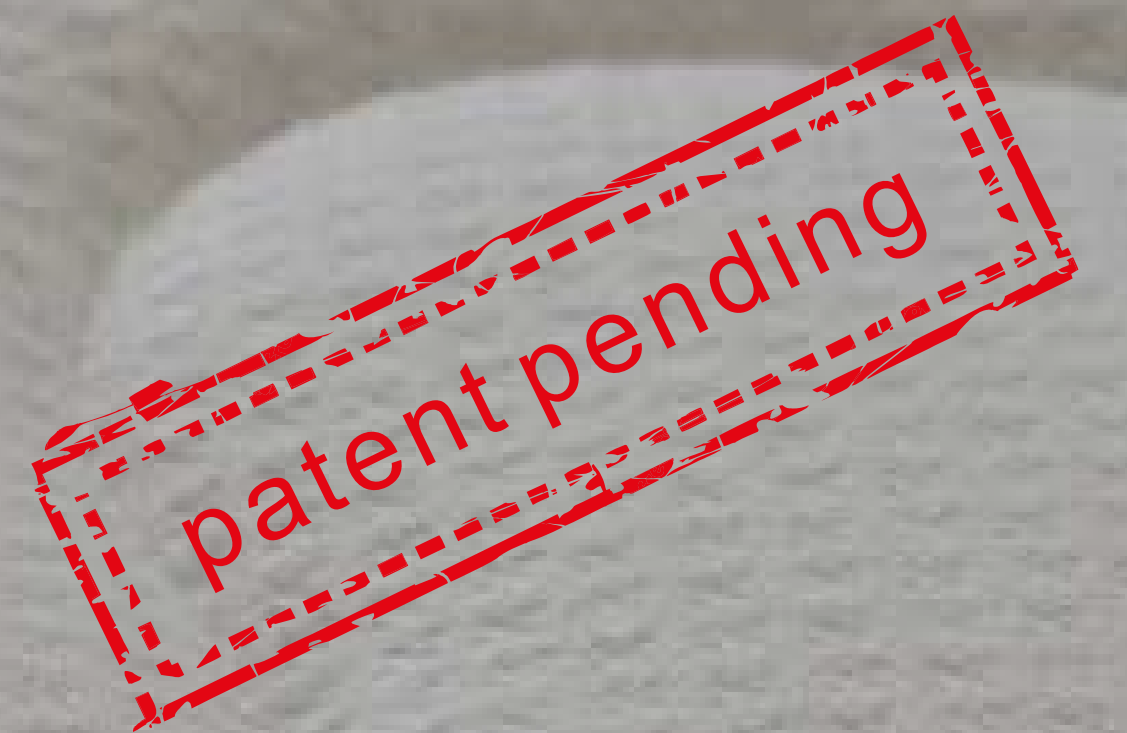
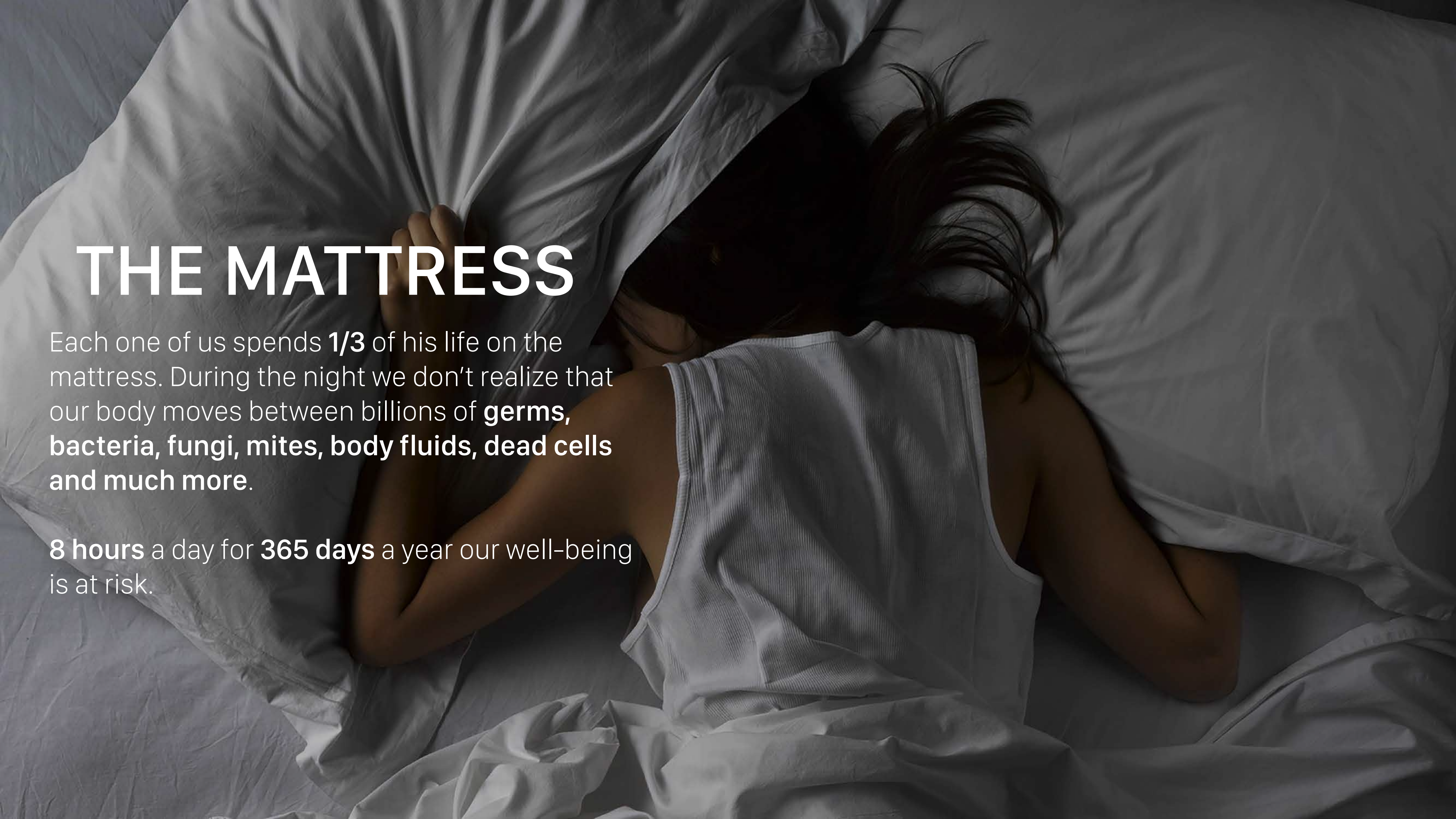


