



**BIOTHYS™**  
OLFACTIVE SILENCE™

OUR SOLUTIONS FOR THE  
**TRANSPORT SECTOR**  
TREATMENT OF CITY BUSES, TRAINS AND SUBWAYS

*Start breathing again.*



WASTE



TRANSPORT



SERVICE SECTOR



INDUSTRY



PETROCHEMISTRY



WASTE WATER



MADE IN GERMANY, PERFORMING WORLDWIDE.

# COMPANY PROFILE

BIOTHYS™ is specialized in consulting, design and produce world wide application of individual solutions of smell neutralization for all sectors. Our competitive advantage is the result of 30 years of experience in this sector. This allows us to offer customized and turnkey solutions for all sectors. Biothys™ technologies are patented and used in many countries all over the world. Biothys was again certified according to the ISO 9001 and ISO 14001 norm for its management and quality systems as well as for its continuous improvement and sustainable operations.



-  **TURNKEY SOLUTION BASED ON YOURS NEEDS.**
-  **EXPERIENCED DESIGNERS, ENGINEERS, TECHNICIANS AND SALESPEOPLE.**
-  **SIMPLIFIED SOLUTION CUSTOMIZED TO MEET YOUR NEEDS.**
-  **EASY INSTALLATION AND MAINTENANCE.**

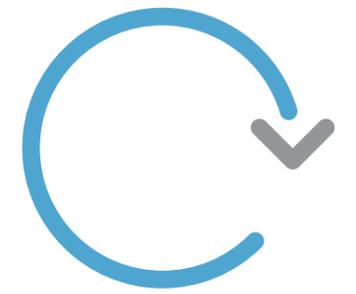
# THE BENEFITS OF OUR SOLUTIONS



**EASY MAINTENANCE**



**EASY INSTALLATION**



**PERMANENT TREATMENT**



**QUALITY GUARANTEE**



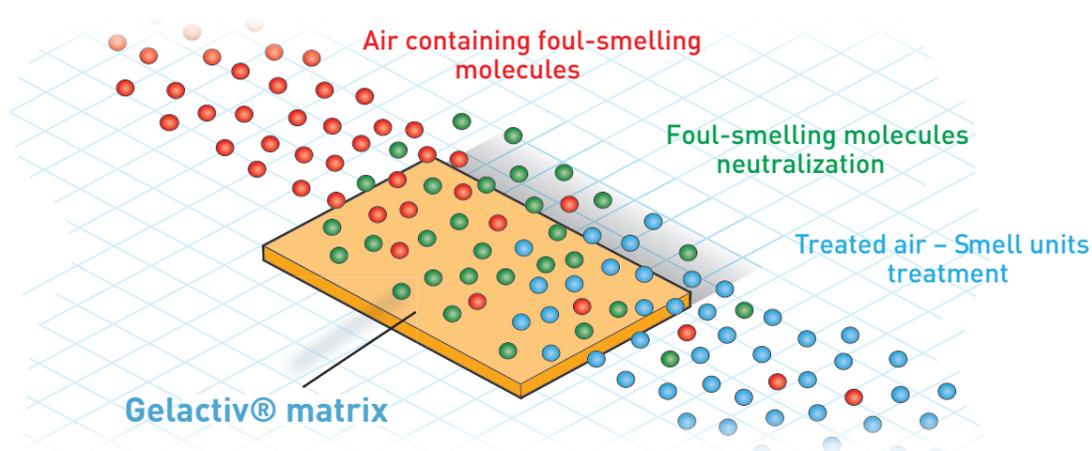
**LOWED COST**



**TARGETED TREATMENT**

# The **GELACTIV**<sup>®</sup> Technology

A polymeric matrix plate releases the active agents. A blend of agents is embedded in the gel-plate and continuously emits active components into the air-flow. The components react with the odorous substances, which are neutralized chemically. The resulting reaction products result in a much lower olfactory outcome. Our technology can accomplish a reduction in olfactory disturbance of more than 90 %.



# The **GELODOR**<sup>®</sup> Technology

Gel-O-Dor® is a polymeric matrix containing active agents against foul-smelling molecules and a perfume which are released according to a linear diffusion spectrum. According to the temperature and the airflow strength, the Gel-O-Dor® plate releases the active agents according to a slow and stable kinetic. The foulsmelling molecules will react with the Biothys™ active agents and will be neutralized. The resulting compounds are almost odorless. Contrary to the Gelactiv®-plates, Gel-O-Dor® is not only neutralizing the foul-smelling molecules but also diffusing a light perfume in the air.

Gelactiv® Plates



# How our technologies work

## Patented Gelactiv® and Gel-O-Dor Technology

**Gelactiv®** is a polymeric matrix (yellow or brown in color) containing odor neutralizers

**Gel-O-Dor** is a polymeric matrix (green in color) containing odor neutralizers + fragrance for the olfactory comfort of people



The smelly molecules will react with the active agents to obtain an ideal neutralization. Our technology can provide, a reduction of up to 95% in some cases.



