EARTH & SEA GROUP

Innovative Integrated Services

is proud to present

VICTORY™

the bacteria's killer

DISPOSITIVO MEDICO CLASSE 1

It is not a drug, but an innovative system used to sanitize surfaces, air and waters, in order to prevent the proliferation of bacteria - even the antibiotic-resistant ones - viruses and fungi.

The scientific principle

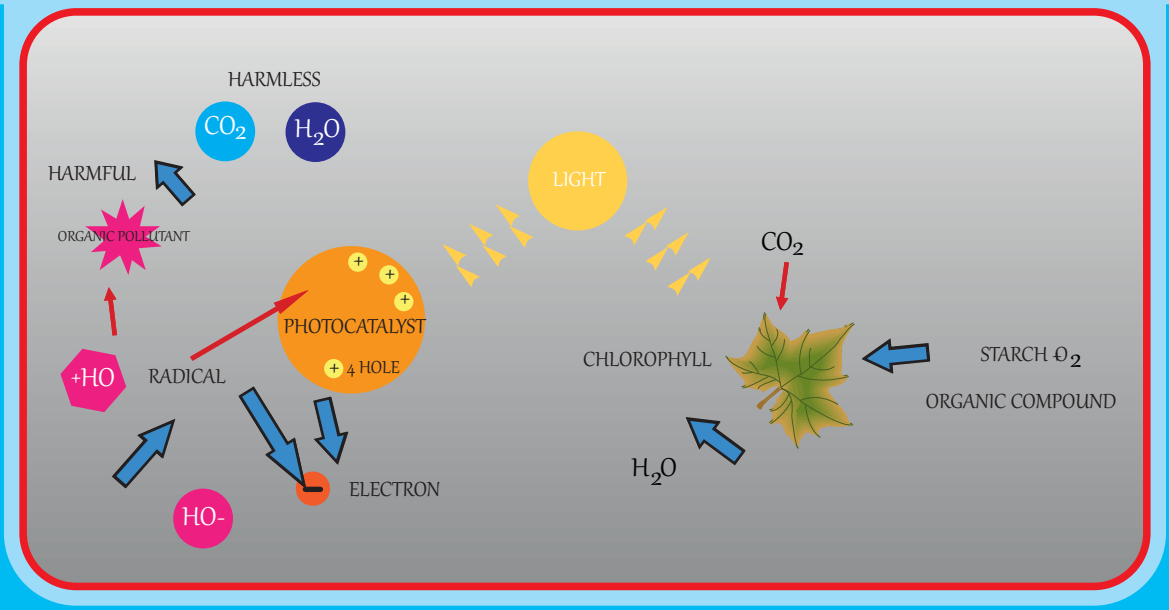
The photocatalysis

"The action under which some semiconductor materials, under the influence of light, may trigger a process leading to the reduction or oxidation of undesirable substances, even present in small amounts"

TRECCANI
LA CULTURA ITALIANA

In detail, we discover that its operating principle imitates a natural phenomenon: chlorophyll photosynthesis
(transforming substances considered harmful to man into inert substances).

The underlying chemical process is, in fact, an oxidation which is activated thanks to the combined action of the light and the moisture content in the air.



The photocatalyst

It is a substance that alters the speed of a chemical reaction through the action of the natural or artificial light. For years, the most used photocatalyst has been the titanium dioxide (TiO_2). However it could act only with the UV rays while now its use is sub iudice.

Our photocatalyst

Victory: the bacteria's killer
Uses a new photocatalyst

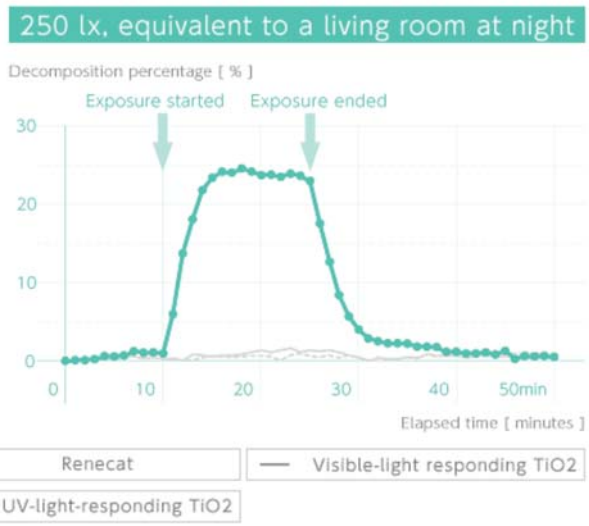
The tungsten trioxide together with a platinum paste (WO_3 /Pt), in nanometric range, present some advantages:

- It provides for a complete removal of Gram-positive/negative bacteria and a deodorizing service, about 30 times higher than TiO_2
- It has a unique photocatalytic activity, even in low or artificial light conditions
- It is not considered to be hazard for human health
- It does not lose its properties with times, as it acts only as a process activator. It does not bind to pollutants and is available for new photocatalysis cycles.
- through the photocatalysis process, the pollutant and toxic substances are transformed into: sodium nitrate ($NaNO_3$), sodium carbonate (Na_2CO_3), calcium carbonate ($CaCO_3$), carbon dioxide (CO_2), water vapour.

