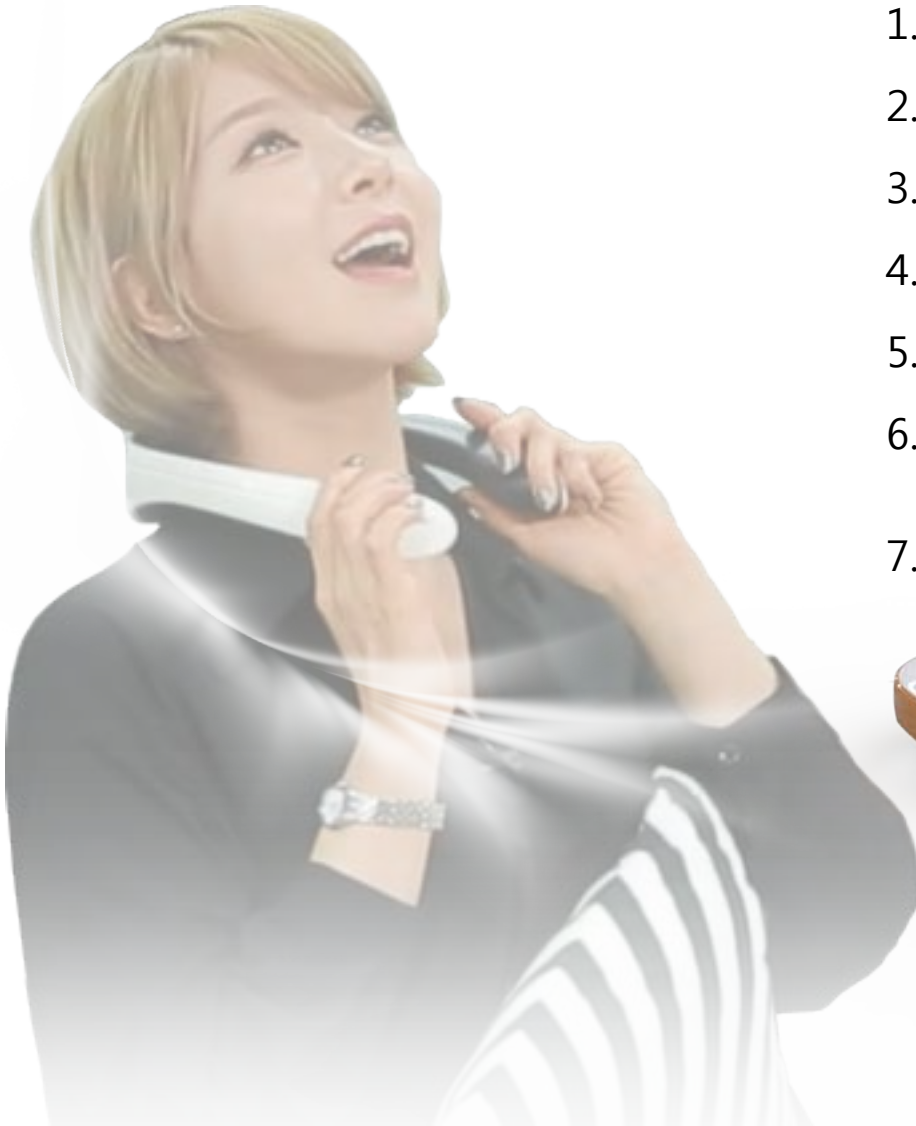
Wearable Air Purifier

Generating Anion and HEPA Filter
Active Air Cleaning Device!



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Wearable Air Purifier (Product Overview)

Our reality facing the threat of fine dust!

Industrialization and concentration of urban population, Damage to fine dusts deteriorates the quality of personal life and threatens a healthy life.



Overcoming the limitations of using air purifiers

Fixed air purifiers that can not be moved in a typical home or office. It meets the lifestyle of a world-class neck band style wearable device that overcomes limitations. Introduced personal, portable concept.

(Easy and effective use in all places such as indoor, car, etc.)

