The IONAIRE Air Purifier series

*The aid to healthy living that creates a clean, fresh, invigorating indoor environment by ionizing and cleansing the air of all air pollutants*

LIGHTNING STRIKES!!.............IN YOUR ROOM

Have you noticed how clean and fresh the air feels after a thunderstorm? That’s because lightning adds a negative charge to each oxygen molecule in a process called IONIZATION. In nature, negative ions are generated by various processes such as sunlight, lightning, ocean waves, and waterfalls. Ionaire electronically recreates this process indoors and the ion concentration is comparable to the healthiest environments in the world.

How Ionaire Works

Clean healthy air contains about 5000 negatively charged ions per cubic cm. As against this, the air in our cities with their concrete jungles and pollution, contain less than 100 ions per cubic cm, making many people unwell, depressed and tired.

The negative ions streaming out from IONAIRE attach to all the microscopic particles in your air and bind them together. Once the particle cluster has reached a certain size, it is too heavy to stay airborne and falls harmlessly to the floor. As a result, the particles will be prevented from being inhaled where they can trigger breathing allergies and other health problems. In short, Ionaire replenishes nature’s air cleaners.
**Particle Size is critical**

80% of the air pollutants are sub-micron particles which cannot be removed by air-filtration. Ionaire can remove particles as small as 0.01 microns from the air, while the best air filters are effective only till 0.3 microns. Particles and pollutants that can be removed by Ionaire, include: **viruses, bacteria, microfine dust, chemicals, gases, cigarette smoke, odors**. The smaller the particle, the deeper it travels into the lungs when inhaled and has the potential to cause more damage. Therefore, it is much more important to remove smaller particles from the air we breathe.

**Additional Benefits**

Apart from the obvious benefits of a cleaner environment, four decades of research has established the benefits of air-ions on humans. Negative ions are **proven** to relieve asthma, allergies, migraine, reduce pain, depression, fatigue and increase mental alertness and energy levels. Therefore they are called **“Vitamins of the Air”**. Computer displays and TV screens are known to cause ion-depletion leading to headaches, drowsiness and fatigue. IONAIRE can effectively correct this. Moreover, Ions are a natural constituent of fresh air and have no harmful side-effects.

**Here’s what the experts have to say………**

Pioneering ion researcher Dr. Albert Krueger of University of California states “In negative ion-rich air, psychoneurotic and somatic complaints disappear, **viral & bacterial** growth is inhibited, and **burns** heal faster with less scarring…… plus there are no detrimental side-effects from negative ions in any dosage”

Prof. Sulman of Jerusalem University has found negative ions to reduce **blood pressure**, control **histamine** and activate the **celia** to filter out dust effectively.

A study at Columbia University suggested that negative ions act as anti-depressants but without the side-effects of drugs.

A recent year-long study conducted at St James’s University Hospital in Leeds, UK concluded that negative ions greatly reduced infections in the ICU and wards. Dr Kevin Kerr, lead clinical microbiologist, said: “Acinetobacter infections are very difficult to treat as the bacterium is resistant to all antibiotics. Ionisers may become a powerful weapon against hospital-acquired infection.”

Dr. Hawkins at Surrey university discovered a 75% reduction in **headaches** when the air was ionized in a computer suite. Researchers also identified that negative ions lead to improved mental alertness, while positive ions cause headaches, lethargy, tension, irritability and discomfort. With T. Barker he also found negative ions to affect human **Bio-Rhythms** increasing concentration,
overcoming lethargy and fatigue. It was also found that a significant number of *Asthma, migraine* and *hay fever* sufferers experienced dramatic relief with the use of an ionizer.

Dr. Andrade, Professor NIMHANS Bangalore has this to say: “IONAIRE has been found to effectively reduce symptoms of serotonergic irritation, and to improve intellectual functioning. It also reduces the risk of colds, airborne infections, dust-related allergies and even asthma.”