vacusan

POWERED BY L.E.A.P. TECHNOLOGY®





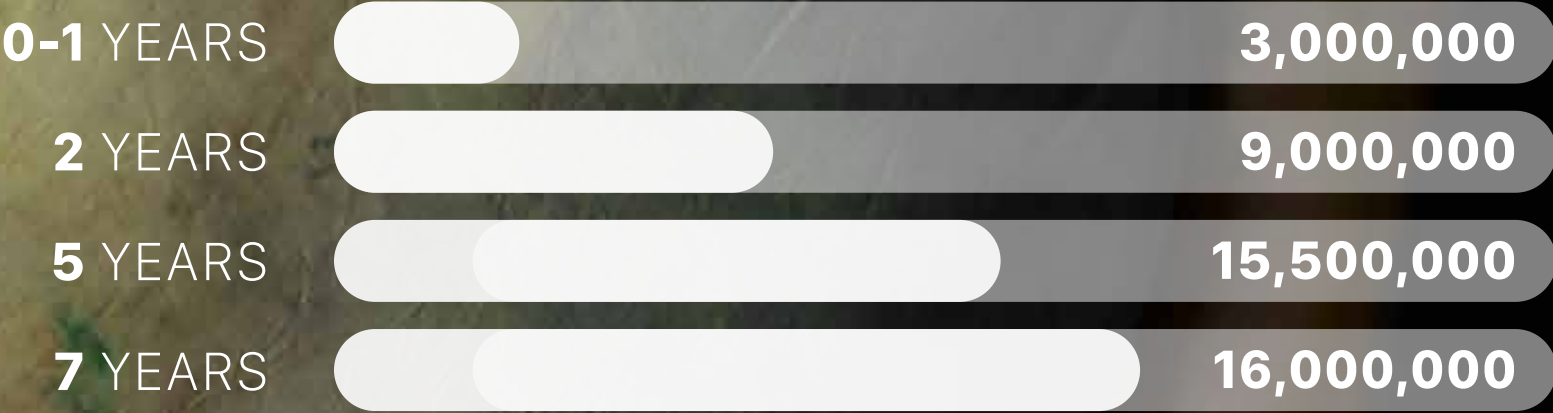
THE MATTRESS

Each one of us spends **1/3** of his life on the mattress. During the night we don't realize that our body moves between billions of **germs, bacteria, fungi, mites, body fluids, dead cells and much more.**

8 hours a day for **365 days** a year our well-being is at risk.

WHAT IS HIDING INSIDE OUR MATTRESS

HOW MANY MILLIONS OF BACTERIA ARE
HIDING IN OUR OLD MATTRESS?



*All values are calculated for colonies per square
inch CFU (colony forming units)


COSMETICS

ALLERGENS
Mites,
dog hair,
cat and
cockroaches

Penicillium
Cladosporium
FUNGI AND MOLDS
Aspergillus
Alternaria


**DEAD
SKIN**


**100 Lt
of SWEAT
per year**

Body fluids,
genitals,
Staphylococco,
Lactobacillo and
Streptococco





The image features a child's legs in blue pajamas standing on a bed with a light-colored sheet. A large, semi-transparent red circular overlay covers the lower half of the image. Within this red area, a detailed microscopic illustration of various bacteria and mold spores is visible. The bacteria are depicted in various shapes, including spheres, rods, and branching structures, in colors like pink, purple, yellow, and blue. The mold appears as fine, branching pink filaments. The background of the entire image is a blurred photograph of a child's legs on a bed.

THE INVISIBLE BACTERIAL BOMB

Millions of used mattresses are teeming with bacteria and mold that can trigger **skin infections**, **asthma** and **allergies**.

Environmental hygiene researcher Lisa Ackerley says that *"Most people would be very shocked if they knew what can be found inside an old mattress."*

Molds and bacteria reproduce and grow over the years and often we are not aware of them because they are **invisible** to the naked eye and we inhale them unconsciously every night.

"Finding bacteria like Escherichia Coli is an indication of a contamination that exposes anyone who is not infected to a possible bacterial infection"

DISPOSAL ISSUE

REMOVE, TRANSPORT & WASTE IT

Consequently, the mattress is a **special waste** and today it is **not disposed of correctly**. Moreover, the abandoned mattresses becomes a perfect home for the bed bugs.

Currently the disposal of mattresses is a huge bacteriological and logistical problem. When large quantities of mattresses are disposed of, operators do not take the **correct precautions** to be able to **work safely**.





DISPOSAL ISSUE

After years of use, the mattress is taken and transported to landfills without the necessary **logistical** and **health precautions**. The current methodology for both **private** individuals and **large companies** involves:

**BIG
DIMENSIONS**



**NECESSITY OF
STAFF**



**HIGH LOGISTIC
COSTS**



**EXPOSURE TO
BACTERIA**







9
Publiambiente
gruppo PubliServizi

RISKS AND INCONVENIENCE FOR CITIZENS

Every day the mattresses are left on the street waiting for someone to collect them and, at the side of the sidewalks, they are subject to **atmospheric agents**. Once wet and full of water they become **difficult to transport** and bacteria find a perfect environment

to proliferate. The problem is evident not only as a **bacteriological contamination risk** but also of **urban decorum**. The inconvenience and risks increase and no countermeasure is yet adopted to reduce this erroneous and risky methodology.

vacusan

Vacuum & Purifying Nanotechnology

POWERED BY L.E.A.P. TECHNOLOGY®



vacusan USED MATTRESS

Place the Vacusan close to the **used mattress** that must be disposed of.

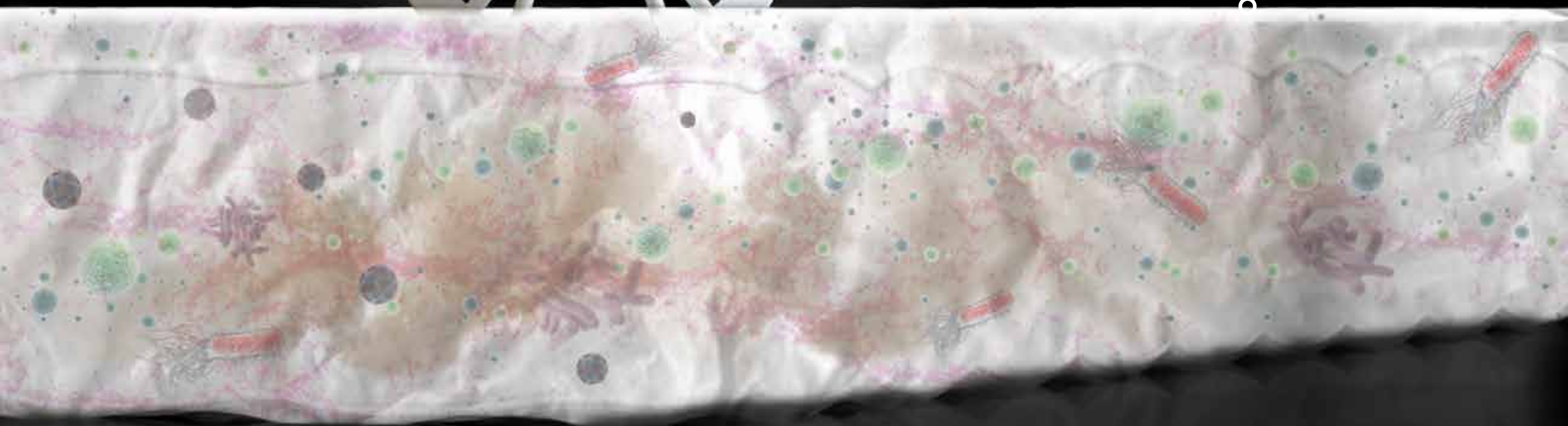


vacusan WRAPPING

Wrap the mattress in a **plastic bag** keeping the suction point in the center to obtain an optimal vacuum.