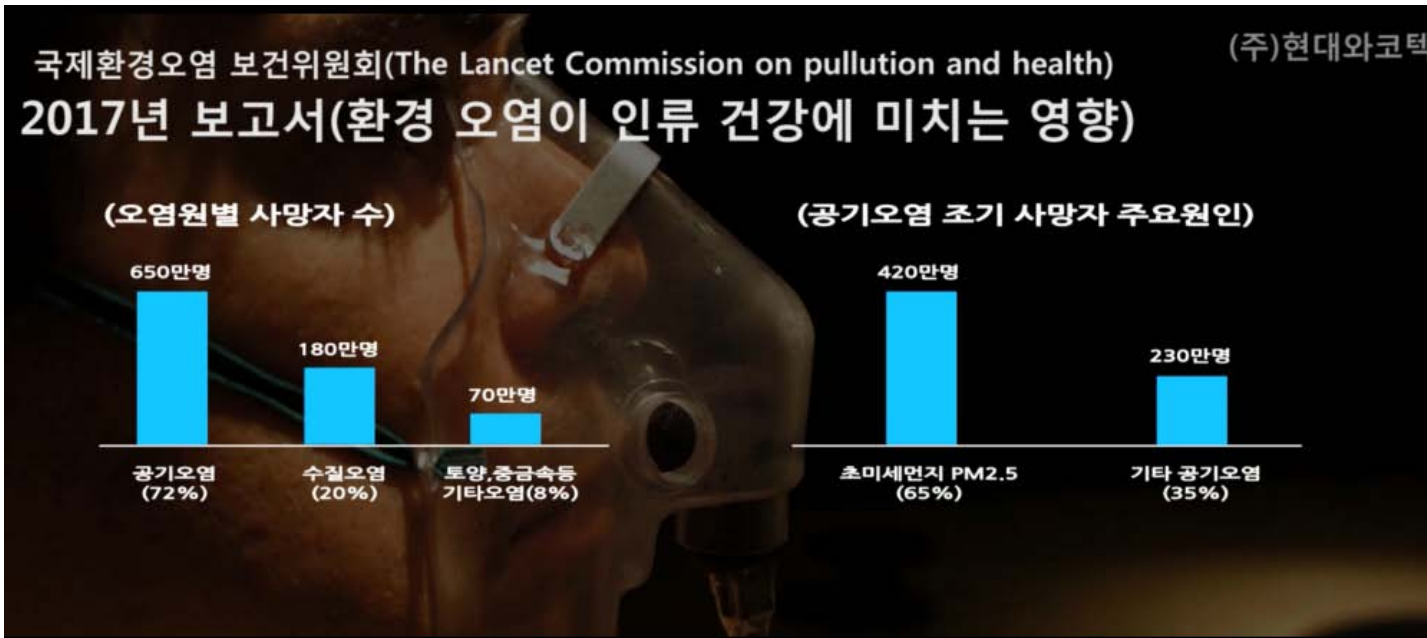


Wearable Air Purifier (Market Status)

<Overseas Status>

Number of premature deaths due to environmental pollution, approximately 9 million people worldwide

A report on the impact of environmental pollution on human health, published in the leading medical journal The Lancet (Landrigan et al., 2017). The number of premature deaths from air pollution was 6.5 million, and the pollution caused by the total pollution accounted for 72% of the 9 million deaths.



More than 10% annual increase in world market

Expanding markets of China and India, the world market will reach 11 trillion won

According to Euro Monitor International and the Korea Institute of Science and Technology Information, the global air purifier market is expected to grow 17.5% over the previous year to US \$ 6.7 billion (about 7,520 billion US dollars) this year. Annual average growth rate of 12.4%.

Especially, due to the industrialization of emerging countries such as China and India, the fine dust problem becomes serious, and the air cleaner market is expected to grow rapidly by more than 10% every year.



Wearable Air Purifier (Market Status)

< Domestic Status >

Top 3 most polluted cities in the world!

Seoul ranked in TOP 3 along with Beijing, Delhi in the list of the world's most polluted cities by the British Financial Times.