■ Testing conditions
In conformance with JIS R 1702

Light source	White LED light 250 lx (with UV filter)
Initial acetaldehyde concentration	5ppm
Substrate	Glass plate (50 x 100 ㎟)
Exposure volume	50 × 100 × t3mm
Format	0.2 g powder coating
Flow	0.4 L / min

Testing institute:
Measured by Toshiba Materials



Health sector applications and hospital approach

The photoactivity may be used to purify the air in indoor environments from the possible emissions of volatile organic compounds (VOC), such as formaldehyde and toluene present in some building materials or home furnishings, and from unpleasant smells and allergens (mites, moulds, dust, pollens).

As for hospitals, one of the most serious problems now is the presence of antibiotic-resistant bacteria (klebsiella pneumoniae - clostridium difficile – Escherichia coli - streptococcus pneumoniae - staphylococcus aureus etc...).

In scientific area the cause of these bacteria upsurge is determined by the indiscriminate use of broad-spectrum antibiotics. At present, despite the use of new and also very expensive molecules, the results are still discouraging and still cost too many lives. In money terms, the abuse of inappropriate antibiotics is a huge cost that further grows, when some other more specialized antibiotics are used. In addition, medical and blood tests as well as the prolonged days in hospital should be included.

The levels of our intervention

There are several sectors to be “sanitized”.

Our system takes into account the diversities among the various structures, the transmission types of different bacteria and can adapt to the particular needs.

Our system even acts in the presence of patients and staff

We can sanitize: air, incoming waters, waste waters, surfaces, surgical instruments and medical equipment.

We can act on stretcher transportation, clothing and on everything that can create a vehicle for transmitting bacteria, viruses and so on...

Victory: the bacteria’s killer

uses devices that can be easily stored and transported. Only the shape and the dimensions are different, and adapt to the volume to be treated, with a really minimal maintenance.

Scientific experiences

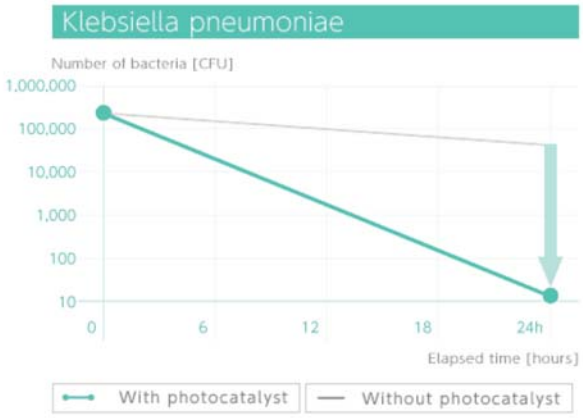
Some tests, carried out by scientific institutes about the photocatalysis effect on several bacteria strains, have been shown below.

Klebsiella pneumoniae

■ Testing conditions
In conformance with JIS R 1702

Antibacterial activity test method	Film adhesion
Light source	Fluorescent light 6000 lx (UV light is cut with a filter)
Test duration	24 hours
Test sample amount / size	10 mg / 5 cm x 5 cm

Testing institute:
Kitasato Research Center for Environmental Science

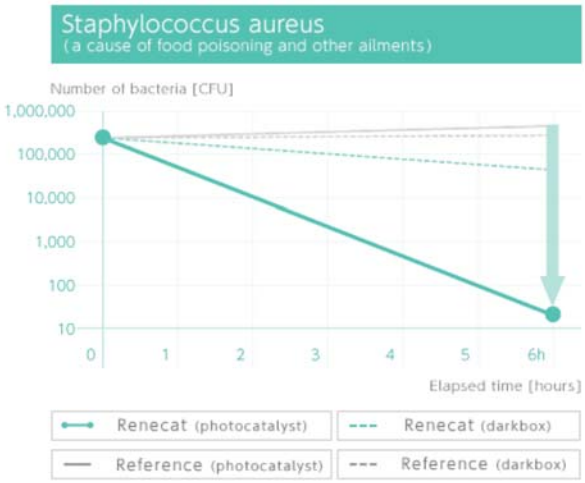


Staphylococcus aureus (a cause of food poisoning and other ailments)

■ Testing conditions
In conformance with JIS R 1702

Antibacterial activity test method	Film adhesion
Light source	Fluorescent light 6000 lx (UV light is cut with a filter)
Test duration	6 hours
Test sample amount / size	10 mg / 5 cm x 5 cm

Testing institute:
Kitasato Research Center for Environmental Science

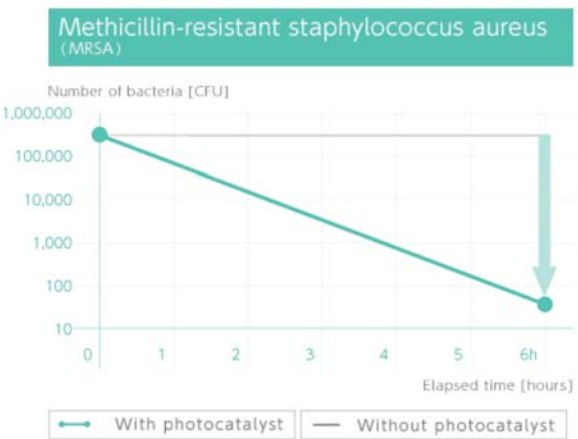


Methicillin-resistant staphylococcus aureus (MRSA)

