



PROTECTION IS OUR PROMISE

AIRDEFENDER INTERNATIONAL COMPANY LIMITED

Our Vision

We Believe:

- **The kill function of disinfectant is not enough**
- **Prevention is better than kill only**
- **Protecting human in safe way without scarificing Earth and Nature**
- **Healthy life should be always be affordable for everyone**



Our Core Value

Protection is our Promise

Started our R&D in 2003, the brand airDefender was established in Hong Kong 2017, with the vision to protect our loved one with advanced future technology.

In airDefender, we believe prevention is the priority and our patented technology can bring future hygiene and cleanliness to the next level and a wider coverage. airDefender has expanded the coverage of the Q-dot antibacterial technology from industrial to commercial, entering each and every household daily necessities.

Prevention

Effective

Full Coverage

airDefender®

Technology



OUR GLOBAL NETWORKS



airDefender has worldwide network in various countries USA, China, UK, Singapore, Taiwan, Malaysia etc



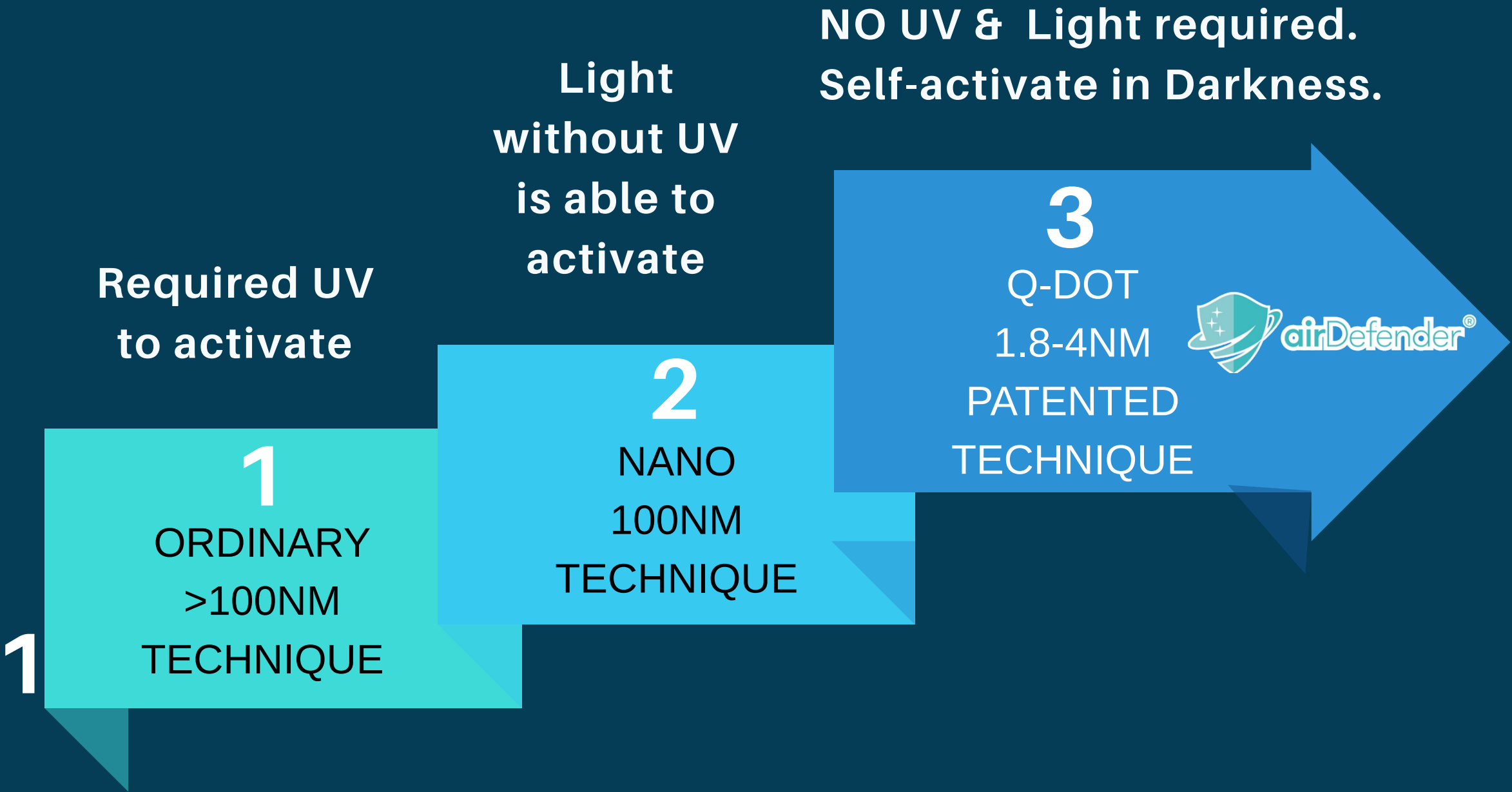
Technology leads to Low Bacteria Environment