According to ion-researcher Charles Wallach: “The issue of potential health hazards (VDT Operator Distress) stemming from the use of computers has been with us for some time................To counter this, it is necessary to introduce enough negative ions into the critical air space with an ionizer.”

Further proof…..More Studies Proving Effectiveness of Negative Ions

**Ions & Computers**

In the context of common and expanding computer use, computer related health risks assume considerable importance. The threat of serious and insidious injury comes from the VDU terminal............ A small desk-top personal ionizer can counteract the depletion of negative ions caused by the VDU “from ‘Taming the terminal ‘ by Mohinder Singh

**Ions & Air-conditioning.** Workplace consultants, Jukes Associates have shown that air-conditioned work environments can be transformed, producing massive reductions in symptoms and sickness levels just by improving the air quality through proper ionisation.

**Ions & Drivers**

A study by Toyota Central R & D Labs found that negative ions can improve fatigue and cognition of drivers.

**Ions & Wellbeing**

A high negative ion exposure was associated with feeling better about self, less sensitive, and more responsive and energized. -From August, 1982 issue of *Aviation, Space, and Environmental Medicine.*

**Ions & Bacteria**

A recent study by the U.S. Dept. of Agriculture found that ionizing a room led to 52% less dust in the air, and 95% less bacteria in the air (since many of the pollutants found in the air reside on floating dust particles).

The USDA also performed another study which proved that negative ions drastically reduced the airborne salmonella particles, prompting the following statement from the USDA: "These results indicate that negative air ionization can have a significant impact on the airborne microbial load and at least a portion of this effect is through direct killing of the organisms."

The Agriculture Research Service of the U.S. Dept. of Agriculture tested the effectiveness of ionizers for removing dust in a poultry hatchery. The dust level is very high in such an environment.

In this study, the use of an ionizer resulted in dust removal efficiencies that averaged between 81.1 ~ 92.2%. The airborne transmission of salmonella (to the eggs) was also significantly reduced as a result.

**Journal of Hygiene**

Scientists showed that ionization reduced bacterial levels in burns and plastic surgery units by over 96% after a two week period, which results in much better and more rapid healing of patients.

**Journal of Applied Microbiology**

The use of negative ions was even found by scientists to reduce the presence of airborne viruses by
about 40%. A study featured in the 1987 issue also showed the negative ions are free from any adverse side effects.

**Science**
A 1976 study featured in this publication provided evidence that negative ions can have a biologically lethal effect on airborne microorganisms.

**Journal of Hygiene**
A 1979 study found that using negative ionization in the air protected chickens from airborne infection of the deadly Newcastle Disease Virus.

**Journal of Food Protection**
A 2001 study found that airborne negative ionization was highly effective at destroying airborne and surface salmonella.

**University of Medicine and Pharmacy (Romania)**
A test on male rats showed that just moderate levels of negative ions increased the resistance of the rats, reducing or eliminating the effect of some chemicals.

**IONAIRE MODELS**

**IONAIRE** is the entry-level model of the series and is well-suited for homes and small offices with a coverage of about 150sqft.

The **IONAIRE – PLUS** featured alongside is twice as powerful as Ionaire and can purify larger areas. It is suitable for rooms upto 300 sq ft.
The **TURBO** model is the most powerful in the Ionaire series. With a negative ion output ten fold higher than the basic model, it is designed to cover up to 500 sqft and also deal with high levels of air pollutants and particulates.

The **Turbo** is ideal for large commercial establishments, shops, pubs, restaurants, hospitals, clinics and laboratories.

The air inside a car is loaded with dangerous pollutants such as petrol vapours, vehicle emission gases, smoke, odours and bacteria. In air-conditioned cars the situation is even worse since the pollutants get trapped inside.

This **CAR MODEL** plugs into your car's cigarette lighter socket to remove all odours and pollutants, creating an oasis of clean air. As an added bonus, ionized air also relieves tension and promotes better concentration.

