



CLEanTech

World's first smart sanitizing channel



CLEanTech

J-series

How CleanTech works:

Step 1 Temperature check before entry:

After passing the temperature detection (SenseThunder-E mini), door will open and the person can walk into the negatively pressured room.

Step 2 Dirt removal:

Disinfection procedure will initiate, particles and dust on the person will be blown off by Vortex. Negative pressure operation with filtered discharge, 0.3um HEPA filtration traps 99.99% of bacteria and virus, removing them from the chamber air volume. The entire chamber volume is passed through the HEPA filter more than once per cycle.

Step 3 UV trigger photocatalyst of AEGIS INTELLIGENT 5700 SC coating

Aegis Intelligent 5700SC coating applied on the wall of the chamber, it will kill the bacteria and virus blown onto the surface of CleanTech by physical puncturing. Also the photocatalyst, activated by UV light releases radicals that penetrate and inactivate microbes on most areas of the person in the chamber. The coating will be decomposing germ and virus into harmless carbon dioxide and water.

Step 4 Sterilize with BioEm:

BioEm Air Sanitising and Purifying Liquid is jetted into the chamber through a fine 90 degree fan nozzle. It joins the vortex flow and is deposited evenly on the clothing of the person for final sterilization before stepping out of the CleanTech.

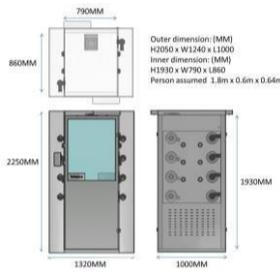


The whole process of above step 1, 2, 3, 4 could be set 12 seconds to 60 seconds depending on the requirements.



J-series model No. **J-1**

Size: H2352 x W1842 x L1200 (with jacket)
 Weight: 380 kg
 Size: H2052 x W1242 x L1000 (without jacket)
 Weight: 204 kg



Specification:

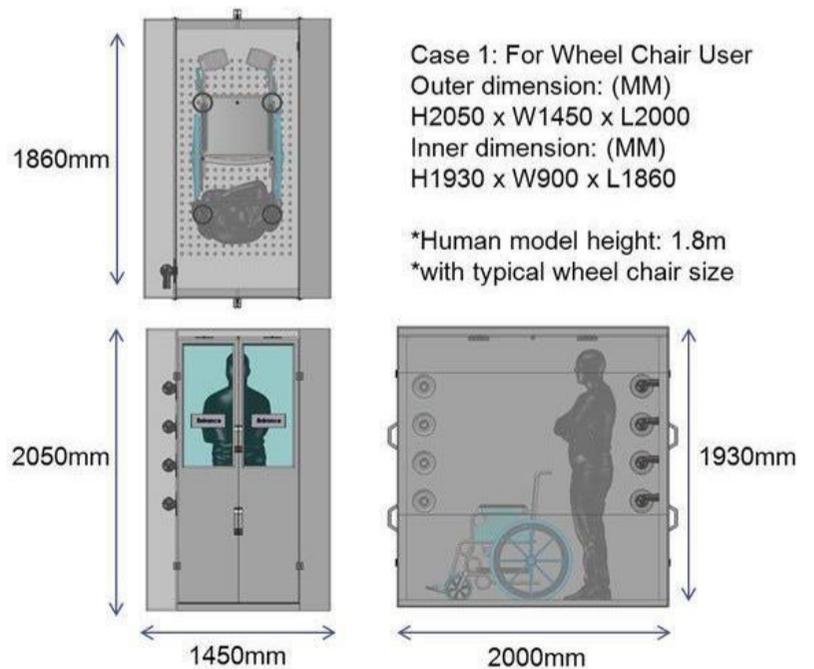
Nozzle flow	
Nozzle speed	18.48 m/s
Dynamic head	209 Pa
Box pressure	209 Pa
Air nozzle diam	28 mm
Air nozzle area	0.000616 m ²
Air nozzle no.	8
Total nozzle flow rate	0.091 m ³ /s

Escape flow	
Box pressure	173 Pa
Escape speed	16.81 m/s
Escape hole diam	51 mm
Escape hole area	0.00204 m ²
No. Of holes	5
Total escape area	0.0082 m ²
Escape flow rate	0.137 m ³ /s

Turn over	
Filter flowrate	0.23 m ³ /s
Chamber length	869 mm
Chamber width	790 mm
Chamber height	1930 mm
Chamber volume	1.32 m ³
Fan on time	10 s
Filter turnover	1.7
Fresh air turnover	1.0

Made in HK
 HK HS Code 85437000

(for wheel chair size)



Size: H2050 x W1450 x L2000 (without jacket)
 Weight: 395.5 kg

J-series model No. **J-2**

SenseThunder-E mini Thermal Thermometry Integrated Terminal

SenseThunder-E mini thermal camera is a temperature measurement product designed based on the thermal imaging technology. Powered by a high-precision uncooled vanadium oxide detector chip, this product provides users with a friendly and long-distance temperature measurement experience.

