

Panasonic



nanoe™ X
air purification technology

Introducing an advanced cooling and heating system with built-in air purification technology for a cleaner, fresher and more comfortable indoor environment.

 nanoe™ X

Experience a fresher and more comfortable indoor environment



7 effects of nanoe™ X air purification technology

Deodorizes



Odors

Inhibits 5 types of pollutants*



Bacteria & viruses



Mold



Allergens



Pollen



Hazardous substances

Moisturizes



Skin & hair

*nanoe™ X reduces the concentration of select pollutants, mold, allergens, pollen, PM2.5, and odors and the growth of certain viruses and bacteria, but does not prevent them.

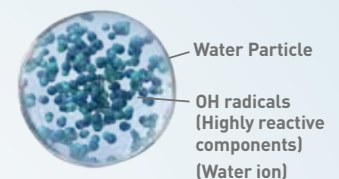
What is **nanoe™**?
nano-technology + electric =

nanoe™ X is nano-sized electrostatic atomized water particles that are rich in OH radicals.



nanoe™ X is the next generation of nanoe™ technology and is generated from moisture in the air that contains highly reactive components known as hydroxyl (OH) radicals, which are effective at suppressing pollutants and odors.

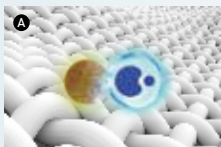
4.8 trillion OH radicals / sec



Approx. 5 - 20nm

How **nanoe™** works?

Deodorizes Odors



nanoe™ X reaches odor in fabric

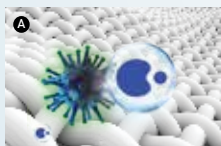


OH radicals break down odor-causing substances



Deodorizes smells in fabric

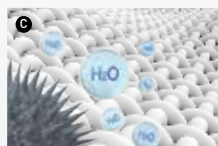
Inhibits Airborne and Adhered Pollutants



nanoe™ X reaches pollutants in fabrics

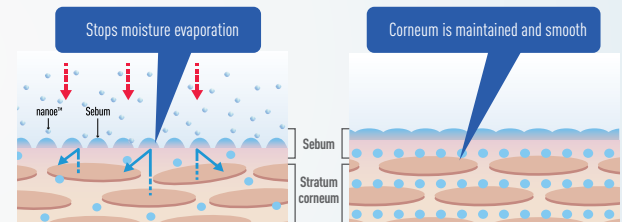


OH radicals take hydrogen away from pollutants



OH radicals transform hydrogen to inhibit the activity of pollutants

Helps maintain skin moisture



Using existing moisture already in the air, nanoe™ X hydrates the sebum (produced by sebaceous glands to lubricate the skin) on the skin to help prevent loss of moisture.

[28 days later] Leads to smoother, well hydrated skin.*

*Test Laboratory: FCG Research Institute Inc. Report no. 19104

nanoe™ X inhibits both airborne and adhered pollutants and odors in the home



Helps create an environment that's clean and safe for babies



Living room

The carpets where babies spend much of their time conceal a great deal of mold, bacteria, viruses and allergens deep in their fibers. nanoe™ X inhibits these pollutants, helping to make carpets cleaner and safer for babies.



Makes homes more comfortable for families with pets



Bedroom

Mites and dander from pets are a major cause of allergies in the home. nanoe™ X not only effectively inhibits these allergens but also eliminates many odors that permeate mattresses, blankets and more.



Keeps the living room fresh and inviting

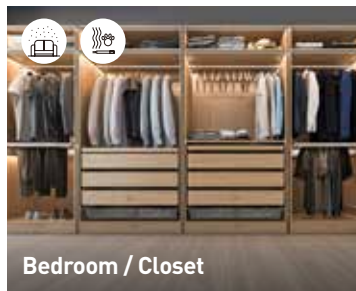


Living room

The smell of unpleasant odors tends to permeate furniture and curtains over time. nanoe™ X inhibits odors, leaving the air in your living room fresh and inviting.



Protects your valued clothing and other stored items



Bedroom / Closet

Air tends to become stale and humid inside closets, encouraging the growth of mold. nanoe™ X inhibits the growth of mold to help protect your clothing and other stored items.



Inhibits harmful substances in PM2.5 brought in from outside



Entryways

Harmful substances in PM2.5 and pollen that are thought to cause asthma, bronchitis and other health issues tend to cling to your clothing and hair when you come in from outside. nanoe™ X breaks down and inhibits these substances.