A study at **Toyota Central R&D Labs** in 2002 showed that negative air ions can improve fatigue and cognition of the drivers.
TECHNICAL SPECIFICATIONS

IONAIRE
Dimensions in mm : 150 x 80 x 40
Weight : 200 gms
Power Supply : 2 pin 230 Volts AC
Power consumption : 1 watt
Ion output : 0.5 million ions per cu cm at 50 cms
Ion Emitters : 4 SS needle electrodes
Effective range : 1000 cu ft / 100 – 150 sq ft

IONAIRE PLUS
Dimensions in mm : 131mm Dia x 120mm Ht
Weight : 350 gms
Power Supply : 2 pin 230 Volts AC
Power consumption : 3 Watts
Ion output : 1 million ions per cu cm at 50 cms
Ion Emitters : Multipoint SS electrode
Effective range : 2000 cu ft / 150 – 250 sq ft

IONAIRE - TURBO
Dimensions in mm : 260 x 190 x 110
Weight : 600 gms
Power Supply : 2 pin 230 Volts
Power consumption : 6 Watts
Ion output : 10 million ions per cu cm at 50 cms
Ion Emitters : 7 nos Multipoint SS electrodes
Effective range : 4000 cu ft / 300 – 500 sq ft

CARONAIRE
Dimensions in mm : 85 dia x 33 Ht
Weight : 150 gms
Power : 12V DC 80ma
Ion output : 0.5 million ions per cu cm at 50 cms
Ion Emitters : Multipoint SS electrode
Installation : By double-sided tape on car Dashboard
Connection : to car cigarette lighter socket

Features common to all models:
Replacement parts: None
Maintenance: Routine cleaning
Warranty: 12 months

Frequently asked Questions

1. What are Negative Ions?
Any molecule which carries an extra negative charge is called a Negative ion and the process of adding this charge is called Ionization.

2. What is the history of Ions?
Ions were discovered in 1900 by Elster and Geital. In 1932, Dr. Hansell at RCA Labs observed that some engineers working in a room where there was an electrostatic generator experienced physical, mental and emotional depression when the charge was positive and the opposite effect when it was negative.

3. What can Negative Ions do for me?
Negative ion generators have been used for years to help rid indoor environments of allergens such as dust particles, animal dander, pollen, mold spores, cigarette smoke, particulate matter, etc. floating in the air.

4. What are the physiological benefits of negative ions on living beings?
- Stimulate the reticulo-endothelial system, a group of defense cells in our bodies that marshal our resistance to disease.
- Act on our capacity to absorb and utilize oxygen. Negative ions in the bloodstream accelerate the delivery of oxygen to our cells and tissues.
- Speed up oxidation of serotonin (5-hydroxytryptamine) in the blood. This is well known to have far reaching effects on mood and pain relief.

5. How does Ionaire purify the air?
The negative ions produced by Ionaire cause microscopic particles floating in a room, to clump together and fall to the floor (or other surfaces) where they can be vacuum or swept up. The particle will fall out of the air, preventing it from being inhaled into the respiratory tract where it can trigger breathing and health problems.

6. What are sources of Ions?
a) Natural sources: Thunderstorms, lightning, snowstorms, waterfalls, water spray on the seashore, dust storms, radioactive materials and solar radiation.
b) Man-made sources include: combustion, electrical equipment, X-rays and high-voltage discharge.

7. What are causes of Negative Ion depletion?
Research has also shown that polluted areas both indoors and outdoors have very low levels of negative ions, and very high levels of positive ions. It would seem that all or most of the available negative ions had been used up in their fight with contaminants. The picture tubes (CRTs) in computer monitors and TVs also deplete the air of negative ions. So does the airflow through furnace ducts and air conditioning systems.

8. Do I really need an air purifier in my home?
It depends on several factors, including your own comfort level and the air quality in your area. Indoor air is often worse than outdoor air quality. In fact, for many people, indoor allergens and irritants such as dust, smoke and pet dander may be five to ten times worse in their homes than outdoors!