■ Testing conditions
In conformance with JIS R 1702

Antibacterial activity test method	Film adhesion
Light source	Fluorescent light 6000 lx (UV light is cut with a filter)
Test duration	6 hours
Test sample amount / size	10 mg / 5 cm x 5 cm

Testing institute:
Kitasato Research Center for Environmental Science

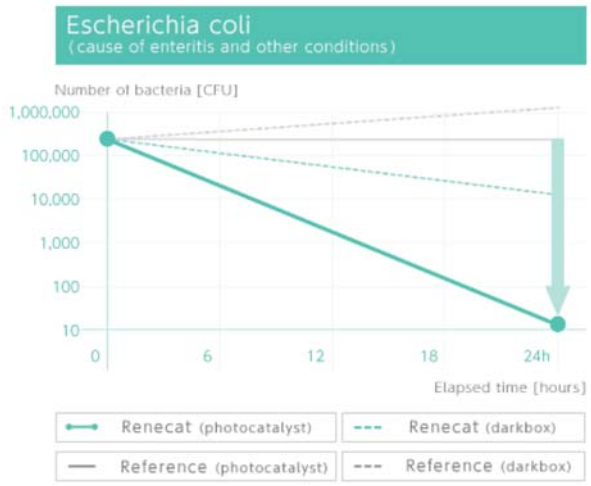


Escherichia coli (cause of enteritis and other conditions)

■ Testing conditions
In conformance with JIS R 1702

Antibacterial activity test method	Film adhesion
Light source	Fluorescent light 6000 lx (UV light is cut with a filter)
Test duration	24 hours
Test sample amount / size	10 mg / 5 cm x 5 cm

Testing institute:
Kitasato Research Center for Environmental Science

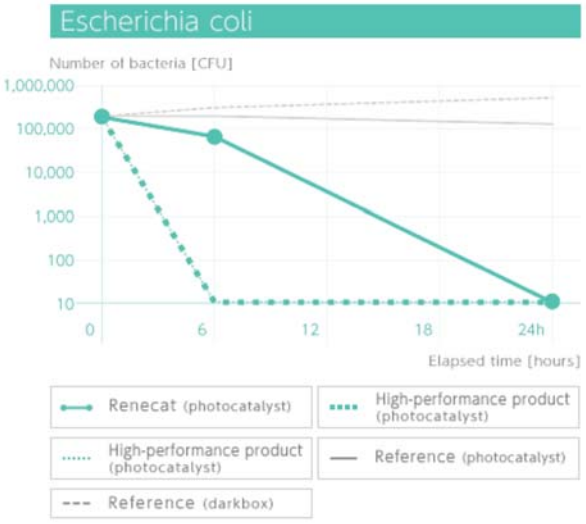


Escherichia coli

■ Testing conditions
In conformance with JIS R 1702

Antibacterial activity test method	Film adhesion
Light source	Fluorescent light 6000 lx (UV light is cut with a filter)
Test duration	6 and 24 hours
Test sample amount / size	5mg/2.5×5cm

Testing institute:
Kitasato Research Center for Environmental Science

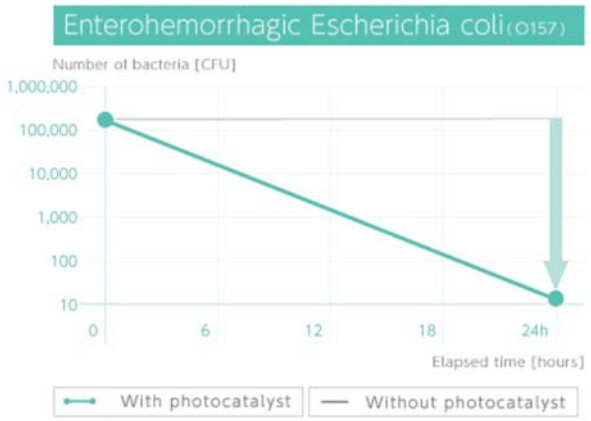


Enterohemorrhagic Escherichia coli (O157)

■ Testing conditions
In conformance with JIS R 1702

Antibacterial activity test method	Film adhesion
Light source	Fluorescent light 6000 lx (UV light is cut with a filter)
Test duration	24 hours
Test sample amount / size	10 mg / 5 cm x 5 cm

