

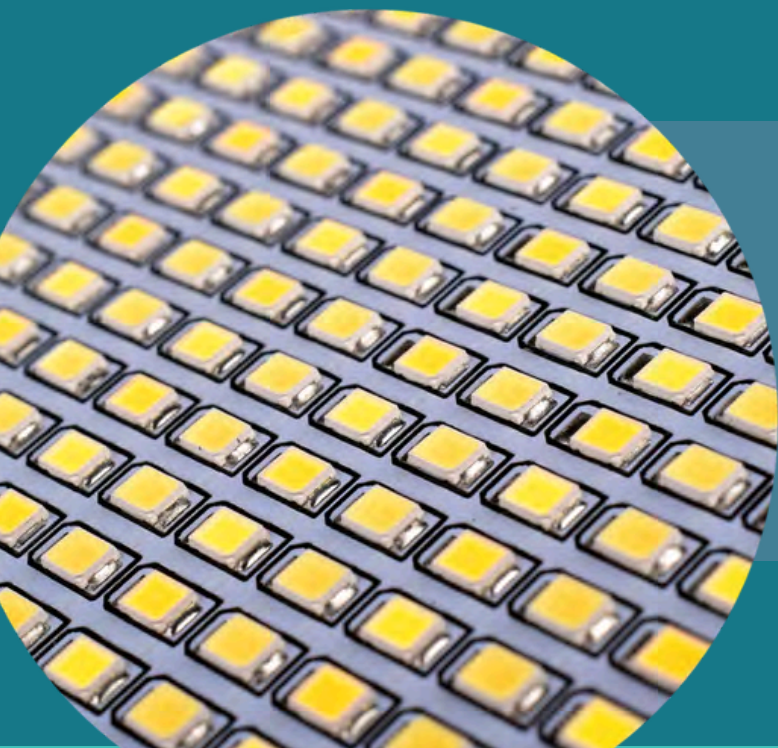
BIOVITAE®

THE INNOVATION FOR THE  
ENVIRONMENTAL SANITIZATION

BIOVITAE®

# BIOVITAE:

The first LED technology that simultaneously illuminates and sanitizes



## BULB

E27, Bayonet GU10

## PANNELL

60x60, 30x120

## LINEAR

60cm, 120cm, 150cm

## GU10

E27, Bayonet GU10

## DOWNLIGHT

various measurements

## CUSTOM

Tailor-made solutions

## Dual Function

Simultaneously illuminates and sanitizes

## Plug&play

Replaces all LED and normal lighting fixtures

BIOVITAE®

BIOVITAE IS A SANITIZING LIGHT  
INTEGRATED INTO STANDARD  
LIGHTING FIXTURES.

BIOVITAE LIGHT IS HARMLESS  
TO PEOPLE AND ANIMALS.  
IT DOES NOT CONTAIN  
CHEMICALS AND IS FREE OF  
HARMFUL UV RAYS.

BIOVITAE CONTINUOUSLY  
SANITIZES ANY ENVIRONMENT BY  
REDUCING THE RISK OF INFECTION  
AND CONTAMINATION.



BIOVITAE

## An LED technology for bio-safe and sustainable environments

Mimics the action of the sun: respects nature at every moment of its action

Biovitae is a patented LED technology, UV-free, that combines illumination and sanitization of air and surfaces in total safety for people and animals.

Its effectiveness is proven by scientific tests.

It is a safe and sustainable lighting solution that can improve the quality of home and professional environments without increasing energy consumption.

SANITIZES  
PROTECTS  
ILLUMINATES



BIOVITAE

# PATENTED TECHNOLOGY

BIOVITAE is the first patented LED sanitization and illumination technology that uses a combination of wavelengths of the visible spectrum without UV to provide broad microbicidal action.