Quantum Antimicrobial Technology



OUR UNIQUE TECHNOLOGY DEVELOPMENT

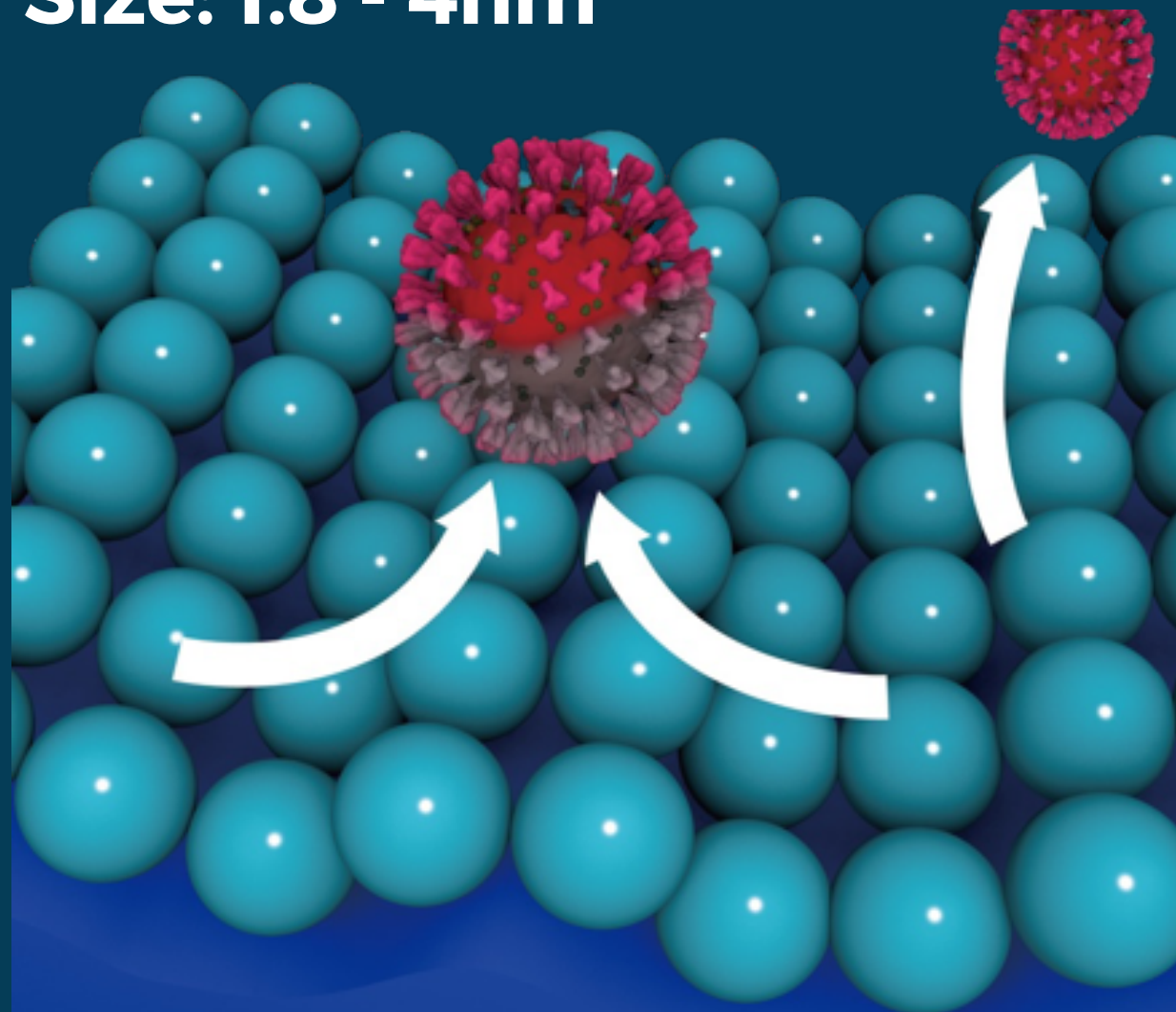
Progress of our TIO2 Engineering Technology



airDefender Patented Q-dot Engineering Technology

- ✓ More points of contact
- ✓ Higher virus elimination ability
- ✓ Higher adherence to surface