출처 : YTN

State of fine dust in urgent need of Government measures

According to International journal Nature published in 2017, it is estimated that early deaths will reach 30,000 a year due to the effects of ultra fine dust.



Air Purifier, must have item... 158% increase in sales within a year

Although sales of air purifiers are increasing due to worst air pollution, especially fine dust, consumers are increasingly trying to protect their personal health through purchase of related products. However, the limit of existing fixed air purifier products, there is still anxiety due to fine dust in the outdoors such as when driving or going out.



출처 : KBS1 News 화면 캡처



Wearable Air Purifier (Market Status)

< Domestic fine dust research materials >

City forest to remove fine dust!

Announced by the National Forestry Academy in 2017, fine dust in the forest is 40% less than in urban areas!

It is more safe from air pollution because it breathe clean air compared to the city by the fine dust reduction effect by the purification action of the urban forest.



산림청		보도자료		5년 5000억 원 산림청	
보도일시	내포 즉시 보도 가능합니다			총 8쪽(붙임 6쪽 포함)	
배포일시	2017. 05. 30(수)	담당부서	국립산림과학원 산림생태연구과		
담당과장	김경하 연구관 (02-961-2601)	담당 자	박한길 연구사 (02-961-2632)		

도시숲은 미세먼지 잡아먹는 하마

- 도시숲, 부유먼지(PM₁₀) 25.6%, 미세먼지(PM_{2.5}) 40.9% 저감 -
- 도심보다 기온 낮고 습도 높아 미세먼지 농도 낮추는데 효과적 -

□ 산림청 국립산림과학원(원장 이창제)은 미세먼지가 심했던 울릉도 도시숲이 도시의 부유먼지(PM₁₀)를 25.6%, 미세먼지(PM_{2.5})를 40.9%까지 줄였다고 밝혔다.

○ 이번 연구결과는 4월 17일부터 5월 4일까지 국립산림과학원이 위치한 홍릉숲의 3개 지점(숲 경계, 내부, 중심)과 홍릉숲에서 2km 떨어진 도심에서 부유먼지와 미세먼지 농도를 측정하여 비교·분석한 것이다.

□ 특히, 미세먼지는 코에서 걸러지지 않고 사람의 폐포까지 깊숙이 들어가 건강에 나쁜 영향을 미치는데, 도시숲은 부유먼지와 미세먼지 비율(PM₁₀/PM_{2.5})이 항상 도심보다 낮아 부유먼지보다 미세먼지 농도를 더 많이 낮추는 것으로 나타났다.

○ 부유먼지의 경우 도심에서 평균 60.2μg/m³가 측정되었고 숲 경계에서는 40.6μg/m³, 숲 내부 51.2μg/m³, 숲 중심에서는 42.4μg/m³로 도심과 비교하여 도시숲의 농도가 평균 25.6%가 낮았다.

○ 반면 미세먼지농도는 도심에서 평균 23.5μg/m³이 되었고 숲 경계에서는 13.3μg/m³, 숲 내부 14.8μg/m³, 숲 중심은 13.4μg/m³로 도심에 비해 평균 40.9%가 낮았다.

< Portable Air Purifier >

Clear air like a city forest anytime and anywhere!
Portable wearable air purifier (Ultra dust removal rate 40.7%)

It is convenient to carry at home, office and car. Thanks to Wearable Air Purifier which is easy to carry and is safe from the threat of fine dust.





Wearable Air Purifier (Technical Features)

Applied dual air purification system HEPA filter, excellent for removal of negative ion and fine dust

In addition to the HEPA filter system, existing best technology for purifying polluted air combined with small modularization of the negative ion generating device. It is an active air purifier that goes beyond the limits of stereotypes and negative ion air purifiers.

Advantages of our technology	Existing technology
<ul style="list-style-type: none"> -Direct purification system HEPA + Complex anion purification system for secondary anion purification -Active air purifier that directly supplies purified air to mouth and nose 	<p>It is difficult to expect complete air purification by applying the method of neutralizing the contaminants in the air by generating negative ions with the products having the negative ion generating device attached.</p>

(Air Clean Zone Formation)



Wearable Air Purifier (Technical Features)

Wearable Air Purifier ultrafine dust removal TEST

Stage 1 : Start the ultrasonic dust meter and measure the dust concentration data for 90 seconds (1 minute 30 seconds).
(At initial start-up, it is influenced by uncleaned air between the inside of the measuring part and the air discharge part.)

