

Tornex AirGuardian Air Curtains



Tornex proudly presents our latest state-of-the-art energy-saving air curtain products, equipped with Sharp's patented* *Plasmacluster Ions™ Health Technology* as a standard feature!

*(Patent No. 3680121)



Waiting Rooms



Patient Rooms



Class Rooms

Breakthrough Technology!!

Japan Institute of Invention and Innovation, 2008
 Awarded the "Invention Prize" for "Air Purification
 using Plasmacluster Ions" at the National



Commendation for Invention Prizewinners

By convention, air curtains are used as an equipment to conserve energy, as they can effectively create a barrier to avoid the cooled air in the room to escape out to the atmosphere. Meanwhile, they can prevent undesirable foreign objects, such as dusts, fly ashes, pollens, insects, bad odors, etc, to enter the buildings. The airborne substances such as fungi, virus and mite allergens are still floating in the environments around us. Sharp's proprietary Plasmacluster Ion technology solves the problem by deactivating airborne fungi, etc.

On the other hand, the airborne substances such as fungi, bacteria, viruses and mite allergens are constantly floating in the environments around us. Sharp's patented Plasmacluster Ion™ Generator is a proven technology to suppress and deactivate these organisms, thereby purifying the air.

Tornex undertook the challenge of combining these two proven technologies smartly together and successfully launched the new generation of air curtains – **Tornex Air-Guardian Air Curtains!**



TORNEX



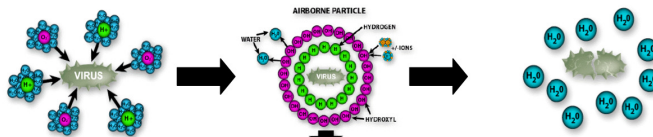
Vertical Type



Horizontal Type



Plasmacluster™



1 Ion emission

Plasma discharges are used to create and release into the air the same positive and negative ions that occur in nature.

2 Effect on mold and viruses

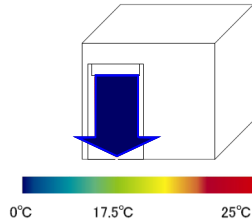
Only when the ions come into contact with the surface of a mold spore, bacteria or virus do they transform into OH radicals with extremely powerful oxidation properties. The OH radicals instantly steal hydrogen (H) from the proteins on the bacteria surface, breaking down the proteins.

3 Ions turn into water and return to the air

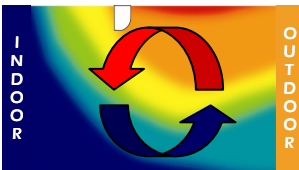
The combining of an OH radical with hydrogen (H) creates water (H₂O), which returns to the air.

Demonstration – Heat Blocking Effect

A room of size: 2.7m x 2.7m x 2.7m was set up. Cool the room temperature to 20°C. When the outdoor temperature becomes 30°C, open the door (size: 1.9m x 1.2m). At 4 minutes after the door opened, the effect was evaluated by using thermograph as shown below:

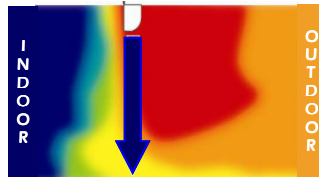


Without Tornex Air Curtain



The indoor cool air flew out of the room, causing substantial energy loss. Meanwhile, outdoor hot air flew into the room, warming it up.

With Tornex Air Curtain

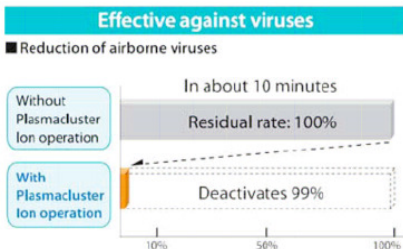


The room temperature was stable around 20°C and the outdoor air could not blow in.