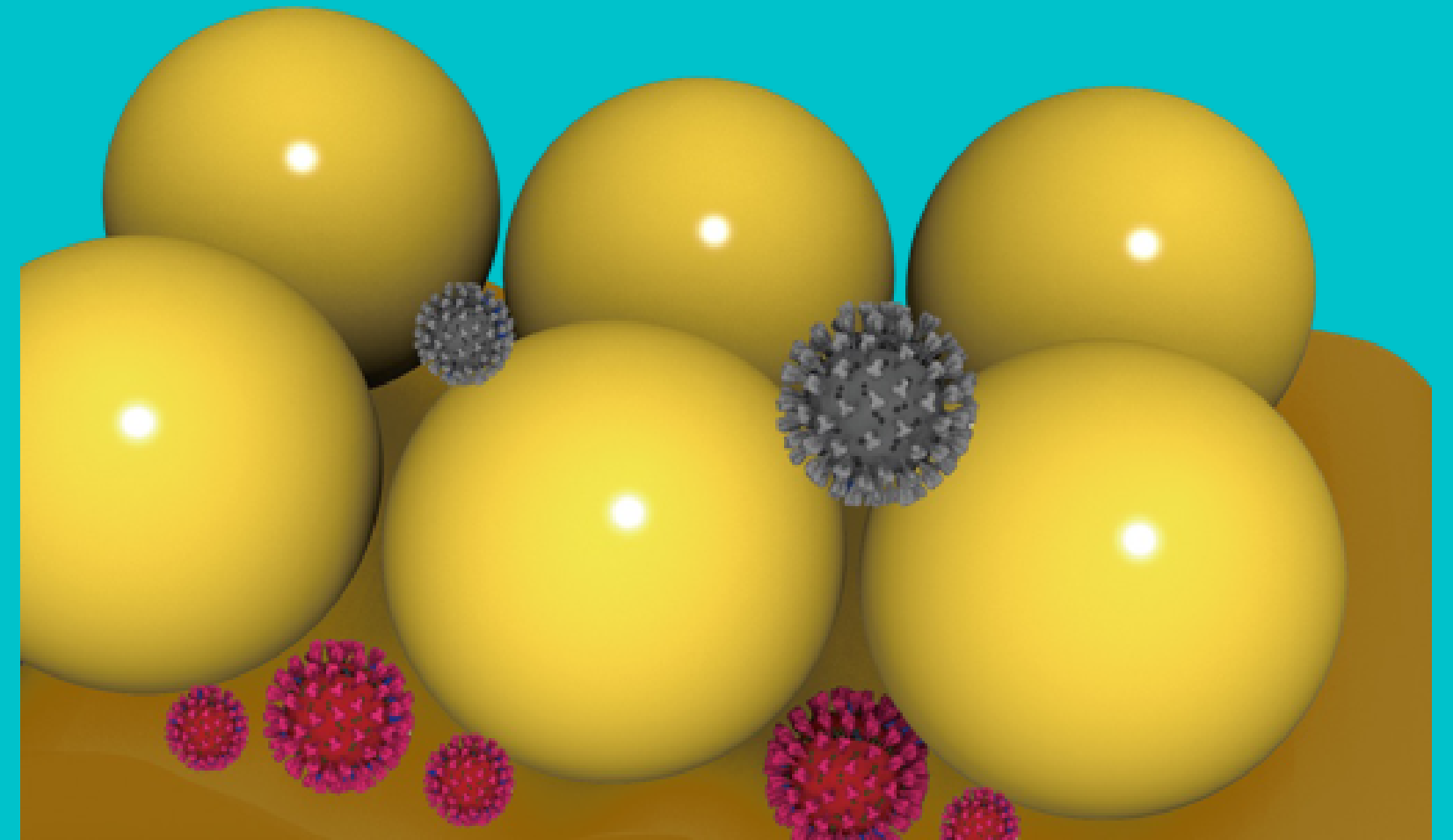
Size: 1.8 - 4nm



Other Nano Technology

More gaps on the surface
Bacteria & Viruses can hide between
gapped areas

Size: <100nm



THE EDGE OF Q-DOT

HIGH POROSITY & ADHERENCE

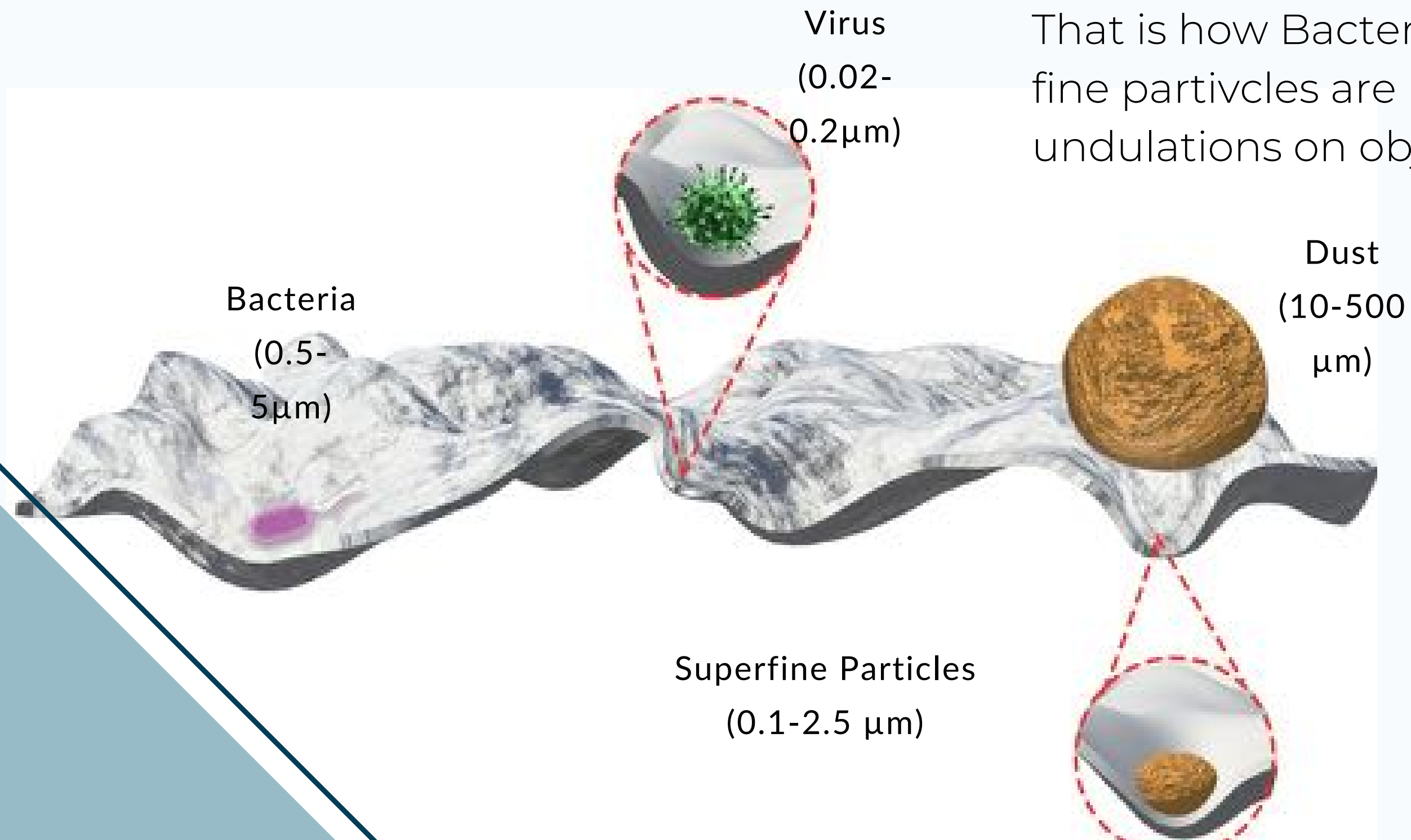
A seemingly smooth surface actually has micron or nano level surface undulations that are not visible to eyes.



airDefender®

THE EDGE OF Q-DOT

HIGH POROSITY & ADHERENCE



That is how Bacteria, viruses and some super-fine particles are hidden among these rough undulations on object surfaces.