9. Do all air purifiers clean the same kinds of pollutants from the air?
No. Although all air cleaners remove certain particulates from the air, there are differences in what and how they clean. The table below illustrates the effective range of different Air purifiers. Conventional filter type air cleaners can remove dust and particulates such as pet dander.
effectively, but they have no effect on finer particulates such as smoke, bacteria, viruses and molds and mildew. Only units such as IONAIRE designed on the ionizing principle can be effective on all the above.

10. **How do I know what size air purifier to get for my home?**
Actually, most air purifiers are designed for individual room use rather than for the whole home. Unless you have an air purifier or air filtration system that has been installed on your heating or air conditioning unit, you should get separate units for each room or living space. The reason you need separate units for each room is because effectiveness is affected by air flow, and walls block air circulation. Moreover, the ion has a short life of just 15 to 20 seconds before it loses its charge and it’s effective range is therefore limited to about 10 to 15 feet. Ionaire is available in 3 capacities to cater to various room sizes and pollutant loads.

11. **What are the different pollutants and particles found floating in indoor air?**
*Biological:* pollens, spores, molds, bacteria, viruses, hair, skin cells, insect excreta & byproducts, and food byproducts.
*Mineral:* asbestos, clays/silica, carbon, lead, man-made fibres, hydrocarbons.
*Combustion products:* tobacco or wood smokes, particles generated by cooking or heating appliances, and industrial processes.
*Radioactive:* radon-decay products

Particles between 5 and 10 microns tend to be caught in the nose and throat. Particles smaller than this travel readily into the lungs.

12. **What is a micron?**
A micron is a measurement of particulate size in the air. One micron is 1/1000 mm (roughly 100 times thinner than a single strand of hair). Obviously, a micron is far too small to be seen. The best filter type air purifiers can go down to 0.3 microns and only an ionizer can remove particles as small as 0.01 microns.

13. **What are typical particle sizes?**

<table>
<thead>
<tr>
<th>Micron</th>
<th>Typical particles</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Heavy atmospheric dust and flyash</td>
</tr>
<tr>
<td>5</td>
<td>Molds, pollen, average dust</td>
</tr>
<tr>
<td>1</td>
<td>Bacteria, fine dust</td>
</tr>
<tr>
<td>0.3</td>
<td>Bacteria, tobacco smoke</td>
</tr>
<tr>
<td>0.1</td>
<td>Viruses, bacteria (some are smaller than 0.01 micron)</td>
</tr>
</tbody>
</table>

14. **What are the adverse Health effects from inhaling various particles?**
Irritation of eyes, throat, nose, lungs, impaired respiratory mechanics such as coughing, wheezing, shortness of breath aggravating existing respiratory conditions such as asthma, allergies, or bronchitis impacts on the immune system or central nervous system and cancer.

15. **What about running costs?**
When buying an air purifier, also take into account the cost of any replacement filters and the electricity to run the unit. IONAIRE, IONAIRE-Plus and Turbo model have no recurring costs and cost just Rs.4, Rs.6 & Rs.8 per month respectively in electricity.

16. **Will IONAIRE be noisy?**
Filter based air purifiers, for instance, have fans to pull the air through and are therefore noisy. Ionic units like IONAIRE don't need a fan because they use an electrostatic charge to disperse the ions, so they are completely silent.

17. **What rooms should I put an air purifier in?**
The rooms you use the most are the most important rooms for air purifier use. Your living area, especially if you have allergies or pets that are in the room regularly, or if anyone in the household smokes. Bedrooms are also a good location, since allergies and irritants can disturb our sleep. Clean, fresh
air rich in negative ions has been proven to produce more restful sleep and reduce night breathing problems while sleeping.

18. Where in each room should my air purifier be located?
For any air purifier, it is most important to locate it near the most activity or traffic flow so that there is plenty of air circulation around the unit. It is also recommended to place the unit at a distance of at least 50 cms from any wall since due to the high concentration of Negative ions near the generator, the maximum deposit of pollutants occurs in the immediate vicinity of the unit.