Moisturizes skin and hair for a little extra self-care



Bedroom

nanoe™ X helps keep your hair and skin moisturized while you sleep or spend time with your family. nanoe™ X hydrates the sebum on the skin to prevent the loss of moisture.



VERIFIED
ZERO OZONE
DOES NOT EMIT MORE THAN
0.005PPM AS TESTED
PER UL 867

Ozone concentration during the nanoe™ X generating mode has been verified by California Air Resources Board (CARB) and INTERTEK respectively per authorized testing standards.

- Standard value of California Air Resources Board (CARB): 0.05ppm or lower
- Standard value of INTERTEK "Verified Zero Ozone": 0.005ppm or lower



Panasonic's Advanced Air Purification System

Panasonic's nanoe™ Technology is a revolutionary air purification system that helps keep your living space fresh and clean for you and your family.

The effects of nanoe™ Technology are recognized by experts in each field

Recommended for use in facilities such as medical institutions where greater cleanliness is required



**Professor
Masafumi Mukamoto**

Osaka Prefecture University
Veterinary Infectious Disease Studies

Various types of molds enter houses along with people and air. Even if preventive action is taken in our everyday lives, it is often very difficult to inhibit the growth of mold, especially in humid environments. With nanoe™ X, we have experimental results*1 that show we can inhibit the growth of the types of mold commonly found in various places in the house. As nanoe™ X is also capable of inhibiting invisible bacteria and viruses that exist in our living environment. I recommend that equipment incorporating nanoe™ X technology be placed in buildings where cleanliness is required, such as in schools, childcare facilities and medical institutions.**

Hope for the creation of more comfortable spaces for those who have problems with asthma or atopic dermatitis