THE EDGE OF Q-DOT

HIGH POROSITY & ADHERENCE

Water and traditional cleaning process could not clean finer structure on object surface.

Consequently, traditional cleaning can only remove dust and large particles on object surfaces, leaving bacteria, viruses and superfine particles untouched.

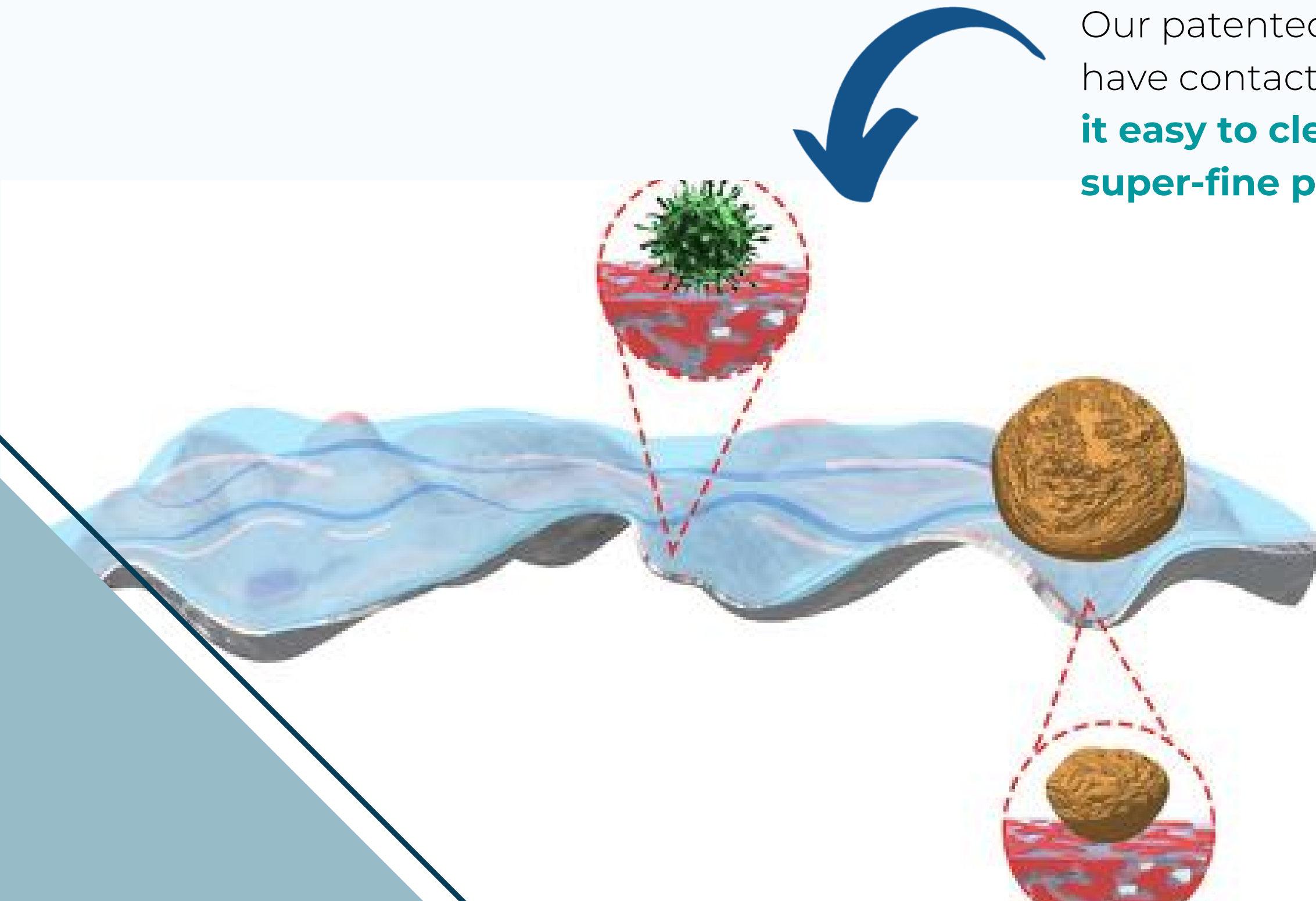


THE EDGE OF Q-DOT

HIGH POROSITY & ADHERENCE

Our patented nanocrystal mesoporous coating can have contact with the said untouchable area, **making it easy to clean and kill the bacteria, viruses and super-fine particles off the object surface.**

Our technology also **enhances the hydrophobic ability, improving the performance of the traditional cleaning agents** such as detergents and alcohol sanitisers