**99,8%**

**Efficacy on  
SARS-CoV-2**



**90% +**

**Efficacy on  
Bacteria**

# BIOVITAE IS

## TOTALLY SAFE

For humans and animals

## TRIPLE ACTION

Sanitizes, Protects, Illuminates

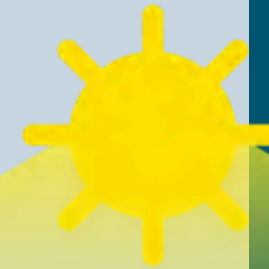
## AS THE SUNLIGHT

Natural visible spectrum

## CONTINUOUS SANITIZATION

24/7 even in the presence of people

# THE TECHNOLOGY: HOW IT WORKS

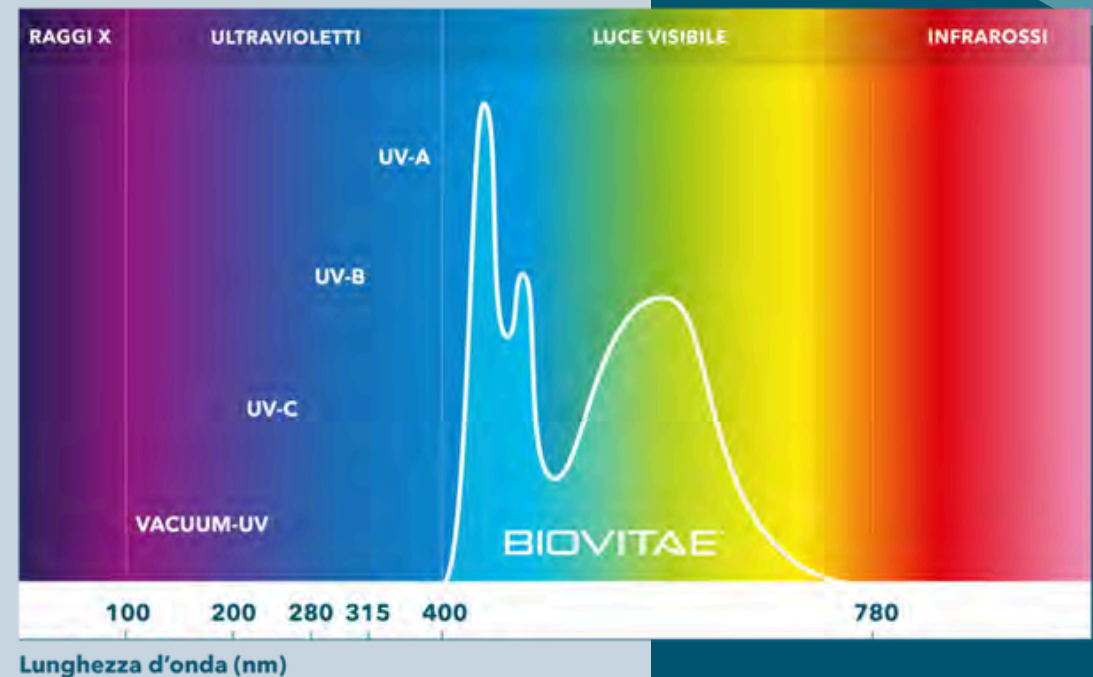


## SORET'S BAND

Microbicidal action is triggered by the patented combination of frequencies within the visible (non-UV) spectrum range.

**400-420 nm**  
**Visible Spectrum**

**BIOVITAE WORKS LIKE SUNLIGHT  
AN IS TOTALLY UV-FREE**



# EFFECTIVE AGAINST



Eliminates bacteria, fungi, mold



Eliminates viruses, including Sars-Cov-2



Penetrates and eliminates Biofilm



UV free



Reduces the risk of allergies\*\*



Reduces odours\*\*\*



For continuous use in the presence of persons and animals



High energy efficiency



Natural white light

# EASY INTEGRATION

The light engine easily integrates into any existing mechanic, replacing regular LEDs for quick scale-up.



# UNIQUE BENEFITS

## Continuous

24/7 sanitization, even in presence of people.  
passive and automatic action



**Always on**

## Effective

ASimultaneous action on air and surfaces. Effective on all pathogenic microorganisms.



**Broad spectrum**

## Safe

UV-Free, no risk to humans human and animal. Continuous use in busy environments.



**100% safe**

## Sustainable

Low environmental impact: high performance and low consumption.