Effective against:

Bacteria, Viruses & Influenza (Including H5N1, H1N1) ,
Mold , Germs, Mold , Spores, Pollen, Dust, Pet Odors

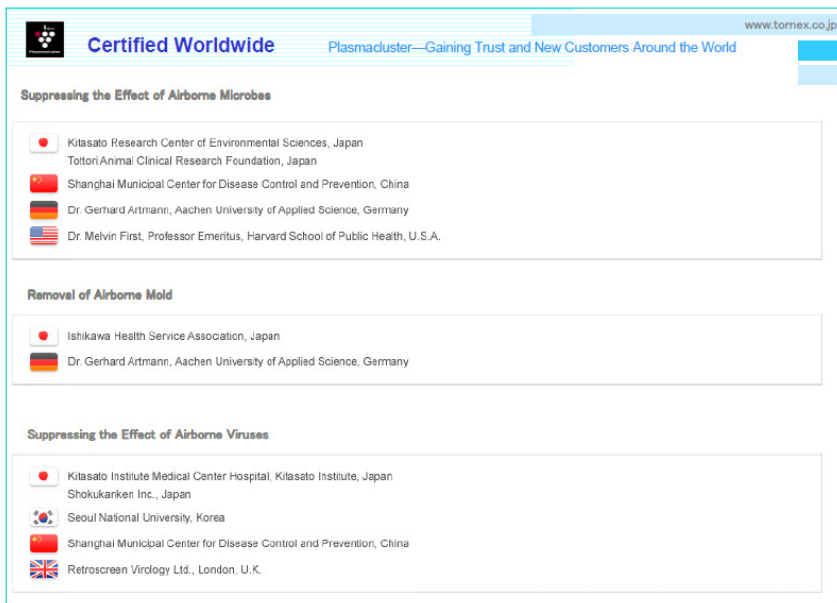
- Suppresses the effects of airborne viruses. (proven through experiments conducted in a 1m³ box).
- Breaks down and removes allergens such as dust mite feces and dead dust mites.
- Breaks down and removes airborne mold and suppresses the proliferation of adhering mold.
- Removes odors that adhered to curtains, sofas, and other objects.



Testing Body : Retroscreen Virology Ltd., UK
Test Method : Viruses were suspended in a 1m³ box and the rate of virus removal from the air was measured.
Research Number: PNT-PCS-001

Benefits of installing Tornex AirGuardian Air Curtains:

- + Reputable and Innovative Japanese Brand incorporated with Trustworthy Partner
- + Energy Saving and Heat Blockage Effect
- + Air Purifying Technology by SHARP's Patented Plasmacluster Ion™
- + Simple and Easy Handling and Installation



The screenshot displays the 'Certified Worldwide' section of the Tornex website. It features a navigation bar with the Tornex logo, the text 'Certified Worldwide', and the slogan 'Plasmacluster—Gaining Trust and New Customers Around the World'. The URL 'www.tornex.co.jp' is visible in the top right corner. The main content is organized into three categories, each with a list of international partners:

- Suppressing the Effect of Airborne Microbes:**
 - Japan: Kitasato Research Center of Environmental Sciences, Tottori Animal Clinical Research Foundation
 - China: Shanghai Municipal Center for Disease Control and Prevention
 - Germany: Dr. Gerhard Artmann, Aachen University of Applied Science
 - U.S.A.: Dr. Melvin First, Professor Emeritus, Harvard School of Public Health
- Removal of Airborne Mold:**
 - Japan: Ishikawa Health Service Association
 - Germany: Dr. Gerhard Artmann, Aachen University of Applied Science
- Suppressing the Effect of Airborne Viruses:**
 - Japan: Kitasato Institute Medical Center Hospital, Kitasato Institute
 - Japan: Shokukankei Inc.
 - Korea: Seoul National University
 - China: Shanghai Municipal Center for Disease Control and Prevention
 - U.K.: Retroscreen Virology Ltd., London

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