Certificate and Accreditation

**Make
Prevention
a Priority**

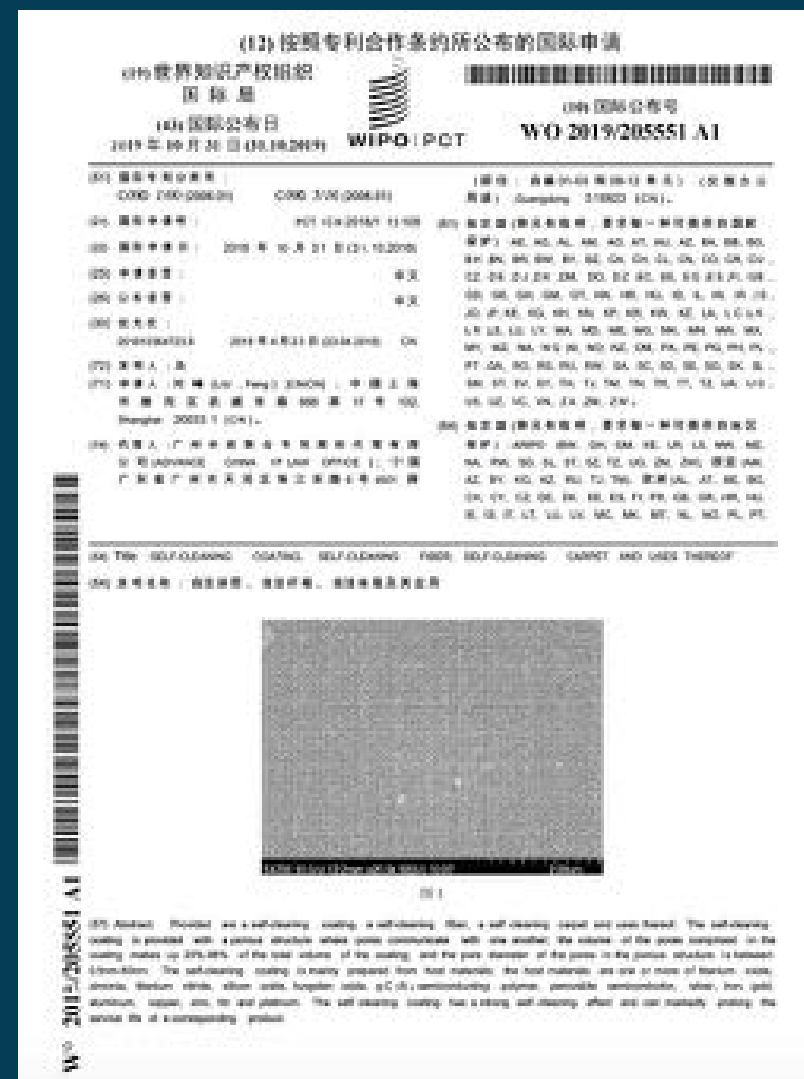


PATENT & ISO

WORLDWIDE PENDING PATENT

Patent in Production, Formula & Application

- Self-cleaning Patent: WO 2019/205551
- Antibacterial, antiviral, anti-mold Patent: PCT/CN 2020/103148



ISO-9001 : 2015 FACTORY

- Research, Development & Production



COVID 19 (SARS-COV-2)

Long Duration & Instant Effectiveness

Tested Effective against COVID-19 (SARS-COV-2)
99.999% within 10 mins, by Element Materials
Technology under EPA, GLP 40 FFR, Part 160 standard
accredited laboratory.



OBJECTIVE

The objective of this study was to evaluate the virucidal efficacy of a test substance for registration of a product as a virucide. The test procedure was to simulate the way in which the product is intended to be used. This method is in compliance with the requirements of and may be submitted to the U.S. Environmental Protection Agency (EPA).

SUMMARY OF RESULTS

Test Substance:	airDefender Antibacterial Solution, Lot A2420K-07803, Lot A2420K-08814 and Lot A2420K-14874
Dilution:	Ready to use, pump spray
Virus:	SARS-Related Coronavirus 2, BEI Resources MR52281, Strain Isolate USA-WA12020
Exposure Time:	10 minutes
Exposure Temperature:	Room temperature (20-18°C)
Exposure Humidity:	61.31%
Organic Soil Load:	1% fetal bovine serum
Efficacy Result:	Three lots of airDefender Antibacterial Solution (Lot A2420K-07803, Lot A2420K-08814 and Lot A2420K-14874) met the performance requirements specified in the study protocol. The results indicate a 33 log₁₀ reduction in titer of SARS-Related Coronavirus 2 under these test conditions as required by the U.S. EPA.

TEST SYSTEM

- Virus**
The isolate USA-WA12020 strain of SARS-Related Coronavirus 2 used for this study was deposited by the Centers for Disease Control and Prevention and obtained through BEI Resources, NIAID, NIH (BEI Resources MR52281). The stock virus was prepared by collecting the supernatant culture fluid from 75-100% infected culture cells. The cells were disrupted and cell debris removed by centrifugation at approximately 2000 RPM for five minutes at approximately 4°C. The supernatant was removed, aliquoted, and the high titer stock virus was stored at < -80°C until the day of use. On the day of use, an aliquot of stock virus (Lot SARS2-18) was removed, thawed and maintained at a refrigerated temperature until used in the assay. The stock virus culture was adjusted to contain 1% fetal bovine serum as the organic soil load. The stock virus tested demonstrated cytopathic effects (CPE) typical of Coronavirus on Vero E6 cells.

The only brand in Hong Kong that is tested Effective
against COVID-19 (SARS-COV-2) on actual material
surface with dried coating for 24hours, by University
College London, ISO/IEC 17025:2017 accredited
laboratory.



SARS Project MR52281

On behalf of airDefender International Company Limited, Virology Research Services Limited (company number, 11718888) has tested the virucidal activity of anti-microbial coating against SARS-CoV-2.

The research was conducted strictly following the protocol for ISO17025:2017. This work was performed in the VRS London lab in May 2021.