Based on high-performance face recognition hardware platform of SensePass and SenseTime's latest deep learning facial recognition algorithm, SenseThunder-E mini thermal camera can ensure safe and efficient access with a recognition process does not need to remove the mask. It associates the temperature with user's information automatically, thereby dispense with tedious manual registration. Besides, SenseThunder-E mini provides devices management for users in SenseLink Cloud Platform. In CLeanTech, if acceptable (below 37.5C), a signal is passed to allow the person the access the sanitizing tunnel.

Temperature measurement
 Temperature Measurement Distance: Up to 1.2m, contactless
 Accuracy: +_0.4C
 Ambient Temperature: 17-30C(no wind & no sunlight)

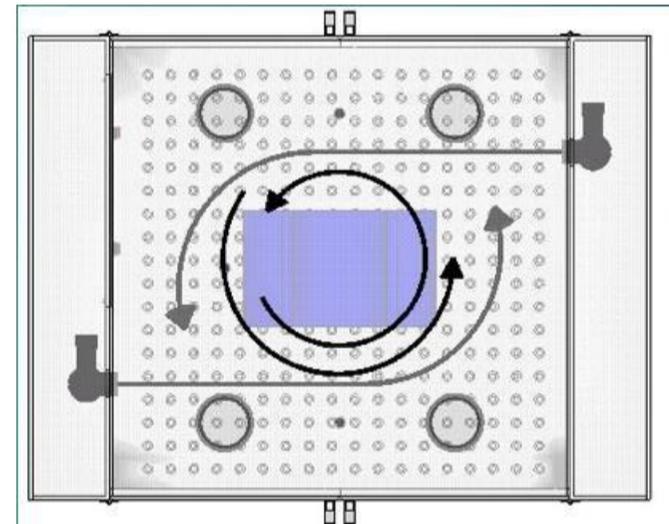
Face recognition
 20,000 facial images in the local database
 The recognition process doesn't need to remove mask
 Standard interfaces: RJ45, Wigan and GPIO



Negatively Pressured Room

CLeanTech chamber is designed as a negatively pressure room, like the infectious patient areas in hospital. Such that no microbes can escape from the system.

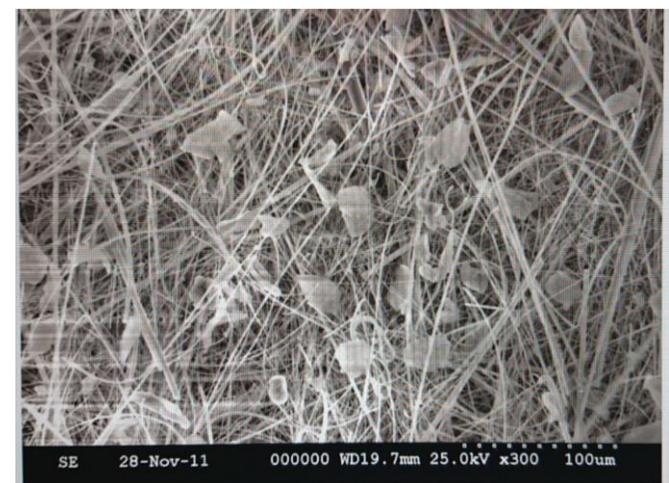
Air is pumped into the chamber through 8 nozzles (model: J1) at over 18m/s. The flow is driven by a 1,000 cu.m/hour centrifugal fan. All air leaving the fan passes through the HEPA filter before return to the chamber. For a 10s cycle, the volume of the chamber is passed through the filter 1.7 times. This continuous outflow makes the pressure inside the chamber drop. Also, The nozzle arrangement is designed to form a vortex flow around the person.