**Professor
Masahiro Sakaguchi**

Azabu University School of Veterinary
Medicine Department of Veterinary Medicine

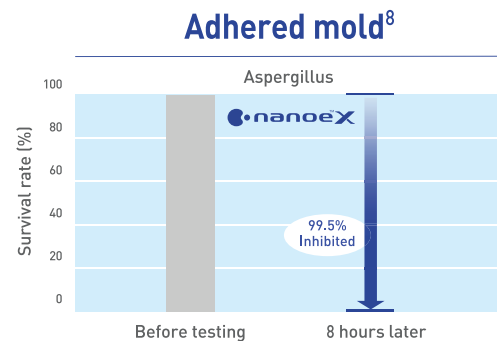
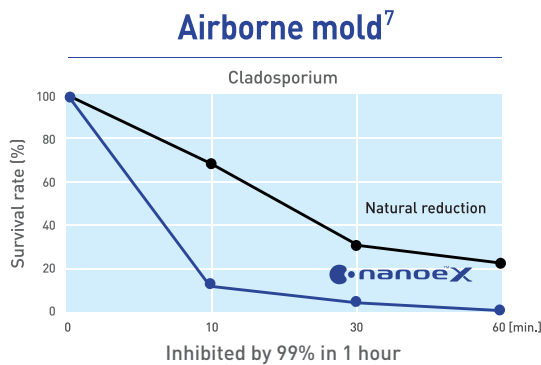
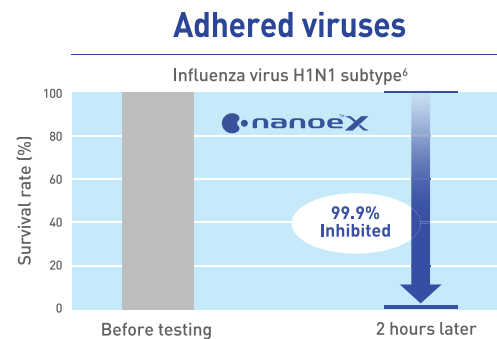
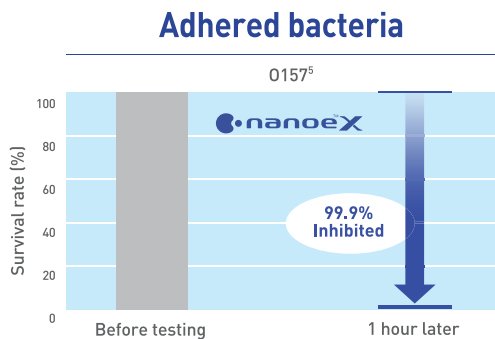
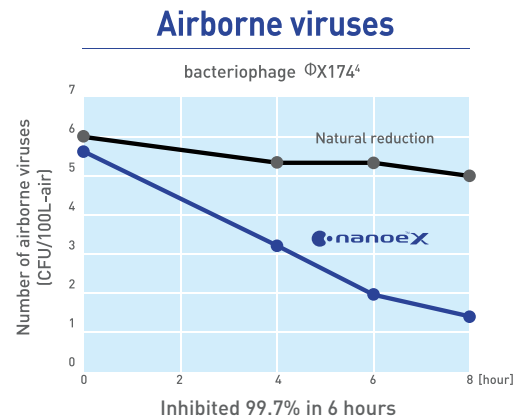
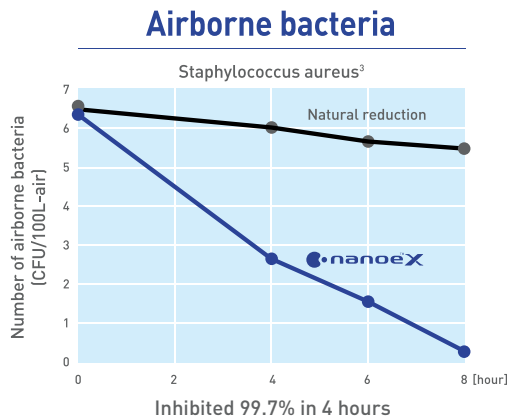
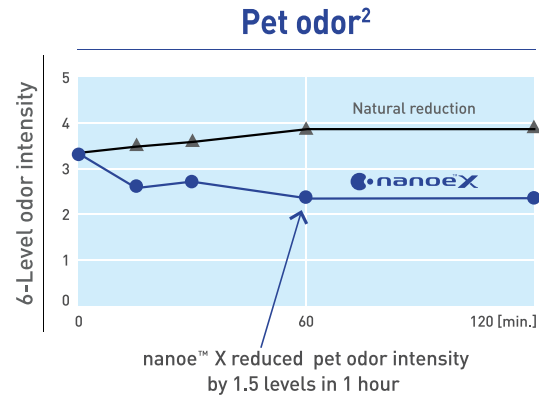
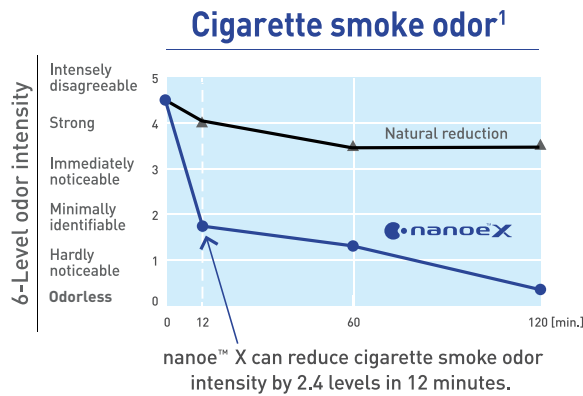
We have experimental results that show nanoe™ X is capable of inhibiting allergens, such as pollen and dust mites. It is important to take precautions against the allergens that we inadvertently inhale in our daily lives.

As nanoe™ X is effective in inhibiting invisible allergens, we can expect it will create a cleaner environment.**

*1 Experimental results show that nanoe™ X is effective in inhibiting the growth of the following types of mold commonly found in homes: Cladosporium, Aspergillus, Penicillium, Alternaria, Fusarium, Eurotium, Mucor, and Stachybotrys.

** The above indications and statements are made in reference to available information.

The Effectiveness of nanoe™ X Technology



*nanoe™ X reduces the concentration of select pollutants, mold, allergens, pollen, PM2.5, and odors and the growth of certain viruses and bacteria, but does not prevent them.

¹ <Cigarette smoke odor> [Test org.] Panasonic Product Analysis Center [Test method] Verified using the six-level odor intensity scale method in an approximately 23m³ sized test room [Deodorization method] nanoe™ released [Test substance] Surface-attached cigarette smoke odor [Test result] Odor intensity reduced by 2.4 levels in 12mins (44433-160615-N04)

² <Pet odor> [Test org.] Panasonic Product Analysis Center [Test method] Verified using the six-level odor intensity scale method in an approximately 23m³ sized test room [Deodorization method] nanoe™ released [Test substance] Surface-attached pet odor [Test result] Odor intensity reduced by 1.5 levels in 1 hour (44433-160315-A34)