### How it works?

The air passing over the matrix, whether static or ventilated, serves as a vector for the diffusion of active agents in the air.

- **NO DANGER TO HEALTH**
- **NO WATER USE**
- **EXCELLENT COST-PERFORMANCE RATIO**
- **DISPOSAL AFTER CONSUMPTION IN THE GARBAGE BIN**
- **POSSIBILITY OF A 24 HOURS TREATMENT, 365 DAYS / YEAR**
- **DURATION OF ACTION FROM 2 TO 4 MONTHS**

# Projet type: Bus processing Products to apply

Trials were conducted in a few buses with Gel-O-Dor® 82 in a neutral formulation and in three formulations with distinct olfactory signatures.

Gel-O-Dor® 82, Gel-O-Dor® WM, Gel-O-Dor® Orchard Flower, Gel-O-Dor® Jasmine

Making the following conclusions:

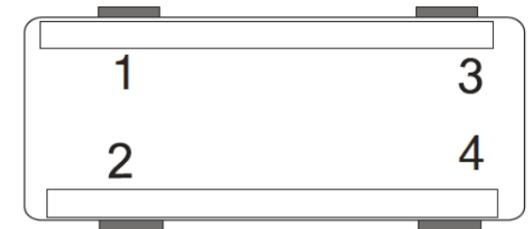
1. The product is effective regardless of the formulation (olfactory signature).
2. The product is efficient in terms of its persistence over time (from 1.5 to 2.5 months).
3. The user can perceive the olfactory signature.

With regard to point 3, it may seem interesting to change the olfactory signature at fixed intervals, for example every 6 months, so that the user does not only perceive the best quality of the air he breathes but also that he is aware of the changes and that something is done about it.



# Typical project: bus processing method of implementation

In the majority of cases, public transport fleets have two types of vehicles: with 4 outlets for standard vehicles, and 6 for articulated vehicles. Private vehicles usually only have 2 exits placed in the center.



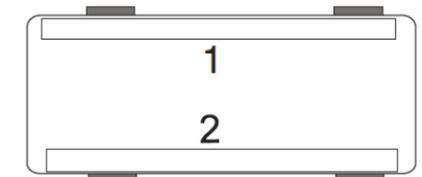
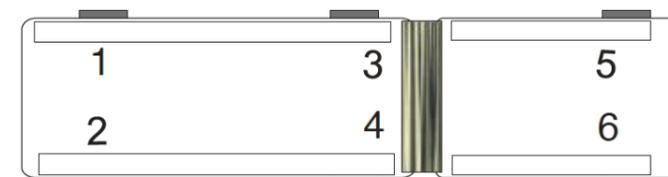
Whatever the vehicle, the renewals of the freeze will always be 50% of the carrying capacity. For example, in those with four air outlets, he will start with two half-bars placed in points 1 and 4. The renewal will be done on 2 and 3 to, in the next cycle, turn on points 1 and 4 of new.

Moreover, a homogeneous dispersion of the product is obtained along the entire vehicle.



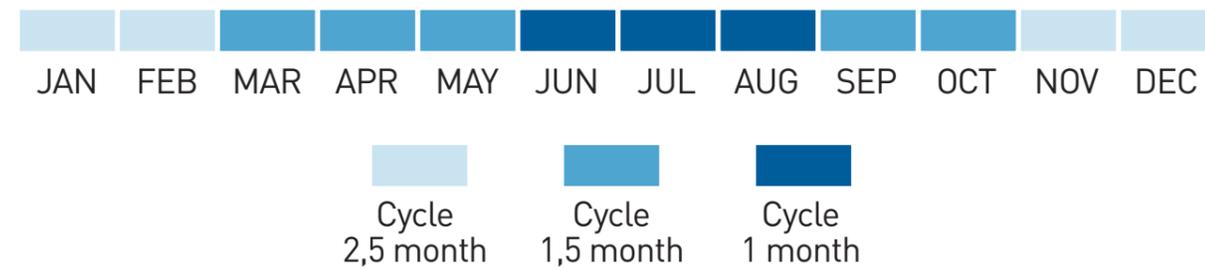
An identical system will be valid for articulated buses with the only difference being that there are 6 recirculation outlets and, therefore, the cycles will be 3 charges (1.4 and 5) and (2.3 and 6).

Finally, for private service vehicles with only two outlets, it will suffice to alternate the loads (points 1 and 2) according to the periodicity of changes.



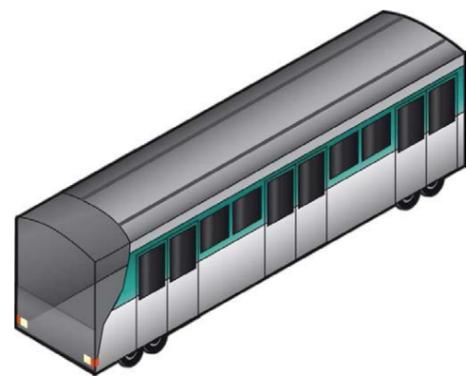
# Typical project: bus processing method of implementation

Based on experience in similar facilities (subway lines), a priori, the following cycles of asset renewal are suggested.