Testing institute:
Kitasato Research Center for Environmental Science

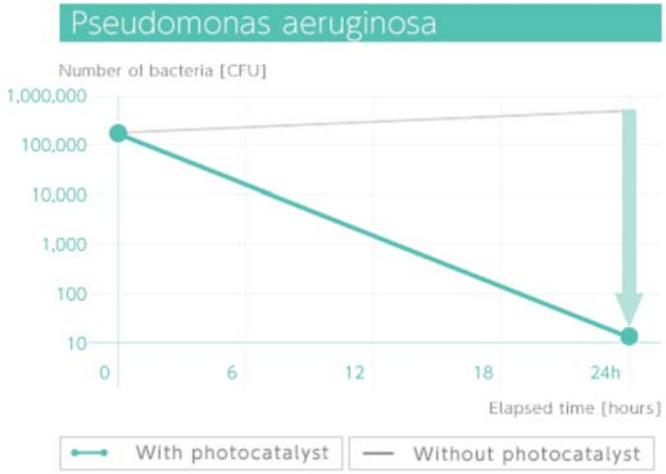


Pseudomonas aeruginosa

■ Testing conditions
In conformance with JIS R 1702

Antibacterial activity test method	Film adhesion
Light source	Fluorescent light 6000 lx (UV light is cut with a filter)
Test duration	24 hours
Test sample amount / size	10 mg / 5 cm x 5 cm

Testing institute:
Kitasato Research Center for Environmental Science

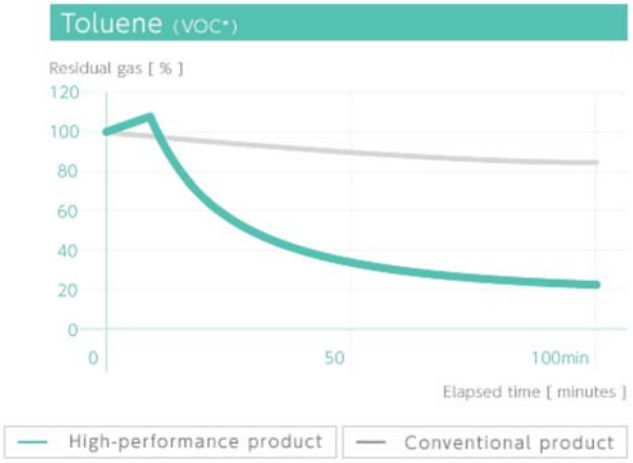


Toluene (VOC*)

■ Testing conditions

Light source	Fluorescent light 6000 lx (with UV filter)
Substrate	Glass plate (50 x 100 ㎟)
Renecat applied	150mg
Initial concentration of introduced gas	60ppm

Testing institute:
Measured by Toshiba Materials

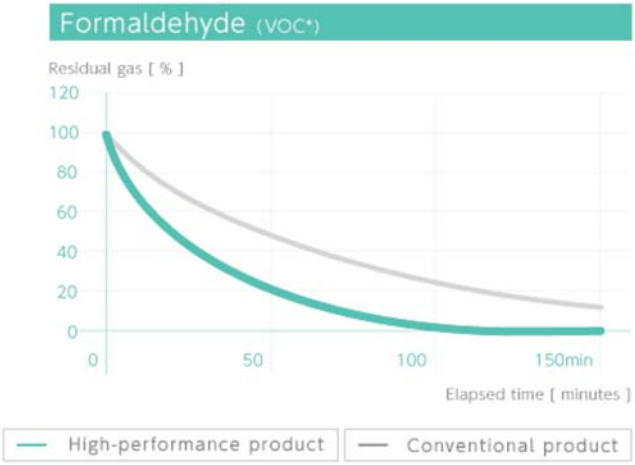


Formaldehyde (VOC*)

■ Testing conditions

Light source	Fluorescent light 6000 lx (UV light is cut with a filter)
Substrate	Glass plate (50 x 100 ㎟)
Renecat applied	200mg
Initial concentration of introduced gas	10ppm

Testing institute:
Measured by Toshiba Materials



Scientific experiences of Strasburg and Rome Universities

Legionella Pneumophila

about 84% bacteria removal can be detected after 30 operating minutes, for a concentration of $1.5x10^5$ legionellae/L of air: the effectiveness reaches 99,9% after 90 operating minutes.

H1N1-Swine flu virus

100% bacteria removal can be detected after 4 operating hours.

Some effectiveness examples

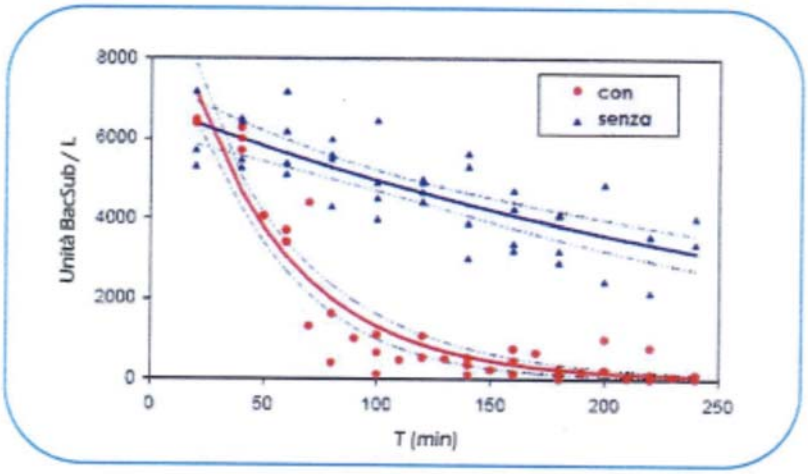
(From tests and researches carried out by Pasteur Institute in Lille)

Bacillus Subtilis

99% bacteria removal can be detected after 200 operating minutes for a concentration of $1.5x10^5$ Bacillus Subtilis/L of air.