Stage 2 : Measurement of ultrafine dust concentration (purified air concentration) for 180 seconds (3 minutes) from 90 seconds after starting the ultrafine dust detector.

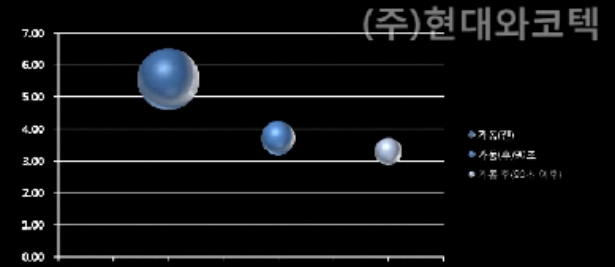
Fine dust reduction effect like in forest

(Fine dust in the forest 40% less than in urban areas - Refer to the National Forestry Academy presentation)

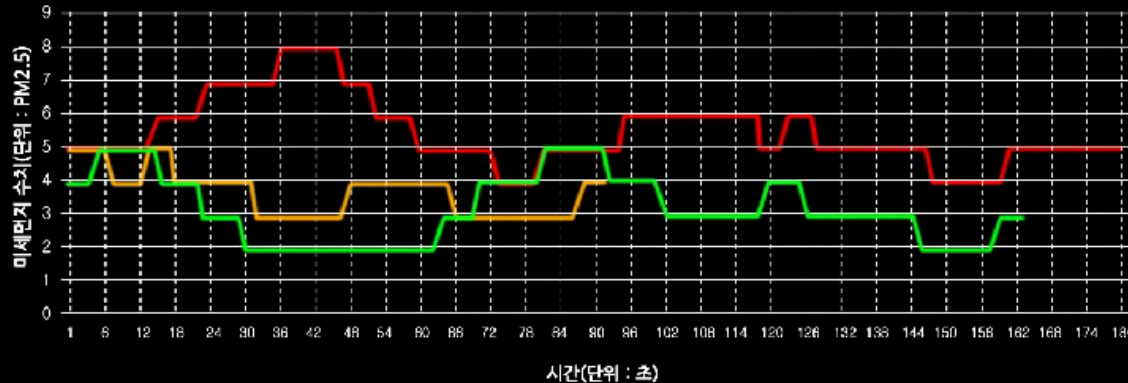
웨어러블공기청정기 미세먼지제거 TEST

제품 작동 전후 전체 측정시간 평균데이터 비교
(제품 작동 전 대비, 후 최대 40.7%의 초미세먼지 제거 결과 측정)

상태	관측시간 (초)	평균 초미세먼지 농도 (PM2.5)	초미세먼지 제거율 (%)
제품 작동전	180	5.55	0.0
제품 작동후(90초 이내)	90	3.70	33.3
제품 작동후(180초 이후)	180	3.29	40.7



<제품 작동후 90초이후 공기중 초미세먼지 함유량 - Air Pocket 형성>



Result : As a result of comparing the data with red line for before operation and the data with green line after operation. Difference in ultrafine dust concentration occurred.

