

Air Filters



Reduce the spread of harmful aerosols by purifying and freshening indoor air


An air filter can effectively **capture and inhibit microbes such as bacteria and viruses** found in aerosols


The filters can be used on ventilation fans and air conditioners to **clean indoor air and reduce the spread of aerosols**



Enhanced protection with anti-microbial and water-repellent coating

- While air filters can help to filter harmful microbes, these microbes remain on the filters
- Having an **anti-microbial** and **water-repellent coating** can help to:

 Enhance protection by inhibiting these microbes on the air filters

 Increase the durability of such air filters

- For more information on anti-microbial and water-repellent coatings, visit A*STAR's website (scan QR code below)



Evidence-based Studies

Studies by A*STAR's Institute of Materials Research and Engineering (IMRE) showed that when used indoors in an office environment, anti-microbial coated air filters **reduce aerosols from the air to help reduce infection risk**



Air Ionisers

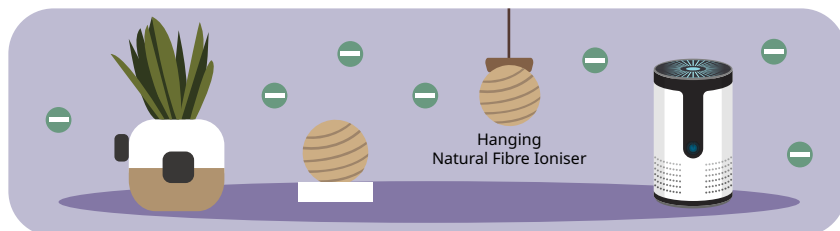


PROJECT SAFEGUARD

Reduce aerosols from the air in poorly ventilated spaces



Inactivates viruses (>97%), allergens, mould and germs¹



Plant-based Ioniser

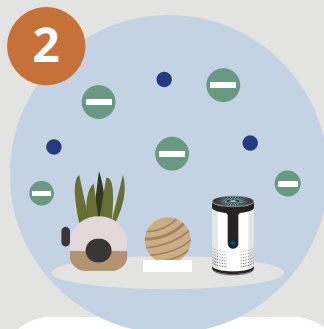
Natural Fibre Ionisers

Commercial electro-mechanical Ioniser

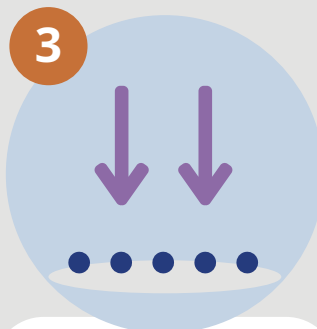
¹Ionising air affects influenza virus infectivity and prevents airborne transmission (2015), taken from Scientific Reports



1
Respiratory droplets disperse into **tiny droplets known as aerosols**



2
Ionisers **generate negative ions** into the air



3
Charge up aerosol particles, causing them to **stick to surfaces**



4
Viruses can be killed by **disinfecting high-touch surfaces frequently**

Plant and Natural Fibre Ionisers

- ✓ Generate up to a million times more negative ions than a normal plant
- ✓ Produces negligible ozone
- ✓ Environmentally friendly



May generate static charge when touching the plant²



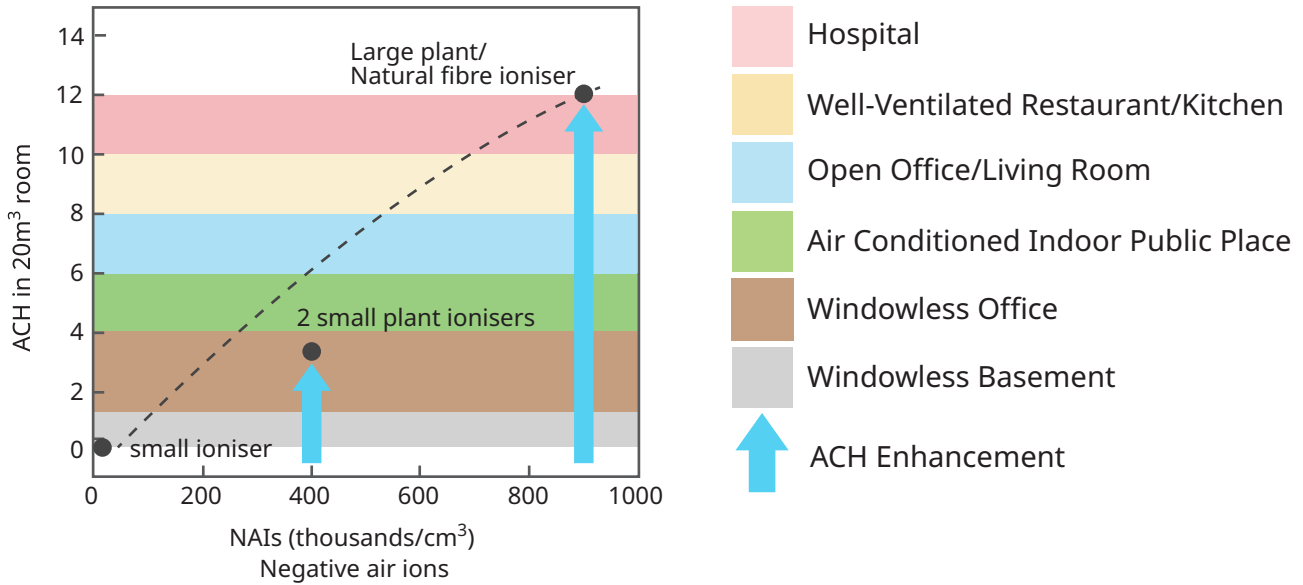
Made of natural coconut fibres
Produces no static shock

²Note the difference between static and electric charges; a static charge is safe even if uncomfortable, while an electric charge is not

Ady Suwardi et al. The Efficacy of Plant-based Ionizers in Removing Aerosol for COVID-19 Mitigation, Research, 2021, Article ID 2173642
<https://spj.scienceag.org/journals/research/aip/2173642/>



Air Changes per Hour (ACH)



The Centers for Disease Control and Prevention (CDC) recommends a **minimum ACH of 6** for patient-care areas including hospitals²

A large plant or a natural fibre ioniser in a 20m³ room achieves an **ACH over 12**, which exceeds ventilation requirements for hospitals, to reduce the spread of aerosols

Clean air delivery rate (CADR), a common specification in many ionisers/air purifiers, refers to the capacity to deliver clean air in indoor spaces

A **large plant or a natural fibre ioniser** with CADR³ of 240 m³/hour will create ACH of **24** in a 10 m³ room, but will only achieve ACH of **12** in a 20 m³ room

An **air purifier** with CADR of 100 m³/hour will create ACH of **10** in a 10 m³ room, but will only achieve an ACH of **5** in a 20 m³ room

²Guidelines for Environmental Infection Control in Health-Care Facilities (2003), taken from the Centers for Disease Control and Prevention (CDC)

³CADR for plant or natural fibre ionisers is the equivalent CADR calculated based on the aerosol cleaning rate

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