**Eco-friendly**

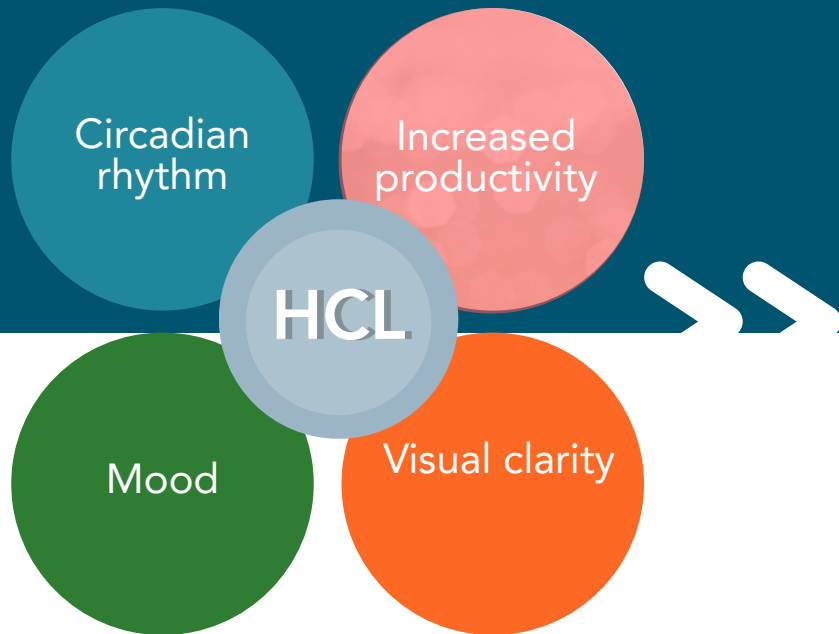
# COMPARISON WITH OTHER TECHNOLOGIES

BIOVITAE

CHARACTERISTIC	BIOVITAE	TRADITIONAL UV	OZONE	CHEMICALS
Safety	✓	✗	✗	✗
Continuous sanitization	✓	✗	✗	✗
Environmental impact	Very low	High	High	High
Energy consumption	Low	High	Low	Low

HARNESSING THE POWER OF VISIBLE LIGHT  
TO TACKLE SOME OF THE MOST PRESSING  
CHALLENGES OF OUR TIME.

# BIOVITAE, FROM HUMAN CENTRIC TO LIFE CENTRIC LIGHTING



## Health and Well-being

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Photobiological therapies, light for sleepregulation, blue light disinfection, effects on mental health and productivity

## AI and IoT

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Integration AI to automatically manage the operation and performance of BIOVITAE devices based on environmental parameters

## Eco-compatible Technologies

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Intelligent sanitation systems to reduce energy consumption while maintaining the same level of efficiency. Photocatalytic systems for air and water purification. Reduction of light pollution. The company's mission is to promote sustainable development and reduce environmental impact.

## Tecnologia eco-compatibili

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Applications in indoor and outdoor agriculture (optimization of plant growth and control of plant diseases and pests), food processing (extending shelf life and reducing food waste), biocompatible technologies.

BIOVITAE<sup>®</sup>

# APPLICATIONS IN THE HEALTHCARE SECTOR

Hospitals



Control of pathogen proliferation and reduces the risk of Healthcare-Related Infections (HAIs).

CleanRoom



Reducing the risk of contamination of processes and products.

Smart Hospital



Physical network to securely acquire and transfer data without interfering with medical devices.

BIOVITAE

# APPLICATIONS IN THE HEALTHCARE SECTOR

## BENEFITS FOR DIVERSE BUSINESS ENVIRONMENTS

### ADVANCED RESEARCH Politecnico di Milano

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Participation in the Joint Research Platform for Healthcare Infrastructures to test and implement innovative strategies in the hospital of the future.

### REDUCTION OF INFECTION RISK

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LHAs are one of the main challenges in environments sanitary. BIOVITAE provides a continuous sanitization solution to significantly reduce this risk.

## BIOVITAE IN HEALTHCARE

In the healthcare industry, the prevention of healthcare-associated infections (HAIs) requires effective, continuous, and safe solutions.

Several studies have demonstrated the ability of visible light to inactivate microorganisms through a photodynamic mechanism that acts on endogenous porphyrins, without the use of UV or chemical agents. This allows continuous use in the presence of people, improving environmental hygiene in a safe and non-invasive way.

