ELTESAN hispacold

Air clear of **SARS-CoV-2**

BREATHE EASY

TESTED BY INTA Proven to be 99.7% effective

eco3 Air Purifier

TESTED BY SGS Prevention and Environment division

Hispacold designs, manufactures and markets air conditioning equipment and components used in the heating and ventilation of conventional buses and coaches, electric buses and hybrid buses, and of all types of rail vehicles, including overground trains and trams. It covers all passenger transport air conditioning needs for every type of environment and climate.

Founded in 1978, Hispacold's successful journey has been defined by its constant innovation and commitment to the development of its own technology.

As expansion into international markets has increased, Hispacold has become a world leading authority on the development of sustainable air conditioning solutions for passenger transport.

Hispacold has a business presence in more than 100 countries on five continents. Its customer portfolio includes major bus, coach and railway vehicle operators and manufacturers worldwide.

Air **Quality**

Good air quality is crucial for our health and for the environment. The problem is air pollution, particularly in our cities. Most factories and traffic are in built-up urban areas which are home to about 80% of the population.

The authorities and the passenger transport industry are working with the determined aim of ensuring that mobility in the cities is healthier and more ecologically sustainable.

Buses are a means of public transport with little ability to refresh indoor air because they lack ventilation systems.

Indoor air quality grows worse due to poor ventilation, external pollution and the air inside the vehicles becomes contaminated.

Airborne viruses and bacteria that we inhale are combined with lower oxygen levels due to the number of people breathing in an enclosed space. We also inhale pollutants from different areas of the vehicle, such as microorganisms and particles.

In short, city-generated pollution, overcrowding and a lack of fresh air change the environment inside the vehicle, increasing the numbers of microorganisms, creating a higher risk of infection and sickness, as well as generating bad odours on-board and causing tiredness due to lower levels of oxygen inside the vehicle.

eco3 Air Purifier

Breathe Easy

To improve air quality in buses and coaches, Hispacold has developed **eco3** - an air purifier that eliminates viruses including SARS-CoV-2, microorganisms, germs and allergens, while also neutralising bad odours.

The **eco3** is located in the part of the air conditioning system which controls air flow and supply, where blowers distribute ozone (<0.05ppm) inside the vehicle sterilising the air. All these advantages come with a negligible increase in electricity consumption.

TESTED BY INTA Proven to be 99.7% effective*

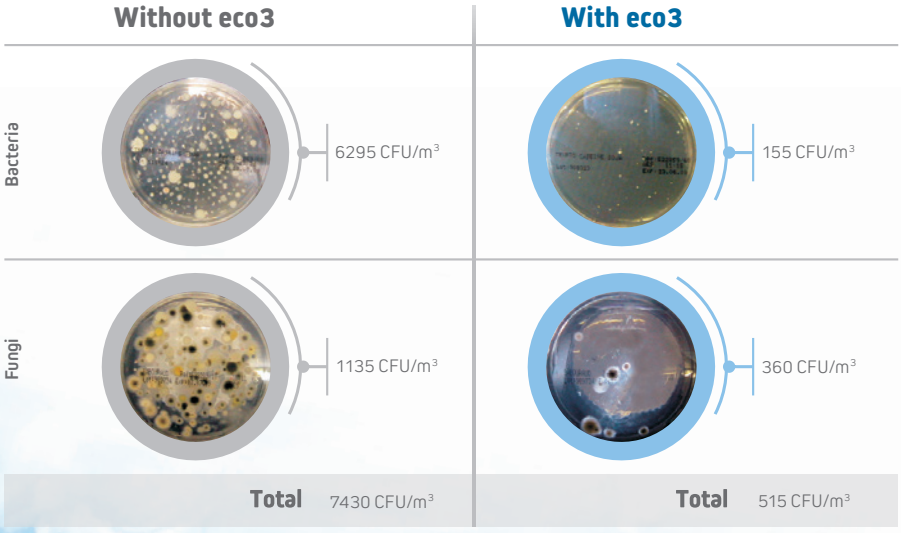
Effective inactivation of the virus

eco3 which operates by generating negative ions and ozone (<0.05ppm) in recommended proporations, increases the oxygen concentration in the air, eliminates bad odours and maintains the air supply at healthy levels so that it doesn't become stale and polluted.

**The Biological Defence area of the Defence Systems Department (NBQ/CBN (Eng)) at the National Institute of Aerospace Technology, INTA, depended of the Defense Ministry of the Government of Spain, field tested a 15-metre coach fitted with the eco3 air purifier where the virus MS2 was present.*

According to the UNE 100012: 2005 standard, a count of less than 800 CFU/m³ of total mesophilic aerobic flora* is considered to be the maximum recommended count for indoor air, above which corrective measures are recommended.

** It is considered to be aerobic mesophilic flora when it has an optimal growth temperature between 20 ºC and 45 ºC.*



Results of genuine tests carried out on buses and coaches Cultures were taken from vehicles fitted with, and without the eco3 air purifier. Laboratory tests showed (where the **eco3** was fitted) colony-forming units (CFU/m³) were reduced by 93% and plate-forming units (PFU/m³) were reduced by 99.7%.