Vacuum bag



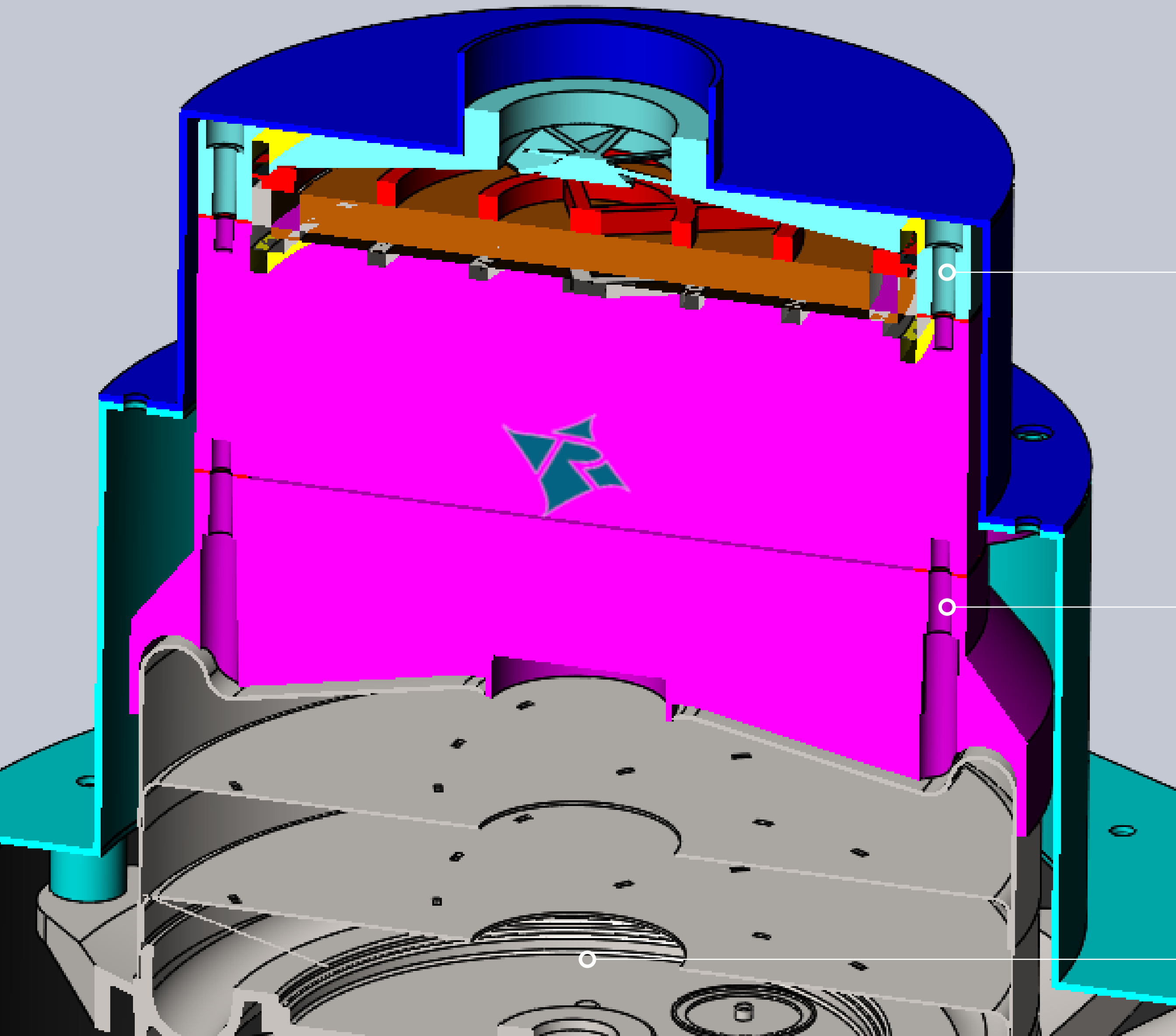
vacusan PREPARATION

Connect the Vacusan hose to the intake valve.



vacusan POWER ON

Thanks to the L.E.A.P. purification system, Vacusan not only sucks the bacteria and pollutants from the mattress but eliminates them.