The integration of these systems into the **Infection Prevention and Control (IPC)** contributes to the containment of infectious risk, supporting compliance with European health regulations and biosafety standards.

# BENEFITS FOR DIVERSE BUSINESS ENVIRONMENTS

BIOVITAE®

## APPLIANCES



Elimination of 99% of bacteria and bad odors of bacterial origin. Effective even at low temperatures for energy saving.

## DIGITAL WORKSTATIONS



Continuous sanitization of keyboards and touch-screens in public places without interruption of service.

## MEANS OF TRANSPORT



Applications in Automobiles and Transportation public with integrated lighting function.

### Easy installation

Without complex infrastructure or specialized personnel.

### Low Power Consumption

Ideal where access energy is limited or expensive.

### Continuous sanitization

Even without the intervention of operators.

### Operator safety

No chemical or UV hazards, uninterrupted use.

### Public Environments

- Schools and universities
- Offices and workspaces
- Malls
- Gyms and sports centers

### Specialized Sectors

- Food industry
- Livestock and animal husbandry
- Research laboratories
- Reception facilities

BIOVITAE<sup>®</sup> **ALL-IN-ONE**  
Sanitization and  
Integrated lighting

**HIGH EFFICIENCY**  
Requires no  
additional power

**ZERO POLLUTANTS**  
Does not emit  
harmful substances

# BIOVITAE È CLEANTECH

The green sanitization system  
of the future



## ENVIRONMENTAL BENEFITS

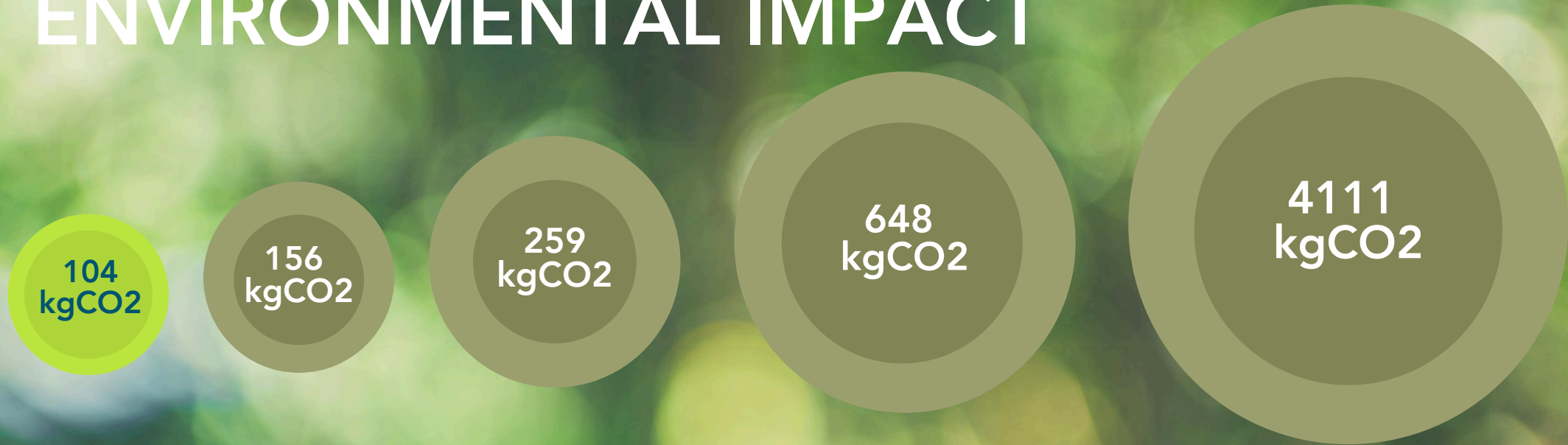
- Recyclable materials
- Zero consumables
- Long life span
- Material traceability