Under the conditions tested, the Anti-microbial Coating has a virucidal activity against SARS-CoV-2 at a contact time of 24 h. The experimental protocol and its findings are described in detail in the attached report.

At 24 h, the average recovered titre for the anti-microbial coating was 2.15×10^1 TCID₅₀/ml compared to 1.04×10^4 TCID₅₀/ml for the reference control.
It (antiviral activity) = 2.69 at 24 h.

The above data indicates that the Anti-microbial coating inactivates > 99% of virus after 24 h of contact relative to a non-treated control.

Authorized VRS signature



1-YEAR DURATION PROOF - QAT TECHNOLOGY



ASTM F 1980-16 TEST

- **ASTM F 1980-16 test study bacteria Staphylococcus aureus**
- Before & after test result: 99.9% antibacterial activity rate
- SGS Proven 365 days efficacy
- 1-year longlasting 99.9% antibacterial activity rate

ANTI-RUBBING TEST

- **Endure 2000+ rubbing times**
- SGS Proven - Strong Pass
- Strongly endurance scrubbing
- Protection always stays on the coated surface
- Antibacterial activity level remains 99.9%



ANTI-ALCOHOL TEST

- **Compatible with alcohol sanitising procedures**
- Easily sustain 70% Ethanol
- SGS Proven - antibacterial activity rate remains >99.99% after alcohol cleaning
- Protection always stays on the coated surface



CERTIFICATION

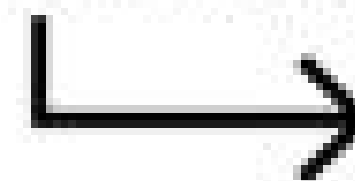
The Perfect Combination

airDefender + Cleaning Agents

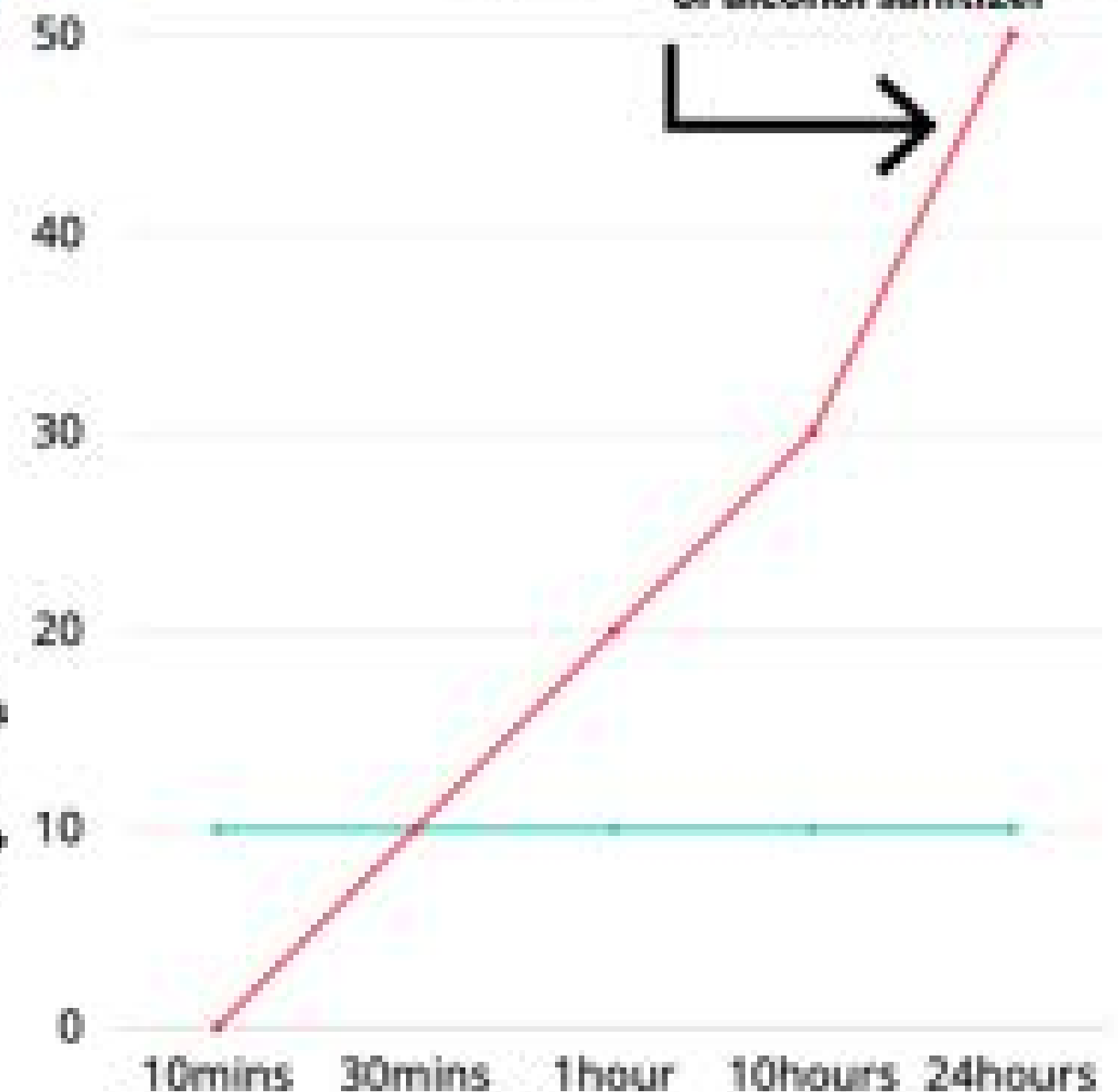
The combination of airDefender plus traditional disinfectants, such as alcohol sanitizers and detergent, ensures a lowest surface bacteria count at all times.