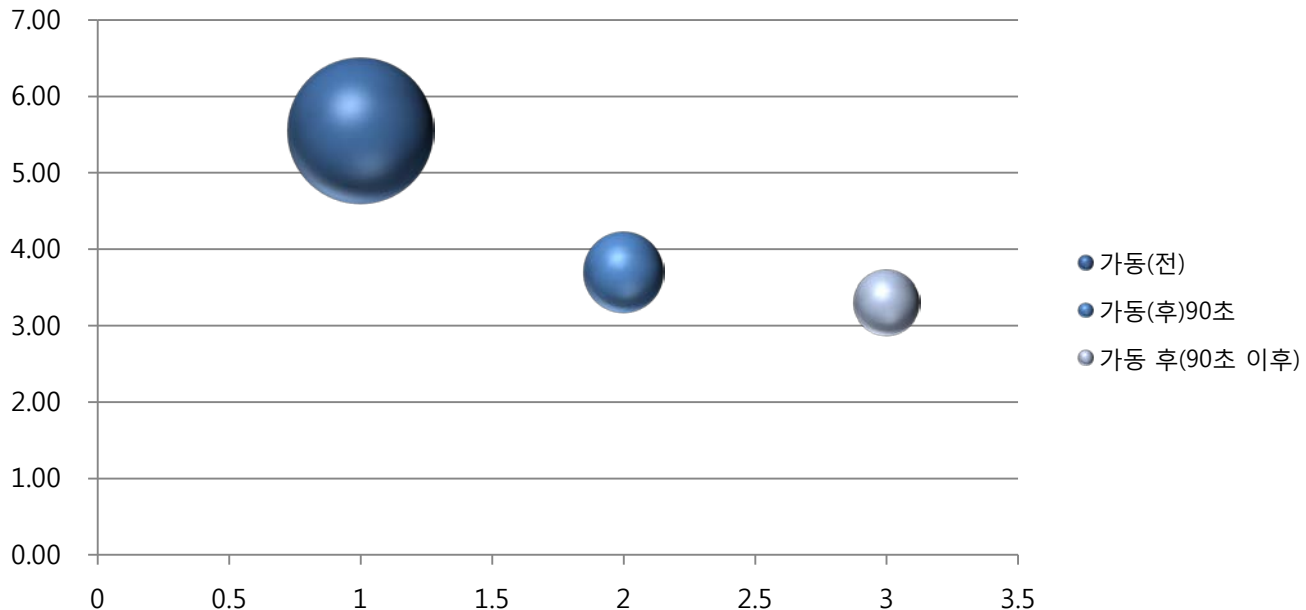


Wearable Air Purifier (Technical Features)

Wearable Air Purifier ultrafine dust removal TEST concentration change rate

The comparison of average measurement data for the total measurement time results in the removal of ultrafine dust of up to 40.7% after pre-operation as described below.

Condition	Time(sec)	Average ultrafine dust concentration (PM2.5)	Ultrafine dust removal rate(%)
pre-operation	180	5.55	0.0%
operation (90sec)	90	3.70	33.3%
after operation (after 90sec)	180	3.29	40.7%



Wearable Air Purifier (Product Features)

Wearable Portable air purifier

By using a portable wearable device, it can be easily carried in any place and protected from fine dust.

Active air purification system with direct air purification method by anion and HEPA filter.

It is possible to use it as a fashion item when worn or carrying with various color of premium design.



Wearable Air Purifier (Product Features)

Neck wearing style with Ergonomics design

With effectively removing the harmful elements for human body, it is an active air purifying device which directly supplies purified air to end-user's nose.





Wearable Air Purifier (Product Features)

User Centered Interface

One-touch intuitive use of anion and HEPA filter purification mode.



Simple Recharging Type

Available to charge and use by applying large capacity lithium-ion battery with USB charging method.



Easily replace HEPA Filter

Easy replacement by modular HEPA filter and powerful air purification function



Wearable Air Purifier (Product Certification)