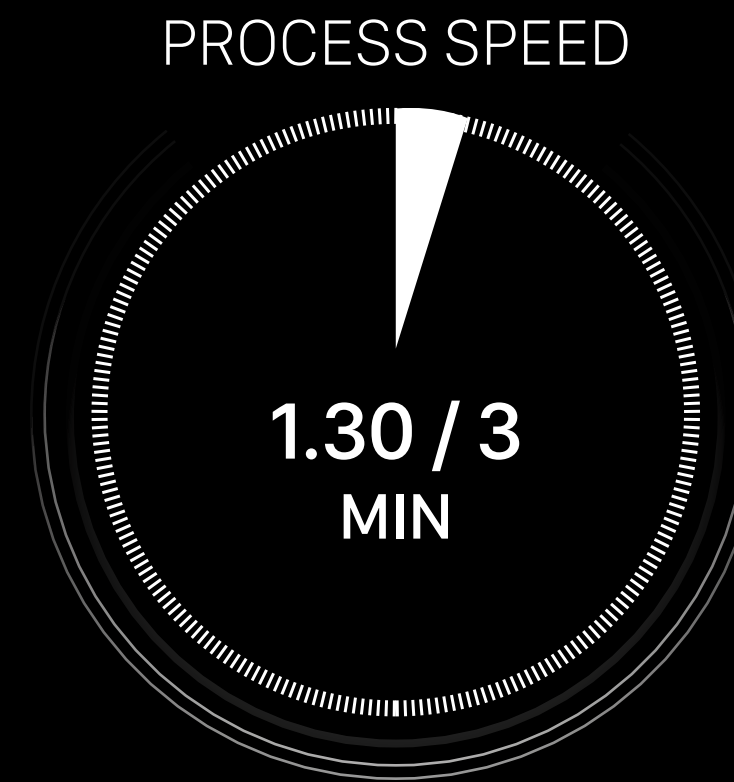
→ Anti-dust filter section

→ UV/photocatalytic filter section

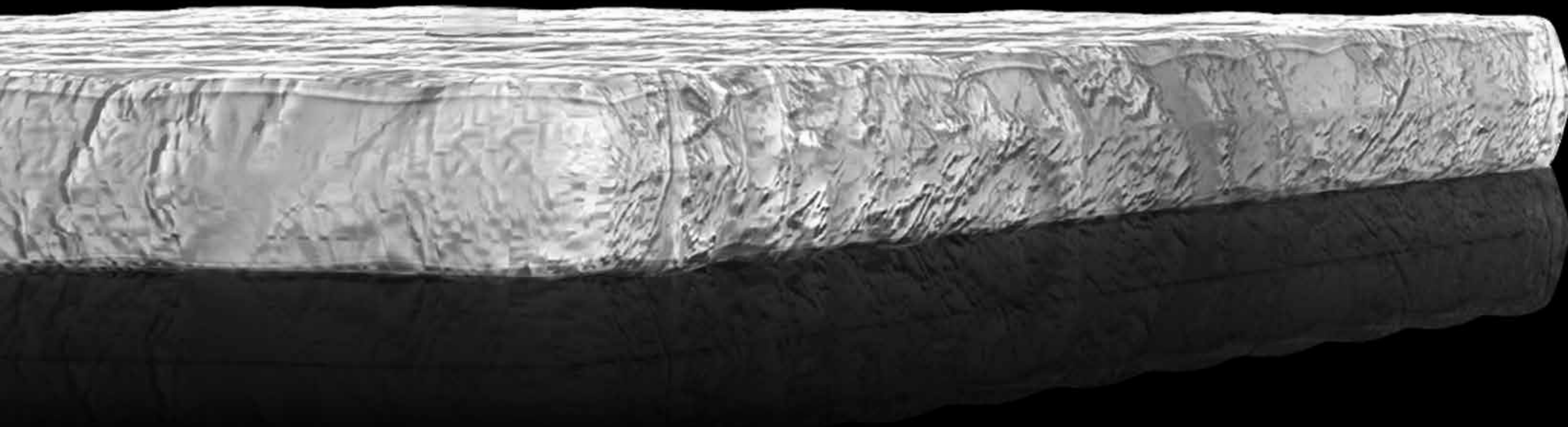
→ Bacteria vacuuming

vacusan VACUUM AND PURIFICATION

The vacuum device reduces the volume of the mattress by 70% and the bacteria load in a few minutes without contaminating the surrounding environment (1.30 min for a single mattress and 3 min for a double).



WATCH THE FULL
VACUSAN VIDEO
HERE



vacusan

The old mattress has been purified and packed for optimal and safe transport.

VOLUME REDUCTION

-70%

- LOGISTIC COSTS



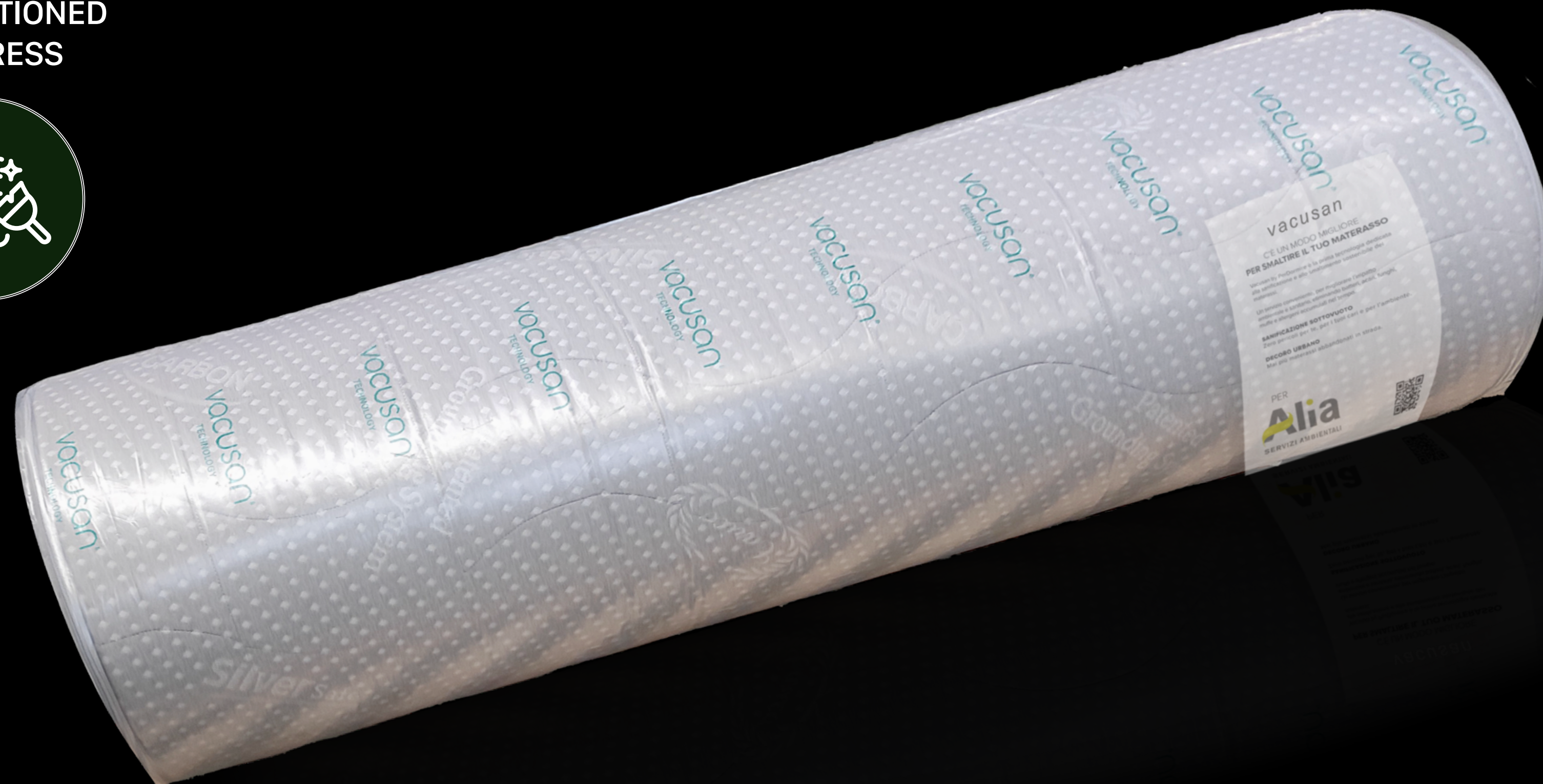
EASY TO TRANSPORT



- TIME DISPOSAL



RECONDITIONED MATTRESS



Thanks to the volume reduction it is possible to reduce the cost of **road transport** by **1/3**.

REGULATORY AND ECONOMIC IMPACT OF THE VACUSAN SYSTEM



1.500.000

DISPOSED MATTRESSES
EVERY YEAR



from 25€/unit

MATTRESS DISPOSAL
COST FOR THE USER



750.000

DOWNWARDS ESTIMATION
OF USERS USING THE
SERVICE



18.750.000

COST INCURRED IN ITALY
FOR THE DISPOSAL OF USED
MATTRESSES



15€/unit

MATTRESS DISPOSAL COST
WITH VACUSAN
SYSTEM



7.500.000

ANNUAL SAVINGS THANKS TO
THE VACUSAN SYSTEM

Today, the disposal of mattresses are done in an irregular manner and above all without taking **sanitary precautions**.