19. What are the advantages of an Ionizer over conventional filter based air purifiers?
Removes finer particles than either HEPA filters, electronic air cleaners, or any other type of air purifier available. A fan-type air filter can only filter the air that is drawn through it, whereas negative ions disperse throughout the room causing particles to drop out of the air.

- Ions rapidly disperse in the room due to mutual repulsion of uni-polar charge and is not dependent upon moving air in the room to circulate ions.
- No filters, no replacement parts.
- Silent operation, no noise to disturb sleep.
- Windows can be left open or closed.
- Permanent heavy duty emitter.
- True ion monitor supplied with each unit to verify proper functioning.
- Low maintenance and operating cost, just Rs.4 to 8 per month.

20. Are there any harmful effects associated with overdose of negative ions?
Numerous studies have proven the complete absence of adverse effects of protracted negative ionisation. The most notable one by Dr. Sulman of Israel was published in the International Journal of Biometerology.

21. Do the walls near the ionizer get blackened?
Due to the high concentration of Negative ions near the generator, the maximum deposit of pollutants occurs in the immediate vicinity of the unit. Therefore, if the ionizer is close to a wall and/or in a very polluted area, deposition of pollutants may accelerate the natural darkening of the immediate environment. It is therefore recommended to place the unit at a distance of at least 50 cms from any wall.

22. Could you cite some scientific studies proving the beneficial effects of Negative ions?
According to the book *The Ion Effect*, negative ions are effective for allergies, asthma, catarrh, hay fever, sinusitus, eczema, burns, emphysema. It was discovered that negative ions balance serotonin in the body, and this explains why people tend to feel more alert, stable and energized in the presence of negative ions. Dr. Kreuger found that bacteria, staphylococci, and fungi growth is halted in the presence of negative ions. Dr. I. Kombuch mounted experiments at Northeastern Hospital, and at the Frankford Hospital in Philadelphia where he was able to report that 63% of patients suffering from hay fever or bronchial asthma have experienced relief from negative ion therapy. Russian studies reveal that positive ions, on the other hand, make breathing more difficult. Negative ions neutralize positive ions.

A high negative ion exposure appeared associated with feeling better about self, less sensitive, and more responsive or innervated (energized).

"Results indicated that subjects had faster reaction times and reported feeling significantly more energetic under negative Air Ion conditions than under normal air conditions." From "Influence of Negative Air Ions on Human performance and Mood". 
A study published in 2001 in the *Journal Of Food Protection* indicates that high levels of negative air ions has a significant impact on the airborne microbial load and that most of this effect is through direct killing of the organisms. This technology also causes significant reduction in airborne dust.

23. **What is Sick Building Syndrome (SBS)?**
First employed in the 1970s, the term "sick building syndrome" (SBS) came about when occupants, of large buildings experienced acute health problems and discomforts that appeared to be linked to time spent in a particular building, but no specific illness or cause could be identified. Generally, specific and nonspecific complaints are involved and typical complaints in addition to the signs and symptoms already listed, may also include eye and/or nasopharyngeal irritation, rhinitis or nasal congestion, inability to concentrate, and general malaise-complaints suggestive of a host of common ailments. The key factors are the commonality of symptoms and absence of symptoms among the building occupants when the individuals are not in the building. The Sick Building Syndrome has been officially recognised by the World Health Organisation.

24. **What Causes Sick Building Syndrome (SBS)?**
The factors most responsible are bad design, synthetic building material, bad ventilation and air handling, polluting equipment and air conditioning which recirculates the same stale air. The air-conditioning also strips the air of negative ions leading to lethargy, and other ailments.

25. **What are common Symptoms of SICK BUILDING SYNDROME?**
- fatigue - just feel tired all the time
- headache, dizziness, nausea
- irritation of mucous membranes
- sensitivity to odors and certain smells

26. **What is the solution to SBS?**
Numerous studies have shown that ionizing a sick building is the simplest and most cost-effective means of tackling this problem.