Combination of airDefender Long lasting Coating & Cleaning Agents

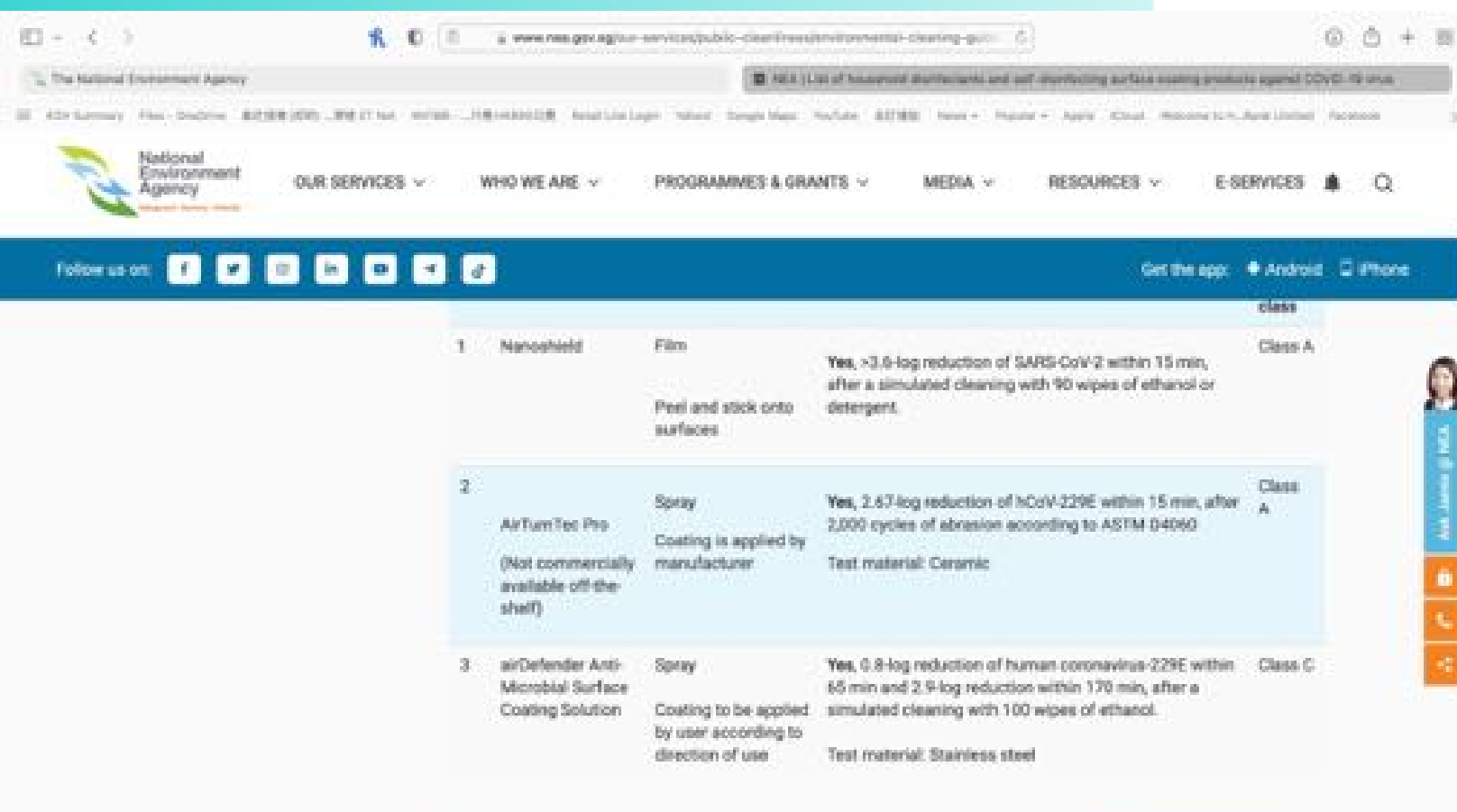


Only using Cleaning Agent such as detergent or alcohol sanitizer



Singapore NEA listed

airDefender products have been included in The National Environment Agency's List of household disinfectants and self-disinfecting surface coating products against COVID-19 virus.



Class	Product Name	Form	Disinfection/Coating Details	Test Results	Class
Class A	Nanosield	Film	Peel and stick onto surfaces	Yes, >3.6-log reduction of SARS-CoV-2 within 15 min, after a simulated cleaning with 90 wipes of ethanol or detergent.	Class A
Class A	AirTurn Tec Pro (Not commercially available off the shelf)	Spray	Coating is applied by manufacturer	Yes, 2.67-log reduction of hCoV-229E within 15 min, after 2,000 cycles of abrasion according to ASTM D4060 Test material: Ceramic	Class A
Class C	airDefender Anti-Microbial Surface Coating Solution	Spray	Coating to be applied by user according to direction of use	Yes, 0.8-log reduction of human coronavirus-229E within 65 min and 2.9-log reduction within 170 min, after a simulated cleaning with 100 wipes of ethanol. Test material: Stainless steel	Class C

3	airDefender Anti-Microbial Surface Coating Solution	Spray	Coating to be applied by user according to direction of use	Yes, 0.8-log reduction of human coronavirus-229E within 65 min and 2.9-log reduction within 170 min, after a simulated cleaning with 100 wipes of ethanol. Test material: Stainless steel	Class C
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NASA Accredited and Researched
airDefender solution is amongst the top 5 performing catalyst over 45 others

44th International Conference on Environmental Systems
13-17 July 2014, Tucson, Arizona