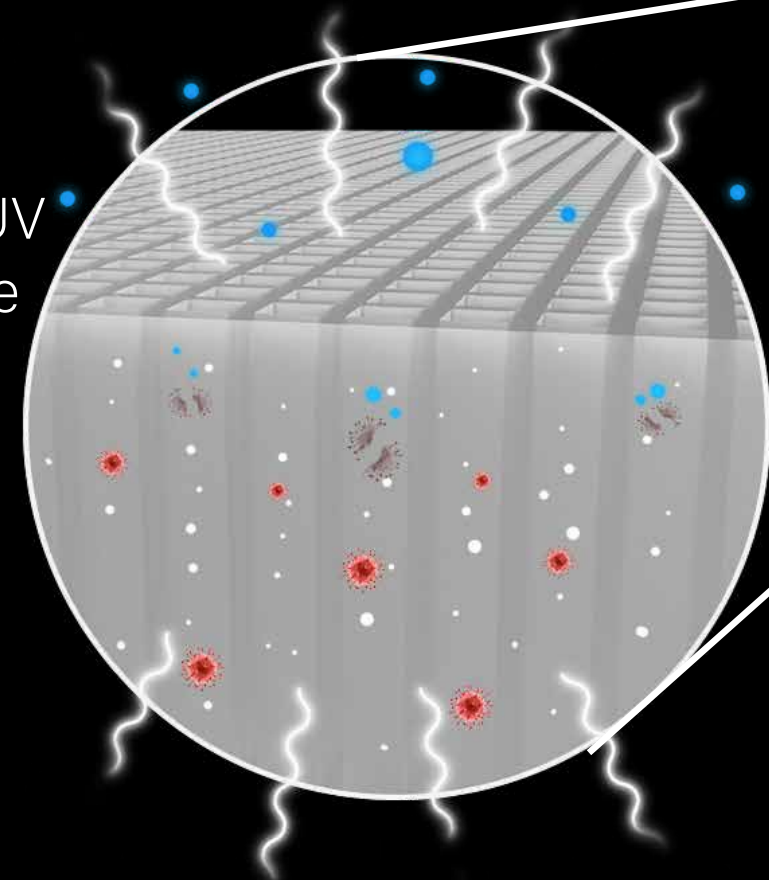
The ministry is working on the standardization of this process but currently there are **no valid proposals** for disposal of old mattresses.

L.E.A.P. NANOTECH

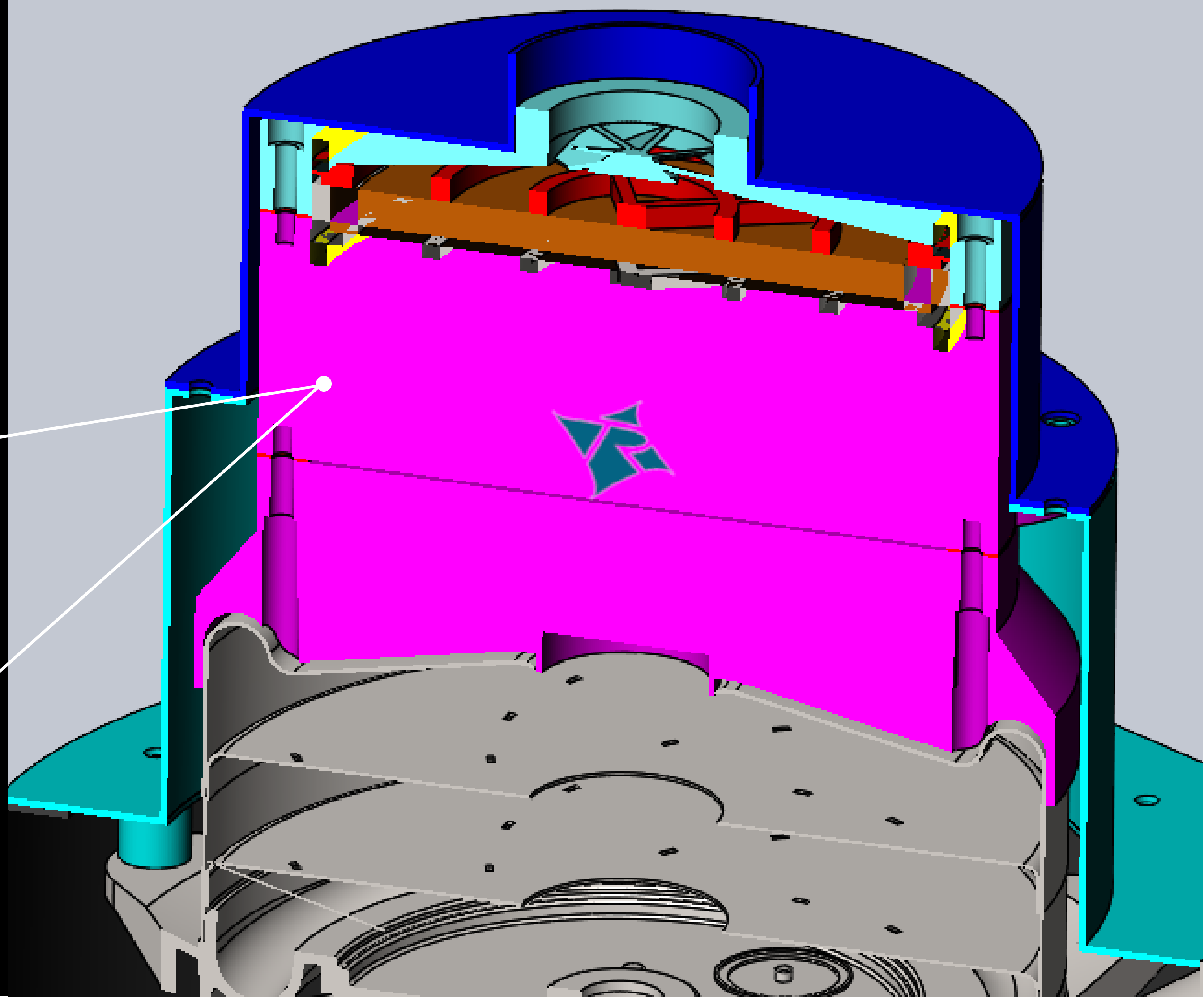
The titanium dioxide, applied as a coating in nano-particle form on specific surfaces, once hit by the sun's rays or UV rays, generates, in combination with the presence of humidity in the air, hydroxyl groups with a very strong antibacterial function capable of breaking down various contaminated elements in the air flows ranging from NO_x to biological (e.g. bacteria) and chemical (e.g. solvents) elements.