H5N1-Avian influenza virus

100% bacteria removal can be detected after 3 operating hours.



Some articles appeared in magazines and newspapers

THE SUPER BUG RESISTANT TO ALL THE ANTIBIOTICS. AND A WOMAN DIES

January 16, 2017 – Written by Germana Carillo, www.gremme.it

Super bugs and antibiotics: the antibiotic- resistant bacteria nightmare is back.
In Nevada, USA, a 70-year-old woman died because of a super bug resistant to all the available antibiotics. Specifically, 26 antibiotics were administered to the old woman to treat a persistent infection occurred after a thigh bone fracture surgery carried out two years ago in India.
How was all this possible? Well, the answer is quite simple. During these last few years, bacteria have developed the capacity to be invulnerable to common antibiotics, thus causing a consumption of more and more powerful drugs. However, in some cases, the super resistant bacteria seem to be invincible and able to cause fatal infections to man. ....

THE SUPER BUG NEXT DOOR

February 22, 2016 – Written by Elvira Naselli, www.repubblica.it

Walter Ricciardi, President of the Superior health Institute, highlights the gravity of the situation. At the recent conference dedicated to the antibiotic resistance organized by the Institute, he shows the antibiogram of a patient affected by Klebsiella pneumoniae, one among the many people who, in Italian hospitals, is resistant to twenty different antibiotic molecules, and sensitive to only one among them. «All things considered, this is a common and lucky situation - Ricciardi says – because, by contrast, hundreds of people present antibiograms resistant to any antibiotic. And in these cases the patient dies». The antibiotic resistance, together with the development of resistant super bugs, is one of the health problems worldwide and is among the priorities of the World Health Organization (WHO) and the single governments, considered that it is the responsible for more than fifty thousand deaths in Europe and in the United States. It is estimated that within 2050 this will be the first death cause in the world. In this context, Italy ranks the worst position in the EU, with about 4,500-7,000 deaths every year and about 284,000 affected people, from 7 to 10% of all the hospital stays. The resistance to drugs makes the infections difficult to be treated. And we are talking about very common pathologies; from respiratory infections such as pneumonia, to urinary tract, skin and post-surgery infections. «For example, Gianni Rezza says, Director of the Department of Infectious diseases of the Superior Health Institute, the Klebsiella is more than doubled in a short time and is the plague of intensive care unit, where even more vulnerable patients are present. The resistance to Escherichia coli and to the staphylococcus is now increasing and has already reached 35%. How to come out? First of all, every effort should be made to limit the prevalence of infections in hospitals – this is the real key point. Then it is necessary to intervene for an appropriate use of drugs and the correct application of simple hygienic standards. ....

WHY ARE BACTERIA BECOMING RESISTANT TO ANTIBIOTICS?

November 03, 2015 – Written byRedazione Salute, www.corriere.it

We take antibiotics too much, and we often use them incorrectly. The result is that the resistance to these drugs is increasing. According to the data drawn up by the European Centre for Disease Prevention and Control, Italy ranks fifth in Europe, as far as the consumption is concerned, and among the countries with the highest resistant microorganism rate. To provide the warning is the WHO too, that emphasizes the urgent need for worldwide strategies in order to prevent the abuse, such as for example to strengthen or create some surveillance networks and improve the prescriptive adequacy, considering that there are no new drugs for the near future. The last group of antibiotics have been discovered during the 80's. How the resistance animals/crops spread: the resistance is facilitated by the practice to treat farm animals with low antibiotic doses, in order to help their growth and avoid diseases. In this way, animals may develop resistant bacteria in their intestine. So antibiotic-resistant bacteria may be transferred into man, if the meat is not handled or cooked adequately. Fertilizers or water contaminated with animal faeces containing resistant bacteria may contaminate agricultural crops.
Fruits and vegetables may transmit antibiotic-resistant bacteria to man. How the resistance-man spreads: persons affected with bacterial infections are treated with antibiotics and develop resistant strains in the intestine. The ill person may stay at home and thus transmit the resistant bacteria to the members of the family. The ill person is hospitalized or admitted in another health care facility: the ill patient may transmit resistant bacteria to other patients directly or indirectly (contaminated surfaces, health professionals' dirty hands).

THE UN “DECLARES WAR” TO ANTIBIOTIC-RESISTANT SUPER BUGS

September 21, 2016 – Written by Ruggiero Corcella, www.corriere.it

In New York 193 United Nation Member States will sign a joint document on worldwide guidelines to fight antimicrobial resistance. Now even the United Nation Assembly recognizes it: the phenomenon of the super bugs not responding to treatments with antibiotics anymore is «the biggest threat to modern medicine». For this reason, all 193 UN member States are ready to sign a political consensus declaration, in order to fight the new «plague». A four-page document draft, summing up in 15 points the lines along which the governments should act from now on, will be discussed during the high level meeting on antibiotic resistance to be held today, September 21 2016, at the United Nation headquarter in New York...FATAL INFECTIONS: More than 700,000 estimated people die every year because of drug-resistant infections, even if the number could be higher, because at the moment a worldwide surveillance system does not exist for this kind of deaths. Even tracking deaths caused by super bugs resulted very difficult, also in those places where deaths are monitored, like the United States, where tens of thousands of deaths were not ascribed to super bugs, according to a survey carried out by Reuter's agency. Scientists expressed their concern about antibiotic resistance some decades ago, when pharmaceutical companies started their industrial production of drugs.