³ <Airborne bacteria (Staphylococcus aureus)> [Test org.] Kitasato Research Center for Environmental Science [Test method] The number of bacteria is measured after direct exposure in an approximately 25m³ sized airtight test room [Inhibition method] nanoe™ released [Test substance] Airborne bacteria [Test result] Inhibited by at least 99.7% in 4 hours (24_0301_1)

⁴ <Airborne virus (bacteriophage ΦX174)> [Test org.] Kitasato Research Center for Environmental Science [Test method] The number of virus is measured after direct exposure in an approximately 25m³ sized airtight test room [Inhibition method] nanoe™ released [Test substance] Airborne virus [Test result] Inhibited by at least 99.7% in 6 hours (24_0300_1)

⁵ <Adhered bacteria (O157)> [Test org.] Japan Food Research Laboratories [Test method] Measured the number of bacteria adhered to a cloth in an approximately 45L sized airtight test room [Inhibition method] nanoe™ released [Test substance] Adhered bacteria [Test result] Inhibited by at least 99.99% in 1 hour (208120880_001)

⁶ <Adhered virus (Influenza virus H1N1 subtype)> [Test org.] Kitasato Research Center for Environmental Science [Test method] Measured the number of virus adhered to a cloth in an approximately 1m³ sized airtight test room [Inhibition method] nanoe™ released [Test substance] Adhered virus [Test result] Inhibited by at least 99.9% in 2 hours (21_0084_1)

⁷ <Airborne mold (Cladosporium)> [Test org.] Japan Food Research Laboratories [Test Method] Measured the number of mold altered in an approximately 23m³ sized test room [Inhibition method] nanoe™ released [Test substance] Airborne mold [Test result] Inhibited by at least 99% in 1 hour (205061541-001)

⁸ <Adhered mold (Aspergillus)> [Test org.] Japan Food Research Laboratories [Test Method] Measured the mold adhered to a cloth [Inhibition method] nanoe™ released [Test substance] Adhered mold [Test result] Inhibited by at least 99.5% in 8 hours (11038081001-02)

Research into nanoe™ air improvement

The nanoe™ technology has

Public transport



JR Kyushu
Cruise trains:
Adopted for the
Seven Stars
in Kyushu



KEIHAN
Keihan Main Line:
Adopted for
admission-paid
special railcars



KEIO
Keio Line:
Adopted for
new railcar models



JR East
Yamanote line:
Adopted for
E235 series models



• Humidifying air purifiers



• Humidifiers



• Clothes drying
dehumidifiers

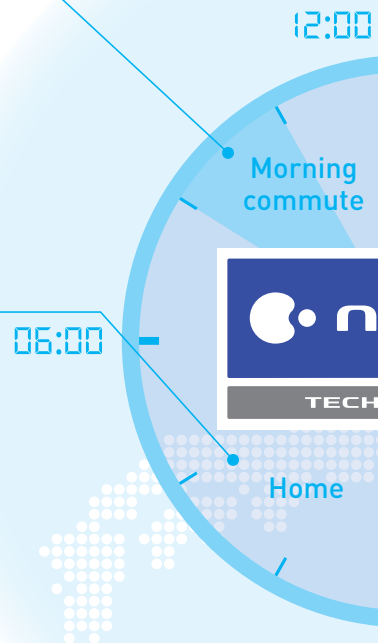


• Fans

Home



• Air conditioners



Public spaces

• Ceiling-embedded nanoe™ generators

Hotels



Panasonic is committed to the improvement of air quality with

technology began more than 20 years ago.
spread to various fields in Japan.



Office

- 4-way cassette air conditioners

- Elevators



HITACHI



LC
LC500h / LC500



Automotive



TOYOTA

Expanding adoption to **39** models
(as of October 31st, 2019)



SUZUKI

Adopted for **3** models

Adopted as optional
accessory

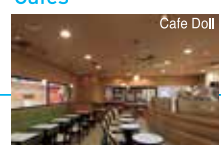


SUBARU CORPORATION

Cafes



Parkside Hotel



Cafe Doll

Hospitals



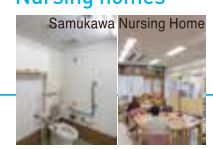
Sakana-machi Hospital

Nursery schools



Ayumi Nursery School

Nursing homes



Samukawa Nursing Home

nanoe™ Technology.

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Learn more about
nanoe™ X technology



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more information



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market since 1983

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