### CONTRIBUTION TO THE SDGs



BIOVITAE

# COMPARATIVE ENVIRONMENTAL IMPACT



**BIOVITAE**  
Panel 60x60

**R-Zero VIVE**  
UV 222nm

**Ledtailor P100**  
405nm  
60x60 panel

**R-Zero Beam**  
UV 254nm

**HVAC**  
Industry average

**LOWER ENVIRONMENTAL IMPACT OF BIOVITAE %**

**-50%**

**-149%**

**-523%**

**-3853%**

The CO2 emission intensity (kg CO2/kWh) is calculated as the ratio between the CO2 emissions of public electricity production (as the share of CO2 emissions of public electricity and heat production related to electricity production) and the gross production of electricity. The CO2 emission intensity values of sanitization technologies were calculated as the product of the average CO2 intensity in the European Union and the annual electricity consumption in one year required by the different sanitization technologies.  
Fonte: <https://www.rensmart.com/Calculators/KWH-to-CO2>

BIOVITAE

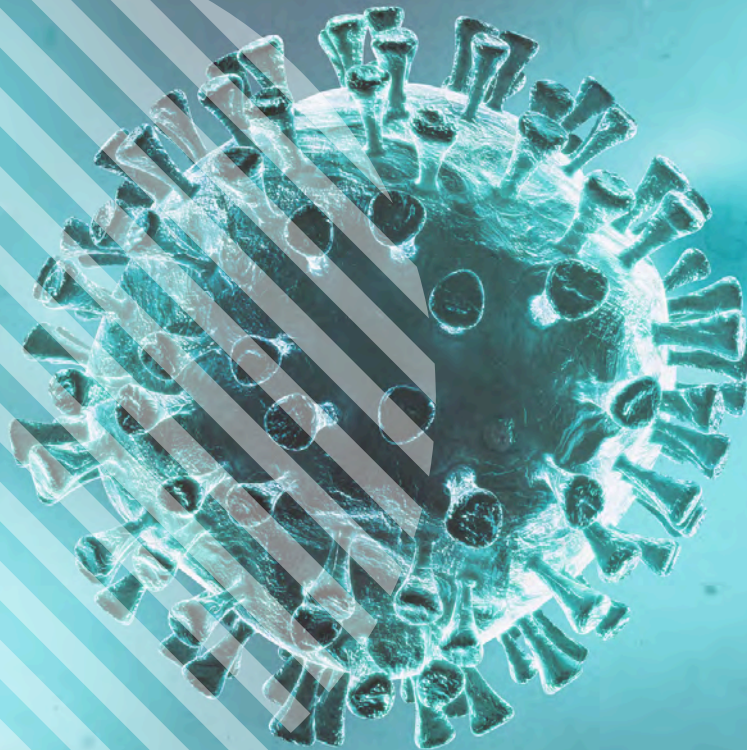
# SCIENTIFIC VALIDATION AND PATENTS

**99,8%**

Riduzione SARS-CoV-2  
in 60 minuti

**90% +**

Efficacia Batteri  
MRSA, E.Coli in 2 ore



## SCIENTIFIC TESTS\*

### Virus (in vitro)

- SARS-CoV-2
- Vaccinia (Monkeypox)
- Chikungunya
- Yellow Fever
- H1N1

### bacteria (in vivo/vitro)

- E. coli MG1655 (ATCC 700926)
- E. coli, ATCC25922
- S. typhi (Ty21a-ATCC 33459)
- Klebsiella spp.,
- Enterobacter spp.,
- Pseudomonas spp.,
- S. aureus,
- S. microti,
- S. agalactiae
- M. tuberculosis
- E. coli (ESBL/ Carbapenems)
- S. aureus Methicillin (MRSA)
- P. aeruginosa Fluoroquinolones /Carbapenems
- A. baumannii. Fluoroquinolones / Carbapenems
- Klebsiella spp (ESBL/ Carbapenems)

\*Independent tests certified by accredited third parties

# INTELLECTUAL PROPERTY

BIOVITAE

USA

AUSTRALIA

ITALY

JAPAN

INDIA

BRAZIL

EPO

TAIWAN

KOREA

**20+** Patents granted and pending

## AWARDS



Best Innovation 2019



Best Innovation 2020



Best Innovation 2020



Best Innovation 2021



Best Innovation 2023



Best Startup 2023



Top 20 Solutions Amr 2024

## CERTIFICATIONS



SAFE FOR PEOPLE AND ANIMALS



BIOVITAE

# JRP HEALTHCARE

## JRP HEALTHCARE INFRASTRUCTURES THE NEXT GENERATION HOSPITAL

BOVITAE is a Platinum member of the Joint Research Platform for Healthcare Infrastructures, an innovative technology platform created by the Politecnico di Milano to design the hospital of the future through collaboration between universities, businesses, and public administration.