SUPER BUGS, ALSO GENOA RAISED THE ALARM

May 30, 2016 – Written by Federico Mereta, www.ilsecoloxix.it

Genoa – The USA? They are under the "Lanterna". American scientists raised alarms on the continuous increase of bacterial resistances all over the world, while in Genoa and in Liguria too, the concern threshold for the "super bugs" that do not care about modern antibiotics is by far above the danger level.

Numbers are causing apprehension among the scientists in hospital as well as in the territory. Starting from the hospital wards: in 2007 the resistant infections caused by Klebsiella Pneumoniae - bacterium representing the most urgent emergency - as it can cause severe blood poisonings, were almost absent inside San Martino Hospital in Genoa. The first cases in which bacteria did not respond to any antibiotic appeared that year. In just seven years that is in 2014, the incidence of resistant bacteria has increased by 400%. But this is not all. Resistances in bacteria such as Clostridium Difficile, which is in the intestine, would be increased by 600% from 2010 to 2014, according to the reports carried out by San Martino Hospital. «It is true that the appearance of resistances is a phenomenon directly intrinsic to the biology, to the extent that Fleming knew it in advance, when he received the Nobel Prize for the penicillin discovery, explains Andrea Orsi, researcher at the Science and Health Department directed by Giancarlo Icardi, who deals with the surveillance network for infections. Certainly, in hospitals the phenomenon growth is due to different reasons, going beyond the inappropriate use of these essential drugs in the territory. «Orsi highlights that in some ways the spread of resistant bacteria is linked to the treatment improvement: more and more invasive medical devices, such as the catheters that are inserted into the patient veins, or the artificial ventilation system, allow to treat the patient in a better way, even if these methods may facilitate the circulation and the spread of resistant strains». ....

SCIENTISTS DISCOVERED A NEW BACTERIUM RESISTANT TO ANTIBIOTICS IN FLORENCE

July 07, 2016 – Written by Redazione Salute, www.corriere.it

Great apprehension is increasing among scientists for the discovery of a new bacterium strain resistant to colistin, an antibiotic considered as a "life-saving" drug, in the treatment of particular diseases, such as lung infections.

The new resistance mechanism has been identified at the Clinical Microbiology Laboratory, in Careggi University hospital in Florence, and is related to a variant of mcr-1 gene. E. Coli strains, carriers of this resistance, both clinical and animal origin, have been already detected in Italy too. ....

THE SUPERBUGS OF THE FUTURE, MORE DEADLY THAN CANCER
December 15, 2014 – Written by Elisabetta Intini, www.focus.it

LEGIONNAIRES' DISEASE OUTBREAK IN PARMA: WAS IT AVOIDABLE?
Written by Borella, www.legionella2017.com

PHOTOCATALYSIS: AN ECO-FRIENDLY PROCESS FOR AIR AND WATER SANITIZATION
January 30, 2015, Written by Gianmaria Siddi, www.slideshare.net

WIDE USE OF ANTIBIOTICS ALLOWS C, DIFF TO FLOURISH
May 25, 2015, Written by Jane E. Brondy

TACKLING DRUG-RESISTANT INFECTIONS GLOBALLY: FINAL REPORT AND RECOMMENDATIONS
May 19, 2016, Written by Chaired by Jim O'neill, www.amr-review.org

WAR AGAINST SUPERBUGS THAT LEARNED TO DEFEND THEMSELVES AGAINST ANTIBIOTICS
October 18, 2016, Written by Luke Jerram, www.ok-salute.it

OUTBREAK RISK CAUSED BY "CLOSTRIDIUM DIFFICILE INFECTIONS" IN THE PRISON IN SIANO
March 01, 2016, Written by Osservatorio, www.osservatoriorepressione.info

"ANTIBIOTICS AS IF THEY WERE CANDIES" 1 DEATH EVERY EACH 3 SECONDS WITHIN 2050
May 23, 2016, Written by Redazione informaSalus.it, www.informasalus.it

CLOSTRIDIUM DIFFICILE: THE OLD PEOPLE "KILLER" IN HOSPITAL, OFTEN UNKNOWN
December 03, 2014, Written by Maria Rita Montebelli, www.quotidianosanita.it

**KLEBSIELLA, THE BACTERIUM THAT SILENTLY ADVANCES IN ITALY.
IN BRINDISI 19 SUSPICIOUS DEATHS**
October 216, 2015, Written by Nursind, il sindaco delle professioni, www.infiermieristicamente.it

Product catalogue 2017

VBK01

Air Sanitization System for low volumes

Technical Specifications

Model: VBK01

Load:	50mc/h
Consumption:	18W
Power supply:	230V
Lamps:	Led
Lamp lifetime:	40.000 h
Dust filter:	G4 (Gravimetric eff. 85/95 %)
Sizes (Lxlxh) :	21 x 20,57 x 20
Weight:	1,7 Kg
Maintenance:	Filter wash twice a year with scheduled maintenance