HEPA fitre

The HEPA filter is the heart of the air circulation system. Virus are about 0.125um in size and at this size, NASA report shows that a normal HEPA filter with 0.5um diameter fibres in a multi-fibre mesh, can capture virtually all particles of the size of the present coronavirus. HEPA effectiveness is over 99.99%.

Particles and dust on the person will be blown off and trapped in the HEPA filter. 0.3um HEPA filtration can trap 99.99% of bacteria and virus, removing them from the chamber air volume. The entire chamber volume is passed through the HEPA filter more than once per cycle.



Aegis Intelligent 5700 SC coating

Aegis Intelligent 5700SC coating applied on the wall of the CLeanTech chamber. It based on Aegis formulated in the US and it has over 40 years of proven contributions to global bacterial safety and microbial control. Aegis Intelligent 5700SC is performance enhanced with TiO2 photocatalyst formulation to enable its air and self-sanitising property triggers by UV or visible light presence in the ambient (CLEanTech chamber), in addition to its excellent antimicrobial property.

- Effectively eliminates bacteria, fungus, mould, formaldehyde, VOC and provides deodorisation.
- Particularly suitable for high-risk areas such as hospitals, nursing homes, kindergartens.
- Uses cooperative photocatalytic technology to actively attack viruses and bacteria attached to objects using sunlight or light, with lasting protective effects of up to 12 months.
- Uses double sterilisation technology for improved efficacy and protection against a range of bacteria.
- Non-toxic, safe, and environmentally friendly, with international certification, and has passed toxicity testing by US EPA. Obtained safety and environmental protection verification in many developed countries, America, Canada, Japan, EU, etc.

Dual Kill Mechanism:

1) Physical sterilisation

- Aegis Intelligent 5700SC works for 24 hours with its unique nano needles formed on the thin film (coating) bonded firmly to substrates like window, wall, ceiling, door, floor, furniture etc.
- The solid thin film carries slightly +ve charges, it kills by puncturing and electrocuting -ve charged germs and virus on contact with the nano needles.
- Brownian motion also forces microbes to bombard frequently with Aegis Intelligent nano needles even in still air.
- The unique physical puncture sterilisation is different from the other common sanitisers kill by chemical poisoning methods. This non chemical poisoning kill mechanism made Aegis Intelligent 5700SC a much safer choice in terms of toxicity and environmental friendliness.
- Prevents bacteria from building up resistance for potent and continued sterilisation.

2) Photocatalytic technology

- Light (photon) excited photocatalyst zap harmful microbes by its emitting anion, a strong oxidizing OH- hydroxyl groups, which decompose and reduce germs and virus into harmless carbon dioxide (CO2) and water (H2O).
- Accumulated water film on the chamber starts self cleaning the surfaces, results in reducing stain marks on the surface.
- Eliminates bacteria, indoor formaldehyde, and other harmful volatile organic compounds (thinners, etc.) under sunlight or artificial light .
- The effect provides lasting protection for up to 12 months for powerful and continuous disinfection.

Component: Methyl Alcohol,
Octadecyldimethyltri-hydroxysilylpropyl
Ammonium Chloride, Water
Appearance: Liquid, colourless
Odour: None
pH: 5
Melting point/ freezing point: 0 degree
Initial boiling point and range: 100 degree
Flash point: None



Viruses exist in enveloped (like a membrane) and non-enveloped forms (naked). Aegis (Dow Corning Corp) scientist/ researchers and others had successfully used Aegis® 5700 series antimicrobial to control both the enveloped and non-enveloped type of viruses just like normal microbes including bacteria, fungus, algae and yeast.

List of Viruses tested: (Curt White has written a short review 2006)

Adenovirus Type II & IV
Bovine Adenovirus Type I & IV
Feline pneumonitis
Herpes Simplex Type I
Herpes Simplex Type II
HIV-1 (AIDS)
Influenza A2 (Aichi)
Influenza A2 (Asian)
Influenza B
Mumps
Par influenza (Sendai)
Rous Sarcoma
Rotavirus Type I
Simian Virus 40
Vaccinia
MS2
PRD1

Coronaviruses are enveloped single stranded RNA viruses found in animals, birds, and now human. These highly infectious viruses could cause pulmonary hepatitis, CNS and intestinal diseases.