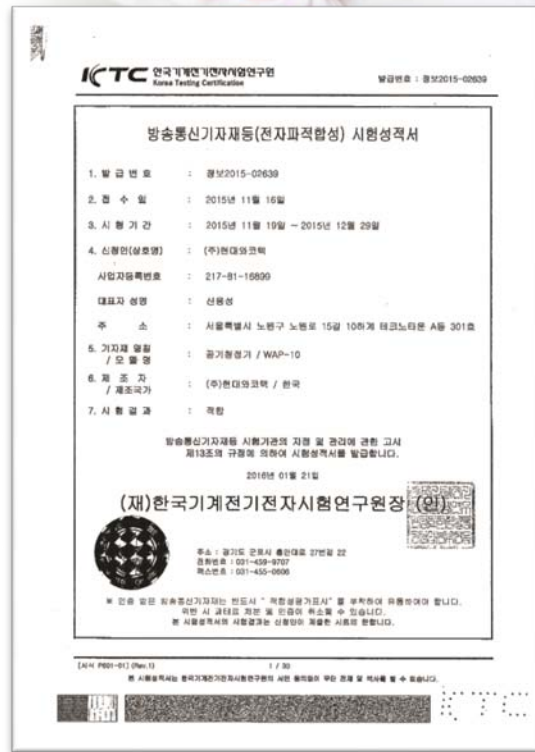
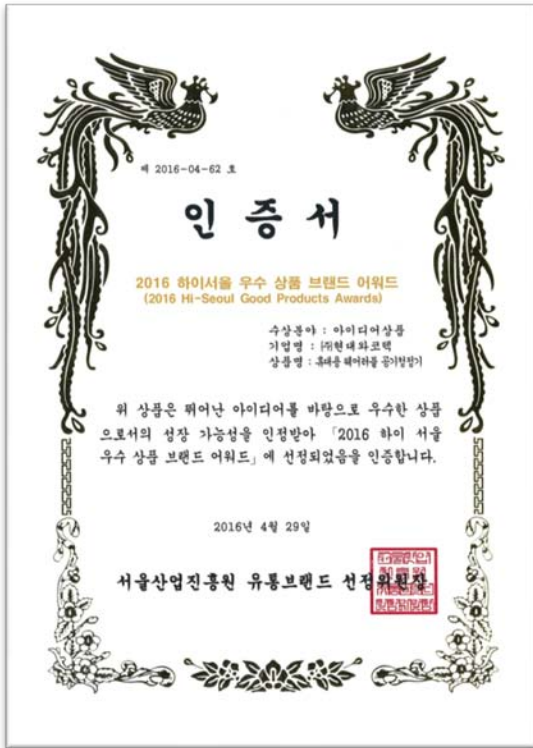
Certified Product Design, Safety, International Standards

Hi-Seoul Brand and Electromagnetic Safety certification, Verified product reliability through international CE certification.

Convenient

Neck band wearing style with Ergonomics design

Combined Anion Function with replaceable HEPA filter



Wearable Air Purifier (Product Configuration & Performance)

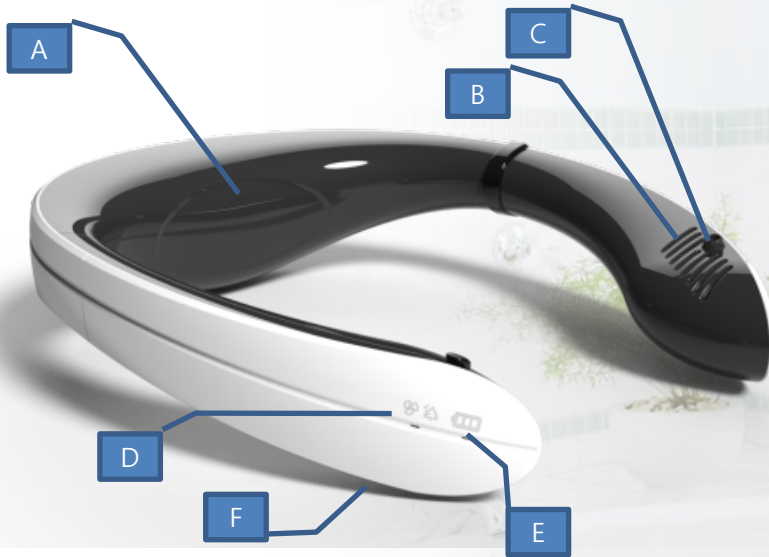


Product Composition

- Air Purifier : 1
- DC Adaptor (5V/1A) : 1
- USB Cable : 1
- Replaceable Filter : 2
- Manual : 1

Easy to use with simple product configuration

Name of parts



- | | |
|---------------------------------|---------------------|
| A : composite filter unit | D : LED display |
| B : purified air discharge unit | E : Battery display |
| C : Anion generator | F : USB port |