VBK02

Air Sanitization System for small and medium volumes

Technical Specifications

Model : VBK02

Load:	100mc/h
Consumption:	18W
Power supply:	230V
Lamps:	Led
Lamp lifetime:	40.000 h
Dust filter:	G4 (Gravimetric eff. 85/95 %)
Sizes (Lxlxh) :	21 x 20,57 x 38
Weight:	2,3 Kg
Maintenance:	Filter wash twice a year with scheduled maintenance

VBK03

Stand Alone equipment for medium volume sanitization

Technical Specifications

Model : VBK03

Load :	250mc/h
Consumption :	50W
Power supply :	12V DC / 230VAC
Lamps :	Led
Lamp lifetime :	40.000 h
Dust filter :	G4 (eff. Gravimetrica 85/95 %)
Sizes (Lxlxh) :	42 x 60 x 22
Weight :	9 Kg
Maintenance :	Filter wash and LED control twice a year with scheduled maintenance
Framework :	ABS

VBK04

Stand Alone equipment for medium/big volume sanitization

Technical Specifications

Model : VBK04

Load :	400mc/h
Consumption :	60W
Power supply :	12V DC / 230VAC
Lamps :	Led
Lamp lifetime :	40.000 h
Dust filter :	G4 (eff. Gravimetrica 85/95 %)
Sizes (Lxlxh) :	42 x 60 x 22
Weight :	10 Kg
Maintenance :	Filter wash and LED control twice a year with scheduled maintenance
Framework :	ABS

VBK05

Equipment for big volume sanitization

Technical Specifications

Model : VBK05

Load :	500mc/h
Consumption :	200W
Power supply :	230V
Lamps :	Led
Lamp lifetime :	40.000 h
Dust filter :	Prefiltri antipolvere Cod FF-AR
Sizes (Lxlxh) :	49 x 134 x 24
Weight :	25 Kg
Maintenance :	Filter wash and LED control twice a year with scheduled maintenance
Framework :	ABS

VBK06

Air Sanitization System for canalized pipes

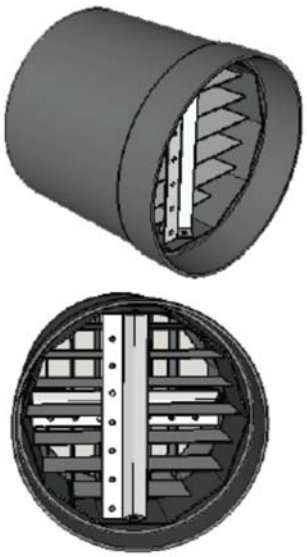
Technical Specifications

Model : VBK06

Load :	1000 mc/h
Consumption :	40W
Power supply :	12V DC / 230VAC
Lamps :	Led
Lamp lifetime :	40.000 h
Sizes (Lxlxh) :	60 x 60 x 50 or upon request
Weight :	10 Kg
Maintenance :	Lighting control twice a year with scheduled maintenance
Framework :	Aluminium alloy

VBK07

Air Sanitization System for rounded intake pipes



Technical Specifications

Model : VBK07

Consumption :	240 mA
Power Supply :	12V DC / 230VAC
Lamps :	Led
Lamp lifetime :	40.000 h
Sizes dm :	from 100 to 150
Weight :	0,9 Kg
Maintenance :	Lighting control twice a year with scheduled
Framework :	PVC

VBK08

Air Sanitization System for Plenum pipes with grid

Technical Specifications

Model : VBK08

Consumption :	190 mA
Power supply :	12V DC / 230VAC
Lampade :	Led
Lamps :	40.000 h
Sizes :	35x17
Weight :	2,5 Kg
Maintenance :	Lighting control twice a year with scheduled maintenance
Framework :	Aluminium alloy

VBK09/VBK09H

Water Sanitization System for inlet pipes

Technical Specifications

Model : VBK09/VBK09H

Consumption :	120 mA
Power supply :	12V DC / 230VAC
Lamps :	Led
Lamp lifetime :	40.000 h
Sizes :	d. 16 cm x H. 25 cm (10") / 50 cm (20")
Weight :	2,3 Kg
Maintenance :	lighting and tightening control twice a year as scheduled maintenance
Framework :	Polycarbonate - brass

VBK10

Sanitization System for waste water pipes

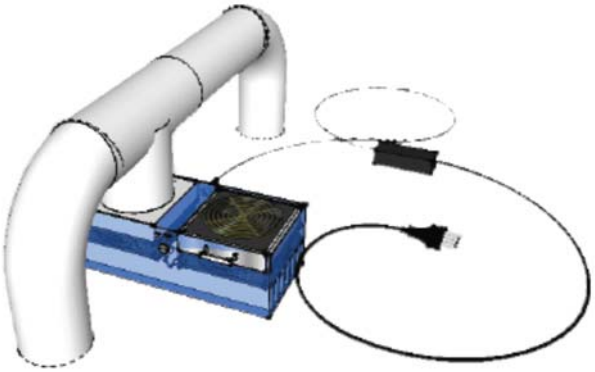
Technical Specifications

Model : VBK10

Consumption :	120 mA
Power supply :	12V DC / 230VAC
Lamps :	Led
Lamp lifetime :	40.000 h
Sizes :	dm 87,5
Weight :	1,2 Kg
Maintenance :	Lighting and tightening control twice a year with scheduled maintenance
Framework :	PVC