A photocatalytic filter consists of a nano-functionalized surface with a honeycomb structure and a very dense mesh irradiated by UV sources and allows the reduction of contaminant contents in the air flow that comes into contact with the surface passing through the filter. The decontamination effect is further strengthened by the UV sources which by themselves are able to break down the contaminants present in the air.

The latest generation photocatalytic filters use as alveolar surfaces instead of the old ceramic bases, modern semi-transparent plastic structures (patent protected) produced with optimized geometries thanks to innovative additive production systems that allow to achieve much higher abatement efficiencies compared to materials ceramics and to make filters that are light, resistant and also suitable for transportable solutions.

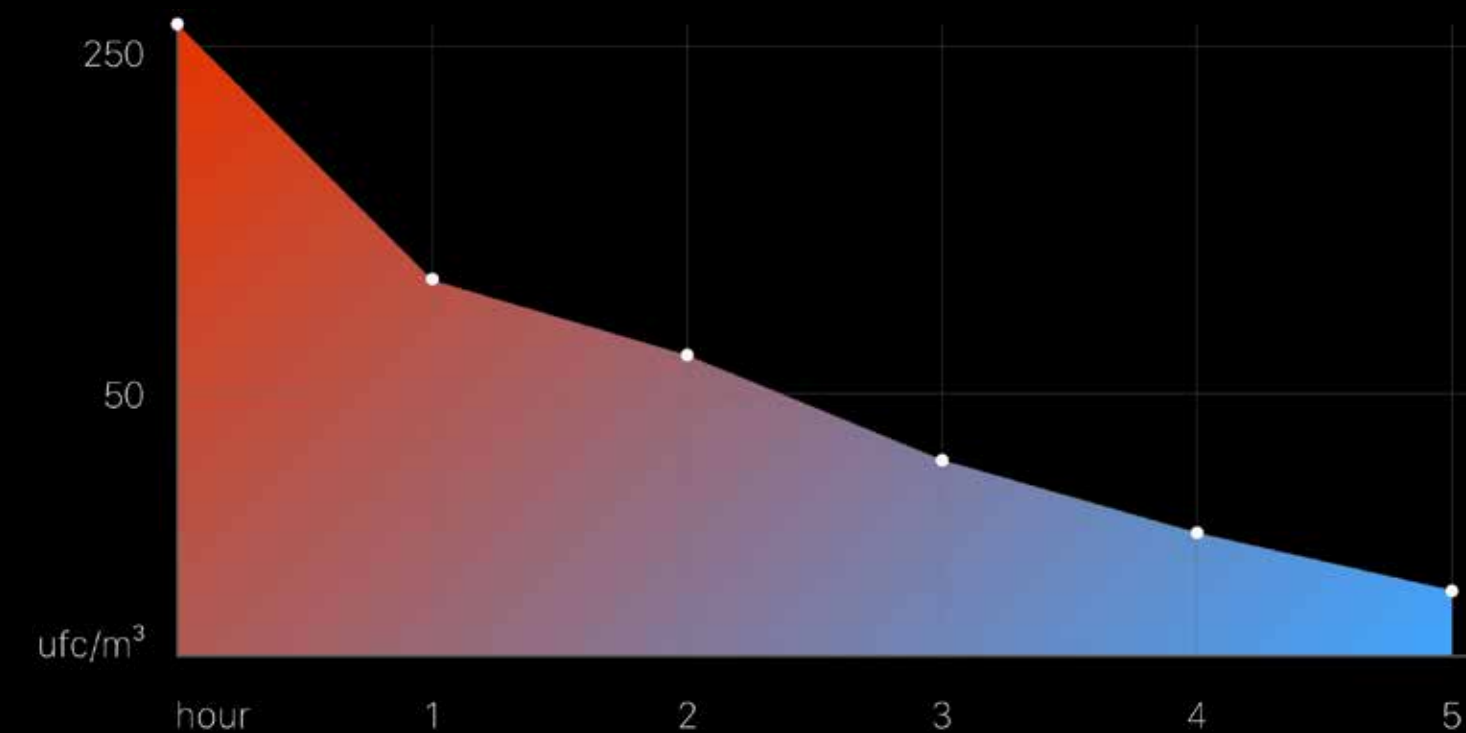


Photocatalytic process

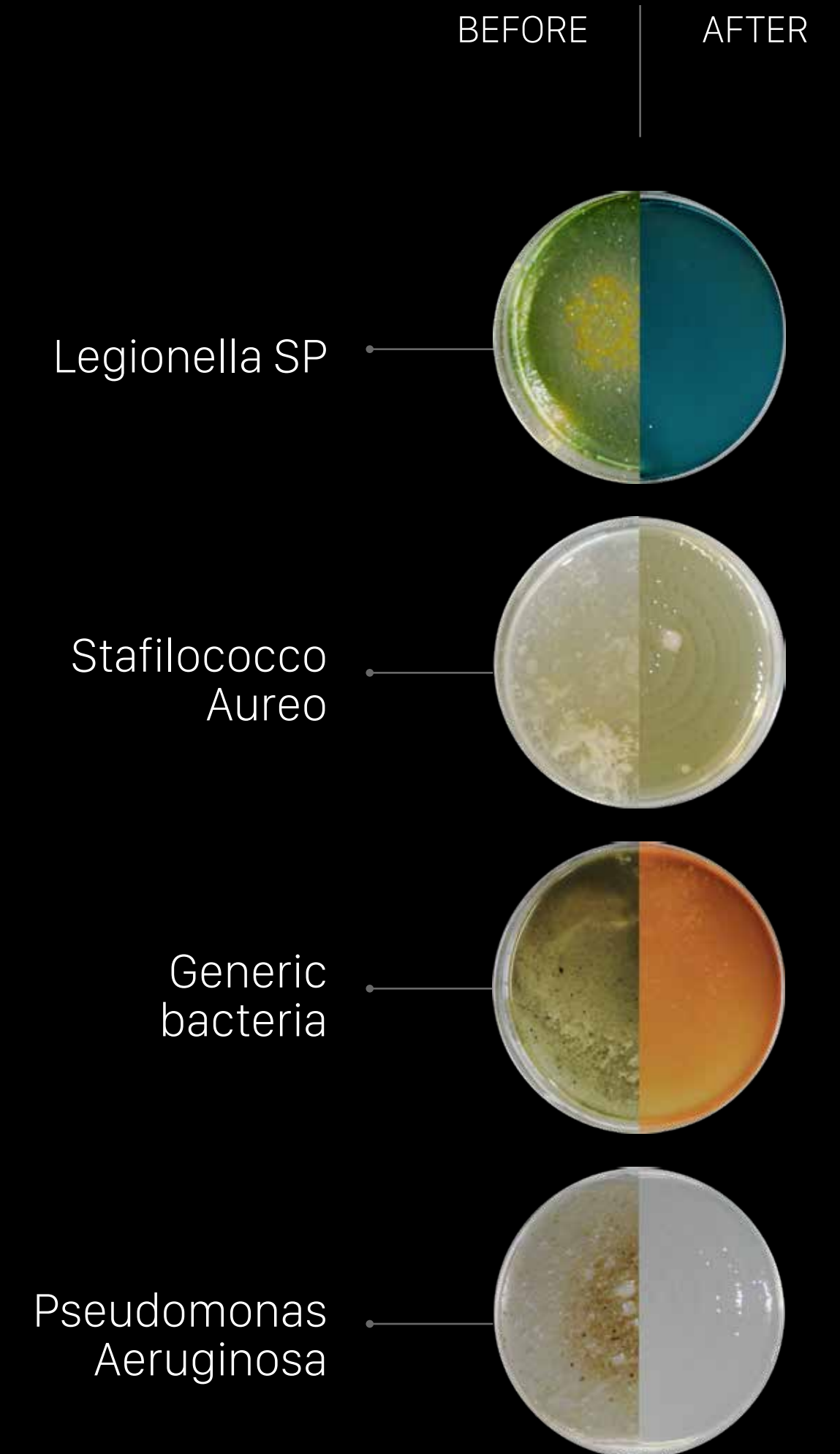


CERTIFIED TESTS

L.E.A.P vs TOTAL BACTERIAL COUNT



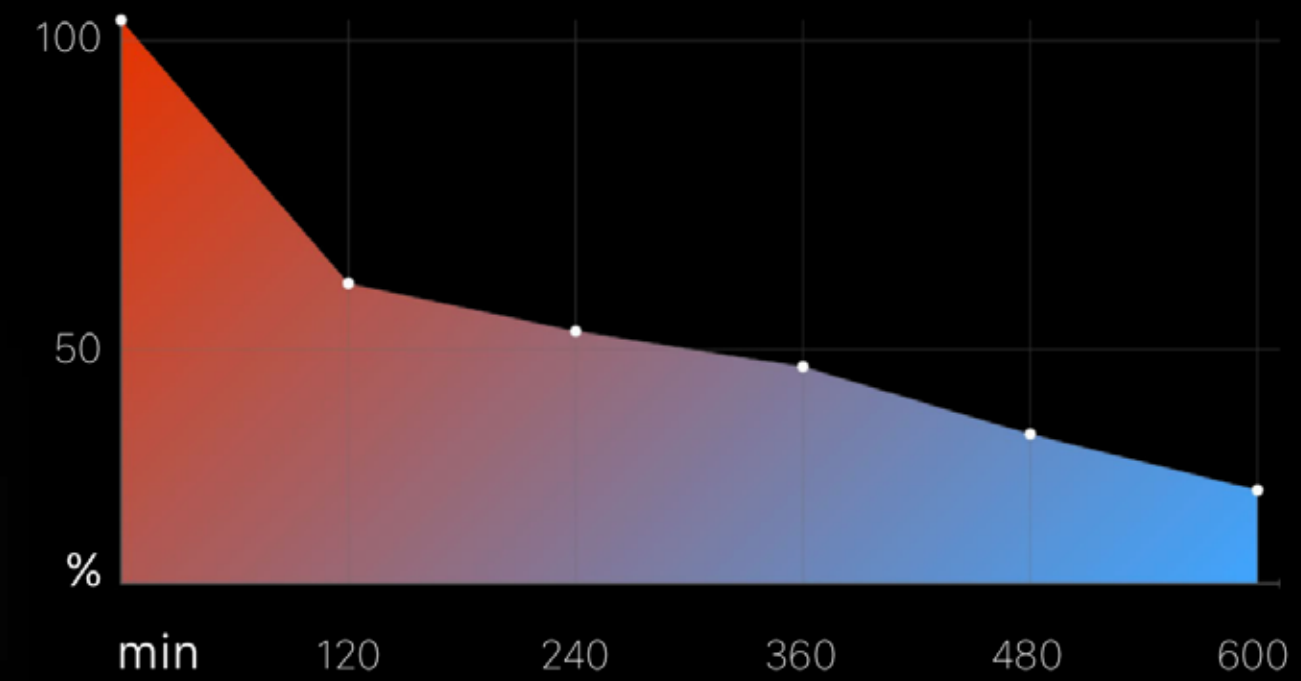
The procedures and methods are regulated by the ISO 9001 and ISO 13485 certified quality management. The L.E.A.P. system has been tested in a space of 22 square meters. The sample was taken from 6 different points of in the room following the requirements indicated by: UNI EN ISO 14644-1: 2016. The cultures were: Agar for bacteria, Trypton Soy Agar, Agar for fungi: Sabourad Agar.