Colors

- Black Base

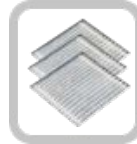


- White Base

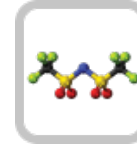




Dual air purification system



Triple multi filter :
Medium-carbon-HEPA
(grade: h12)



Mounting anion generator module

User centered Interface



button for air-purifying selection mode



LED Display :
operating status and battery status

Product Details	
Battery :	2,600mA rechargeable lithium-ion battery
Wind Volume :	50m/h
Anion :	1.5 million /10cm
Charging Time:	DC5V/1A (about 4 hours)
Power Consumption:	1W
Operating time:	1 Stage (Negative-ion) – about 26 hrs 2 Stage(Negative-ion & air purifying mode) – about 13 hrs
Size :	200*225*52mm(L*W*H)
Weight :	230g
Colors:	Black Base : White-Black/ Orange-Black/ Pink-Black White Base: White-White/ Orange-White/ Pink-White)
Country of Origin:	Made in Korea

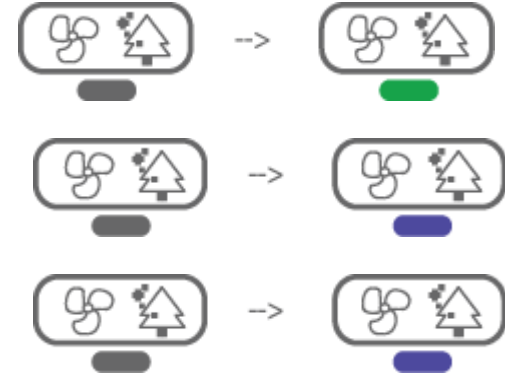


Wearable Air Purifier (How to use the product)

(Function-Operation and operation indicator LED)

- ▷ Pressing the button once (Once beeping sound)
-->On & Generation anion (LED_GREEN COLOR light on)
- ▷ Pressing the button once again (Twice beeping sound)
-->Generating anion & functioning FAN (LED-BLUE COLOR light on)
- ▷ Pressing the button once more (Tripple beeping sound)
--> Boostere mode operated and generating anion & operating FAN (LED-BLUE COLOR light on)
- ▷ Pressing the button once more (Once beeping sound)
--> Turn OFF

Rechargeable battery for extended use



(Function-Battery status LED)

In operation :

- ▷ After full charge Green LED light is on about 11 hours
--> If you use more time, Red LED lights on
- ▷ Red LED blinks when using red LED for about 2 hours.
- ▷ When using red LED flash for about 10 minutes -> Auto OFF



* After full charge, continued mode two(anionic & Fan) operate approximately 13 hrs.

* After full charge, continued mode one(anionic) operate approximately 26 hrs.

Battery :

- ▷ It takes about 4 hours to fully charge from fully discharged state.

* The red LED is lit during charging, the green LED lights when the battery is fully charged.



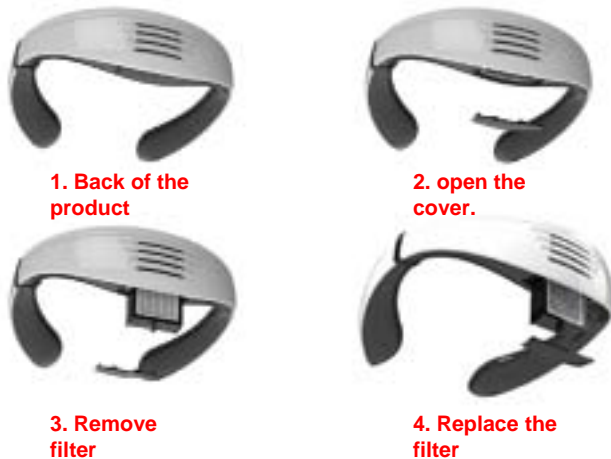
Wearable Air Purifier (How to use the product)

(How to wear)



Do not wear it from the head,
Please wear it from behind the neck.

(Filter replacement)



Convenient wear and easy filter replacement

(Customized size)

Size adjustment function to help you fit comfortably according to body type.



(USB connection)

Connect to the bottom of the LED display





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