The ultimate goal is to establish a standard that defines technological and terminological standards in order to have a shared basis for the design and construction of the hospitals of the future.



POLITECNICO  
MILANO 1863

DIPARTIMENTO DI ARCHITETTURA,  
INGEGNERIA DELLE COSTRUZIONI  
E AMBIENTE COSTRUITO



Fondazione  
Politecnico  
di Milano

Healthcare  
Infrastructures  
JOINT RESEARCH PLATFORM



# THE NEXT GENERATION HOSPITAL



BIOVITAE

# COLLABORATIONS AND AREAS OF ACTIVITY

## COLLABORAZIONI SCIENTIFICHE



### Politecnico di Milano

Joint Research Platform for Healthcare Infrastructures



### IDI Roma

Dermatology research



### Tor Vergata University

General Microbiology Research



### Federico II University

Naples

Veterinary research



### University of Birmingham

Food sector research



### Istituto zooprofilattico

Piedmont-Liguria-Valle d'Aosta

Research of the meat supply chain

## AREE DI FOCUS

### Malattie Infettive

Prevenzione e controllo, anche in Paesi a basso/medio reddito

### Ospedale del Futuro

Innovazioni tecnologiche per sistemi sanitari

### Cambiamento Climatico

Basso impatto ambientale dei sistemi di sanificazione

### Resistenza Antimicrobica

Riduzione globale AMR attraverso innovazione

## COLLABORAZIONI CON POLICY MAKERS INTERNAZIONALI

### PATH

Program for Appropriate Technology in Health

### UNAIDS

Programma delle Nazioni Unite contro l'AIDS

### INNOVATE UK

AMR Mission

### UNITAID

Tubercolosi, Malaria, HIV/AIDS

# REFERENCE

## HEALTH AND EDUCATION

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## FOOD AND ANIMAL HUSBANDRY