VBK11

Sanitization System for cabinets



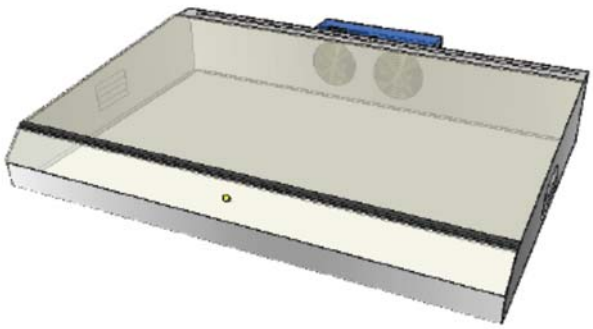
Technical Specifications

Model : VBK11

Consumption :	200 mA
Power supply :	12V DC / 230VAC
Lamps :	Led
Lamp lifetime :	40.000 h
Sizes :	35x17
Weight :	3 Kg
Maintenance :	Lighting control twice a year Anti-pollen filter cleaning with scheduled maintenance
Framework :	Aluminium alloy – PVC

VBK12 Carriage cover with Sanitization System

VBK13 Complete carriage with Sanitization System



Technical Specifications

Model : VBK12 - VBK13

Consumption :	200 mA
Power supply :	12V DC / 230VAC
Lamps :	Led
Lamp lifetime :	40.000
Sizes :	60x90x15
Weight :	3,5Kg
Maintenance :	Lighting control twice a year Anti-pollen filter cleaning with scheduled maintenance
Framework :	Stainless steel – Plexiglas

Bibliography

Bandgap expansion of tungsten oxide quantum dots synthesized in sub-nano porous silica

Hiroto Watanabe, Kenji Fujikata, Yuya Oakib and Hiroaki Imai, Show Affiliations, Chem. Commun., 2013, 49, 84778479 DOI: 10.1039/C3CC44264K Received 06 Jun 2013, Accepted 24 Jul 2013 First published online 25 Jul 2013

Influences of Porous Structurization and Pt Addition on the Improvement of Photocatalytic Performance of Wo3 Particles

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Photocatalytic Remote Oxidation Induced by Visible Light

Fei Yang, Yukina Takahashi, Nobuyuki Sakai, and Tetsu Tatsuma Institute of Industrial Science, University of Tokyo, 4-6-1 Komaba, Meguro-ku, Tokyo 153-8505, Japan J. Phys. Chem. C, 2011, 115 (37), pp 18270–18274 DOI: 10.1021/jp205600m Publication Date (Web): August 12, 2011 Copyright © 2011 American Chemical Society*

Solid-base loaded WO3 photocatalyst for decomposition of harmful organics under visible light irradiation

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Synthesis of WO3−xnanomaterials with controlled morphology and composition for highly efficient photocatalysis

Zhenguang Shen, Zengying Zhao, Jingwen Qian,Zhijian Peng... DOI: https://doi.org/10.1557/jmr.2016.106 Published online: 01 April 2016

Low temperature synthesis and photocatalytic performance of tungsten trioxide film

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Robust Co-catalytic Performance of Nanodiamonds Loaded on WO3 for the Decomposition of Volatile Organic Compounds under Visible Light

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Influences of Porous Structurization and Pt Addition on the Improvementof Photocatalytic Performance of WO3 Particles

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61, Gumi, Gyeongbuk 730701, Korea ACS Appl. Mater. Interfaces, 2015, 7 (5), pp 3009–3017 DOI: 10.1021/am507935j Publication Date (Web): January 21, 2015 Copyright © 2015 American Chemical Society

Platinized WO3 as an Environmental Photocatalyst that Generates OH Radicals under Visible Light

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Ultrahigh-efficiency photocatalysts based on mesoporous Pt–WO3 nanohybrids

*Zhenhai Wen,ab Wei Wu,ac Zhuang Liu,a Hao Zhang,a Jinghong Li*a and Junhong Chen*b Cite this: Phys.Chem. Chem. Phys., 2013, 15, 6773 Received 13th February 2013, Accepted 14th March 2013 DOI: 10.1039/c3cp50647a*

WO_3/Pt nanoparticles are NADPH oxidase biomimetics that mimic effector cells in vitro and in vivo

Andrea J Clark, Emma L Coury, Alexandra M Meilhacand Howard R Petty. Published 18 December 2015 • © 2016 IOP Publishing Ltd Nanotechnology, Volume 27, Number 6

WO_3/Pt nanoparticles promote light-induced lipid peroxidation and lysosomal instability within tumor cells

Andrea J Clark and Howard R Petty Published 20 January 2016 © 2016 IOP Publishing Ldt Nanotechnology, Volume 27, Number 7

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Photocatalytic Coatings

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INACTIVATION OF KLEBSIELLA PNEUMONIAE IN SEWAGE BY SOLAR PHOTOCATALYSIS AND INVESTIGATION OF CHANGES IN ANTIBIOTIC RESISTANCE PROFILE

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