ICES 2014-026

Visible-Light-Responsive Catalysts Using Quantum Dot-Modified TiO₂ for Air and Water Purification

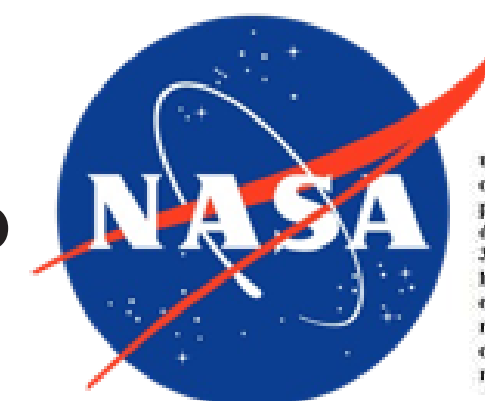
Janelle L. Coombs¹
ESC-Team QNA, Kennedy Space Center, FL, 32899

Paul E. Hintze²
NASA, Kennedy Space Center, FL, 32899

Christain A. Clausen³
University of Central Florida, Orlando, FL, 32816

and

Jeffrey T. Richards⁴
ESC-Team QNA, Kennedy Space Center, FL, 32899



Photocatalysis, the oxidation or reduction of contaminants by light-activated catalysts, utilizing titanium dioxide (TiO₂) as the catalytic substrate has been widely studied for trace contaminant control in both air and water applications. The interest in this process is due primarily to its low energy consumption and capacity for catalyst regeneration. Titanium dioxide requires ultraviolet light for activation due to its relatively large band gap energy of 3.2 eV. Traditionally, Hg-vapor fluorescent light sources are used in PCO reactors; however, the use of mercury precludes the use of this PCO technology in a spacecraft environment due to concerns over crew Hg exposure. The development of a visible-light-responsive (VLR) TiO₂-based catalyst would eliminate the concerns over mercury contamination. Further, VLR development would allow for the use of ambient visible solar radiation or highly efficient LEDs, both of which would make PCO approaches more

Job References

**Make
Prevention
a Priority**





TAILORMADE SERVICE

Our workers provided 3 weeks work to coat each taxi in person



HIGH EXPOSURE
airDefender Logos highly visible on every taxi serviced



HUGE COVERAGE
Over 7000 HK Taxis Protected with 365-day protection

Hong Kong Local Projects



TAILORMADE SERVICE

Our workers provided 2 weeks work to coat each taxi in person



HIGH EXPOSURE

airDefender Logos highly visible on every minibus serviced



HUGE COVERAGE

Over 900 HK Minibuses are Protected with 365-day protection

Hong Kong Local Projects



HIGH EXPOSURE

Our work was widely published in News in Hong Kong.



HIGH EXPOSURE

airDefender logos are highly visible in all ferries and piers at the Star Ferry.



HUGE COVERAGE

All ferries and piers at Star Ferry were coated with airDefender protection.

Hong Kong Local Projects



PUBLIC LIBRARIES & STUDY ROOMS

Coated areas:

- All public areas
- Seats, desks, equipment, computers
- Book shelves, buttons, handrails, etc.

HIGH COMMUNITY COVERAGE

A total of 7 Hong Kong public libraries are coated with airDefender 365 Coating in Hong Kong.

Hong Kong Public Libraries



HOTEL ICON

airDefender coated all public areas of Hotel Icon Hong Kong.

RITZ CARLTON

Major public areas including lifts, lobby, restaurants and spas are protected by airDefender coating.



THE RITZ-CARLTON

Hong Kong Local Projects

Social Service

The Neighbourhood
Advice-Action
Council



ChelseaFC Soccer
School

Transport

Hong Kong Air Cargo
Terminal Limited



Campsite
Sai Yeun - Outdoor
Campsite in Cheung
Chau



Hospitality Industry
Ritz Carlton
Hotel Icon



Education
Over 150 schools and
education centers.



Major Hong Kong Local Projects



airDefender®

守護

就是承諾



website: www.airDefender.com

Product

airDefender®



英國實驗室驗證* 於乾涸物件表面上 抗殺新冠病毒 (COVID-19) 99%

* 全港唯一經Virology Research Services實驗室(ISO/IEC 17025:2017 Accredited)測試，可於乾涸表面層上進行
新型冠狀病毒(SARS Cov-2)測試達到99%以上殺滅功效



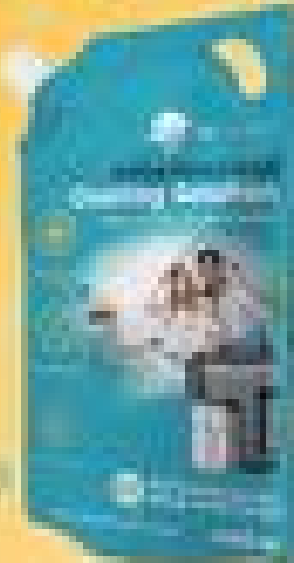
配以airDefender溶液，每周使用一次

DIY家居抗疫五步曲

屋子點無線噴霧槍

產品配件

250ml補充裝



Qdot
Atomizer

一年原廠保養

airDefender Qdot Atomizer
噴霧槍溶液補充裝250ml



對人體及寵物安全無害



長效防護抗病菌



不致敏，無皮膚刺激性



可自行搭配其他消毒藥水或溶液噴灑



可經受沸水煎或消毒，無損效能



無酒精



PD10 Antibacterial
spray
10ml



Refill pack 150ml



Non alcohol



Long Lasting



ECO

Infra red Atomizer



Together,
let's be a part of the New Normal

**Make
Prevention
a Priority**