Tested and approved by INTA and SGS

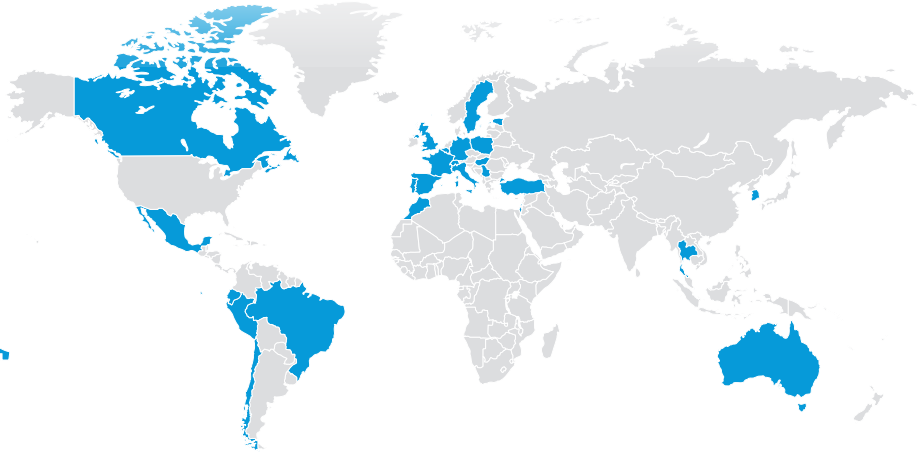
The **eco3** air purifier has proven effective in all vehicles in which it has been installed. Its efficiency has been tested by SGS, a world leader in inspection, verification, testing and certification and it has been tested and endorsed by the CBN Defence Systems Department of The National Institute for Aerospace Technology, INTA, depended of the Defense Ministry of the Government of Spain.

Widely market **tested**

More than 10.000 **eco3** units currently sterilise, purify and clean the air inside buses and coaches in more than 20 countries.

TESTED BY INTA Proven to be 99.7% effective

TESTED BY SGS Prevention and Environment division



+10.000 **eco3** units installed

Characteristics

- Eliminates harmful elements present in bioaerosols such as bacteria, viruses (including SARS-CoV-2), mould, allergens and germs.
- Increases the concentration of oxygen to maintain healthy air levels and prevents the sensation of being unable to breathe indoors.
- Reduces driver drowsiness.
- Reduces the risk of infections.
- Avoids dizziness and nausea in passengers.
- It can be fitted in new equipment or in systems already in operation.
- It removes dust in the air.
- Eliminates certain pollutant gases.
- Neutralises bad odours.

Sterilises the air while passengers are on board

Unlike other cleaning and disinfecting devices **eco3** is designed to work best when passengers are on board and when the vehicle is in operation. The **eco3** air purifier dramatically reduces fungi, bacteria, viruses, volatile organic compounds, allergens, etc.

Compatible with **Hispacold HVAC** and **all other brands**

The **eco3** air purifier can be installed both in vehicles equipped with Hispacold's HVAC systems and in those equipped by other brands. Its installation is simple, fast and clean, with simple fitting instructions.

Can be fitted in **new vehicles** or those already in circulation

eco3 can be installed in Hispacold's air conditioning systems in new vehicles and also in vehicles that don't come equipped with Hispacold systems as standard, so all customers can experience its benefits.

Maintenance-free and **easily fitted**

The **eco3** air purifier comes with a guarantee from Hispacold of 20,000 hours of product life with no maintenance needed.

eco3 is easily fitted in all vehicle types including buses and coaches between five and 18 meters in length and articulated and bi-articulated buses.

EASY INSTALLATION

MAINTENANCE-FREE

Information for users

An explanatory video on the features and operation of the **eco3** air purifier is available to bus operators to show on their onboard TV systems and inform passengers of the existence of this device.

VEHICLE FITTED WITH

eco3

Air Purifier

PROVEN EFFECTIVENESS AGAINST SARS-CoV-2

TESTED BY SGS Prevention and Environment division Standard UNE 100012

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Identification of vehicles equipped with **eco3**

We provide the operators vehicles fitted with the **eco3** air purifier with an identification sticker to stick on their windscreens.

eco3 Air Purifier

Fact Sheet

Voltage	24 VDC
Consumption	40 mA
Weight	230 g
Temperature range	from -10ºC a +65ºC
Service Life	20.000 h
Minimum required air speed	0,3 m/s
Electromagnetic Compatibility ECE No 10 R5	
Generation of negative ions	$3x10^6$ ions/cm^3
Generation of Ozone	< 0,05 ppm

THE RESULTS OF POOR QUALITY INDOOR AIR

> Unpleasant environment
> Concentration of germs, bacteria, viruses, etc.
> Increase in respiratory illnesses
> Unpleasant odours
> Fatigue
> Nausea

In collaboration with

Universidad de Sevilla

ISO 9001
ISO 14001
OHSAS 18001
BUREAU VERITAS Certification

BUREAU VERITAS
Certified EN15085-2
Nº 6038937-2

IRIS Certification

SGS Prevention and Environment division

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