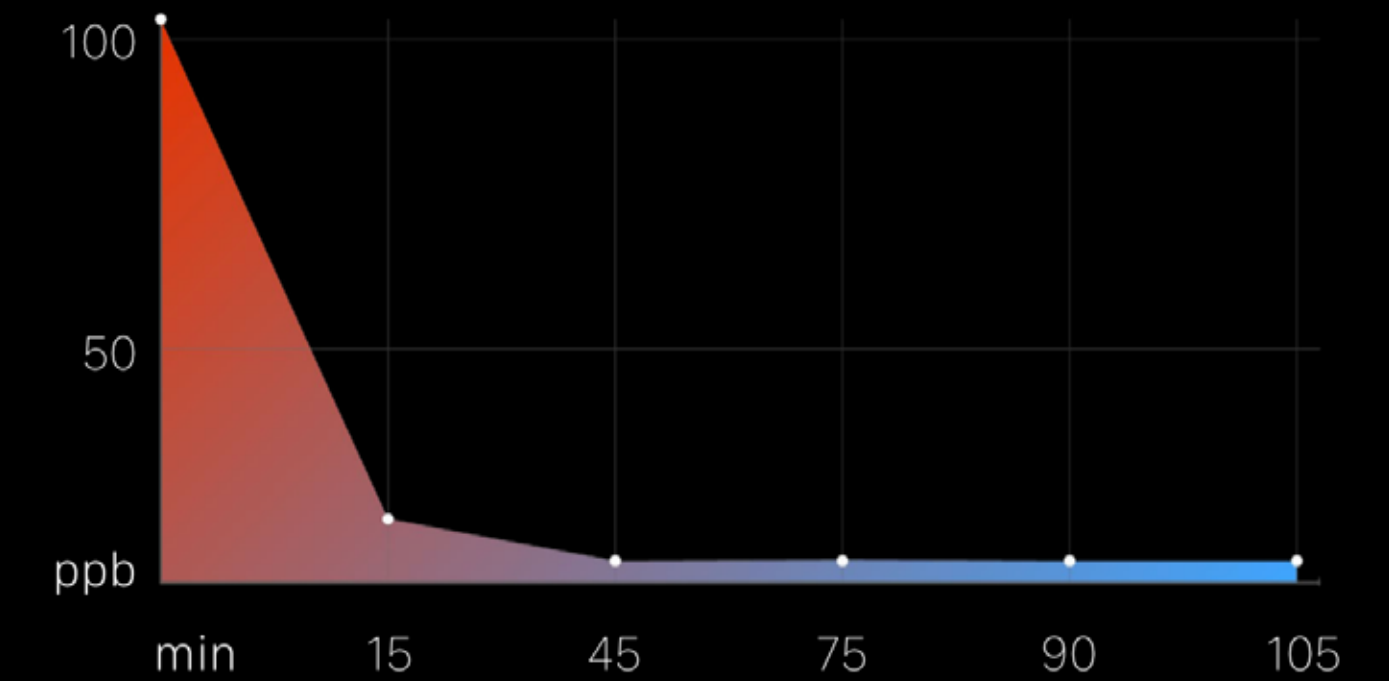
CERTIFIED TESTS



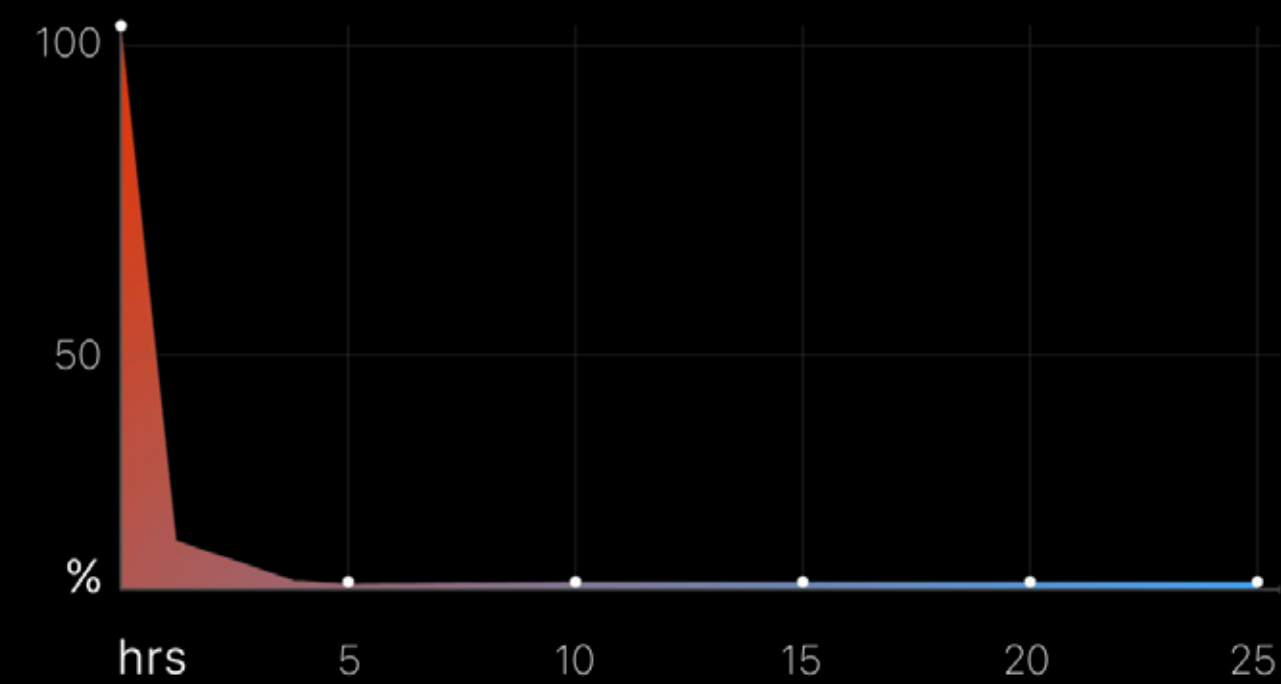
L.E.A.P. vs VOCs



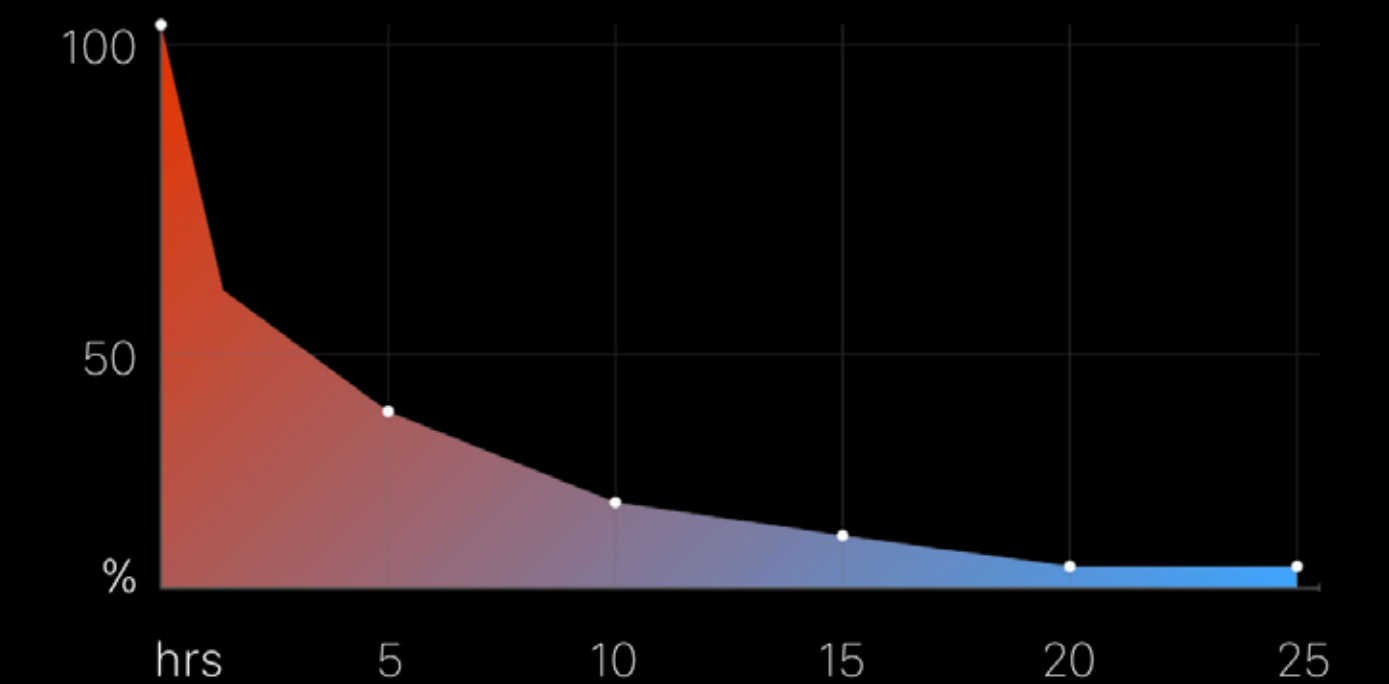
L.E.A.P. vs NO_x



L.E.A.P. vs LIMONENE



L.E.A.P. vs FORMALDEHYDE



THANK YOU

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WATCH THE FULL
VACUSAN VIDEO HERE