Since the killing mechanism of Aegis for microbes with membrane is by means of mechanical puncturing and electrocution, not by chemical poisoning, the chance of controlling coronaviruses growth using Aegis is optimistic.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

I, Yolma Noble, Product Manager/Team 31, Regulatory Management Branch 1, of the Antimicrobials Division, Office of Pesticide Programs, Office of Prevention, Pesticides and Toxic Substances, United States Environmental Protection Agency (EPA), certify the pesticide product listed below is, of the date of this letter, a registered product under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, and that as such, the product may be sold and marketed in the United States of America as authorized and limited by FIFRA. A true and correct copy of the product label approved by EPA is attached to accompany this letter.

Registration of this product with EPA also denotes that the registrant listed below is responsible for ensuring full compliance with all laws of the United States of America, or governing jurisdiction, regarding the safe storage and/or disposal of the product. Further, the recipient of this letter is on notice that the status of the reference registration and/or the accompanying label may change subsequent to date of this letter. EPA assumes no responsibility to notify the recipient of this letter of any change in the status of the registration and/or the product label for the product listed below.

EPA has issued a registration number for the product listed below:

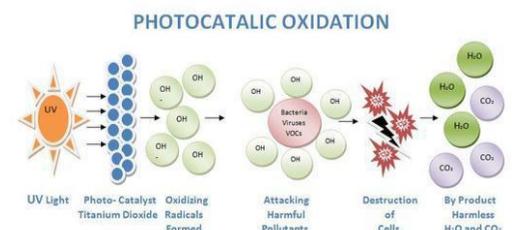
EPA Registration Number:
Reg. #4481-3

Name of Product(s):
AEGIS™ Antimicrobial



Yolma Noble, Product Manager/Team 31
Name and Title
Date: 3/3/2020
Official Agency Seal

Internet Address (URL): <http://www.epa.gov>
Recycled/Recyclable if Printed with Vegetable Oil Based Ink on Process Chlorine Free Recycled Paper (Minimum 85% Postconsumer Content)
204-60-00/201



BioEm air sanitizing and purifying liquid

In CLeanTech, BioEm Air Sanitising and Purifying Liquid is jetted into the chamber and is deposited evenly on the clothing of the person for final sterilization. The components of BioEm Air Sanitising and Purifying Liquid are mainly extracted from natural plant which can effectively sterilise, disinfect, deodorise and decompose Total Volatile Organic Compounds such as formaldehyde.

BioEm Air Sanitising and Purifying Liquid has been tested by the three universities in Hong Kong (including a University Technology Transfer Company and 2 Hong Kong Well-known Universities) and authorities (China National Center for Quality Supervision and Test of Environment Protection Products and the Hong Kong Standards and Testing Center) to ensure product quality and safety. It can kill a variety of viruses, including SARS coronavirus (99.99%), H3N2 (99.99%), H1N1 (99.995%), and 100% bacteria. Meanwhile, the formula can also decompose the total volatile organic compounds (TVOC) in the air, such as: formaldehyde, to enhance the indoor air quality. The deodorant effect is even more significant.

- Patented BioEm Air Sanitizing and Purifying Liquid has passed Long-term Inhalation Safety Test and Human Skin Sensitivity Test from 2 Hong Kong Well-known Universities and the Hong Kong Standards and Testing Center's heavy metal and carcinogen testing.
- BioEm is a multi-purpose Sanitising and purifying solution that kills fungi at a very fast speed. Effective against all kinds of fungi and skin allergies after mosquito bites, spray directly on the affected area, the effect is significant.
- BioEm was accredited in the 2009 Geneva International Innovation Invention Award.
- Final processing with Hong Kong distilled water and bottling in Hong Kong by WTO GMP certified manufacturer.

Component: Saponin, Matrine, Artemisinin, Spearmint, Ethanol, Deionized water
 Appearance: Liquid, colourless
 Odour: Spearmint smell
 pH: 7-9
 Melting point/ freezing point: -57.5 degree
 Initial boiling point and range: 90+-5 degree
 Flash point: >62 degree
 Density: 1+-10% g/cm³
 Viscosity: 1.2-1.5(Mpa.s) at room temperature



Our clients



Hong Kong International Airport



Hong Kong Correctional Services



Hong Kong AsiaWorld-Expo



Media Coverage

CleanTech deployed at Hong Kong International Airport
International News Coverage Highlight



FOX 59, US



Daily Mirror, UK



Lonely Planet

Possible use of CleanTech in Premier League Stadium
International News Highlight



The Sun, UK



Daily Mail, UK



Daily Mirror, UK