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## HOUSEHOLD APPLIANCES

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## RETAIL AND SPORT

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## BUSINESS/COMPANIES

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# RESULTS BIOVITAE

40+

Active installations

9

Target sectors

100%

Customer satisfaction

# OUR PRODUCTS

BIOVITAE

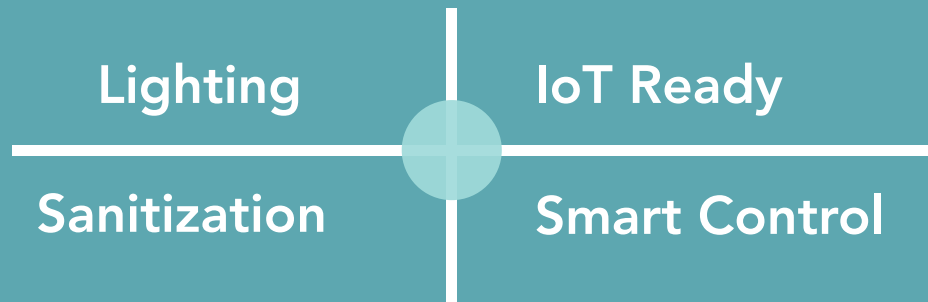


BIOVITAE

# INTEGRATED SOLUTION

## ALL IN ONE DEVICE

Complete device with integrated functions



### EASY INSTALLATION

Retrofit on existing systems

### PLUG & PLAY

Direct replacement  
Standard LED

### LONG LIFE

Up to 50,000 hours of  
operation

### WARRANT

Complete technical support

# REFERENCE

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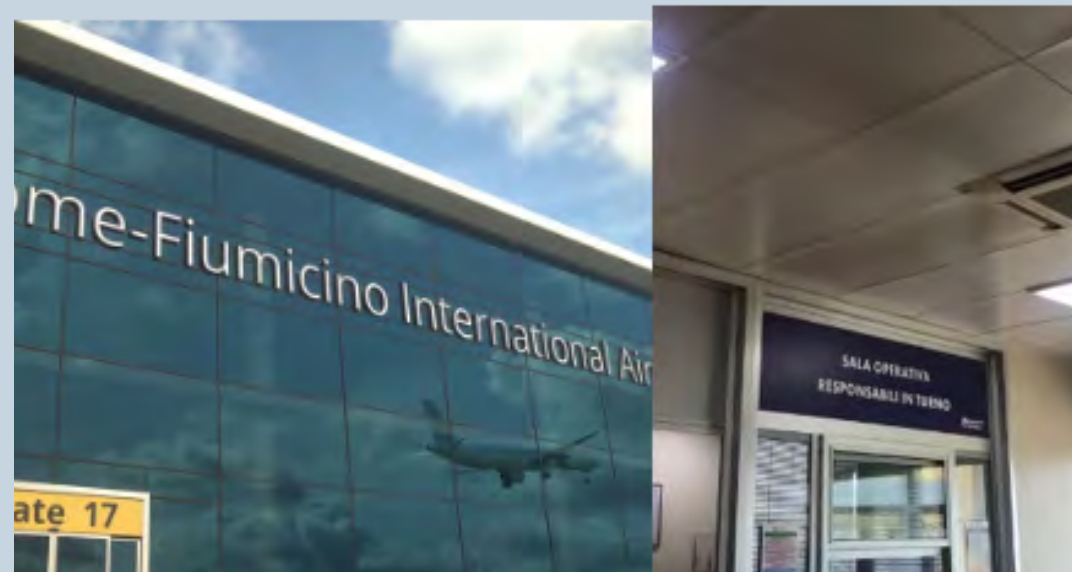
## EXAMPLES OF INSTALLATIONS



Polyclinic Court of Auditors Rome Area, Italy



IDI (Dermopathic Institute of the Immaculate Conception) Rome Area, Italy



Emergency - Rome Fiumicino Airport, Italy

# REFERENCE

BIOVITAE®



Haier – IFA Berlin2024



Poste Italiane – POLIS Italy Project



BIOVITAE

# REFERENCE



Dublin City University – Dublin, Irlanda



St. Walburg Primary School– St. Walburg, Germany

BIOVITAE

# REFERENCE



Prefecture – La Spezia, Italy



Lazio Innova Hub – Rome, Italia



Headquarters of a pharmaceutical company- Rome, Italy

# REFERENCE



La Granda Factory – Genola, Italy



Torricelle Dairy –De Vivo Agriculture -  
Salerno, Campania



Pig Farming– Ireland



# REFERENCE



Montevergine Hospital - Operating Cardiology Ward  
Campania, Italia



Campus Biomedico University- Rome, Italy



Moscato High School- Italy



University of Camerino –Camerino, Italy



Il Calore delleCoccole kindergarten-Ottati, Italy

# REFERENCE



La Cooperativa- Refrigeration project - Cortina D'Ampezzo Italy



Supermarket COOP - Bologna, Italy

# REFERENCE

BIOVITAE



Flagship Store Lavazza - Londond, United Kingdom



Sampdoria Football Club- Genova, Italy

# REFERENCE



Buses in Germany



Automotive- ongoing



Rail transport- ongoing



# FINANCIAL SUSTAINABILITY

BIOVITAE IS ELIGIBLE FOR 5.0

Investment  
€2,5M

Tax credit:  
€875k - €1,125M

Investment  
€10M

Tax credit:  
€2,375M - €3,625M

## VISION OF EUROPEAN INDUSTRY 5.0



### SUSTAINABILITY

More sustainable and responsible production



### WELL-BEING OF WORKERS

At the heart of the production process



### RESILIENCE

Flexible and adaptive production systems

### Regulatory Compliance

Opinion of the Ministry of Economic Development (MIMIT) for financing in the context of Industry 5.0 and 4.0

*Recognized as a sanitizing solution*

### Workers' Well-being

Contributes to worker well-being through safer and healthier environments

*Continuous and secure protection*

### Sustainability

Reduces the environmental impact of traditional sanitation practices

*Cleantech technology*

# BIOVITAE®

THE INNOVATION FOR THE ENVIRONMENTAL SANITIZATION

## CONTACTS



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