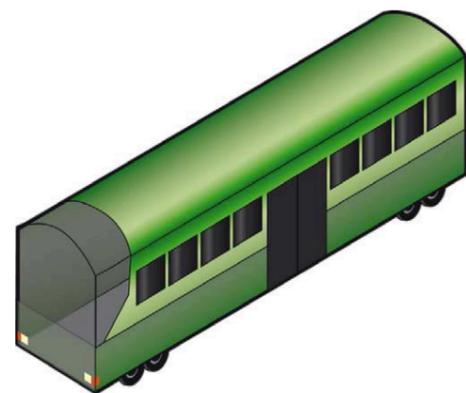


These cycles respond to the adequacy of the product's effectiveness to the climatic conditions and the least possible price for the Customer. In this context, the consumption per bus over a year would be 14 half-bars of gel and 21 half-bars for articulated buses.

Regarding those of the private service, they would consume 8 charges over the year. It will also depend on the customer who can opt for more intensive treatments (ex a monthly charge) to go beyond the deodorization to incorporate an olfactory signature to his line.

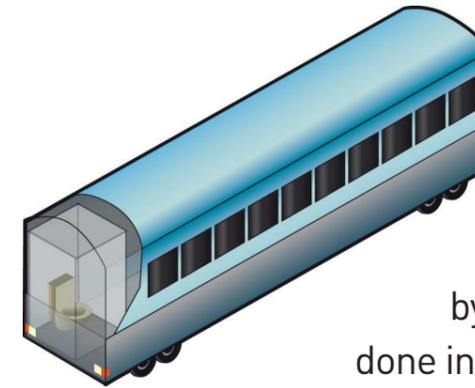


A gel bar is placed out of sight (in the ventilation ducts of cars) and ensures a permanent neutralization of odors.



This strip is placed far from the heat emission points and, thanks to the air flows generated by the ventilation system, the neutralization is done in a continuous and homogeneous way.

# Toilet treatment in cars train



A bar of gel is placed out of sight (in the technical sheath) and ensures permanent neutralization of odors in this space. This bar is placed far from the heat emission points and, thanks to the airflows generated by the ventilation system, the neutralization is done in a continuous and homogeneous manner.

# Example the support used



Stainless steel support fixed on the air recirculation grill WC (power supply)

Opening by key system and loading the bar

Change of the bar every 8 weeks

# Ventilation System treatment

Treatment with bar (100g) or bar (50g) of fireproof fabric Gels in bar format are usually installed in the ventilation systems of trains. They can be placed directly without any support or with some kind of support. A gel bar located in the ventilation air duct of the wagons is sufficient to ensure a permanent neutralization of odors.

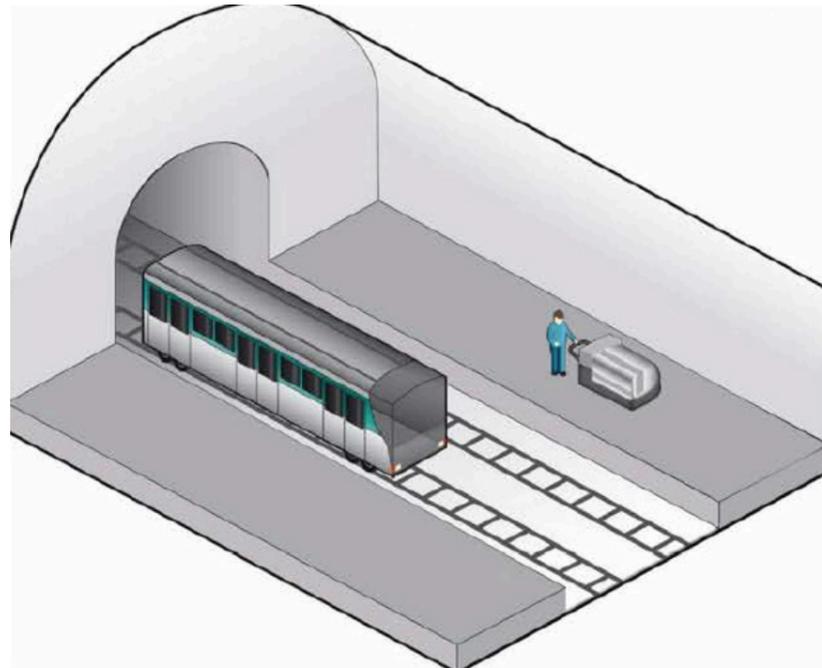


Gel-O-Dor® bar with fireproof fabric Bar placement in ventilation system.

## Surface treatment: stations and subway stations

The Sol'Air® product is in the form of an emulsion for incorporation into the soil washing water. This product can also be used directly as a washer. It brings a neutralization in all the surrounding volume.

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### How to use:

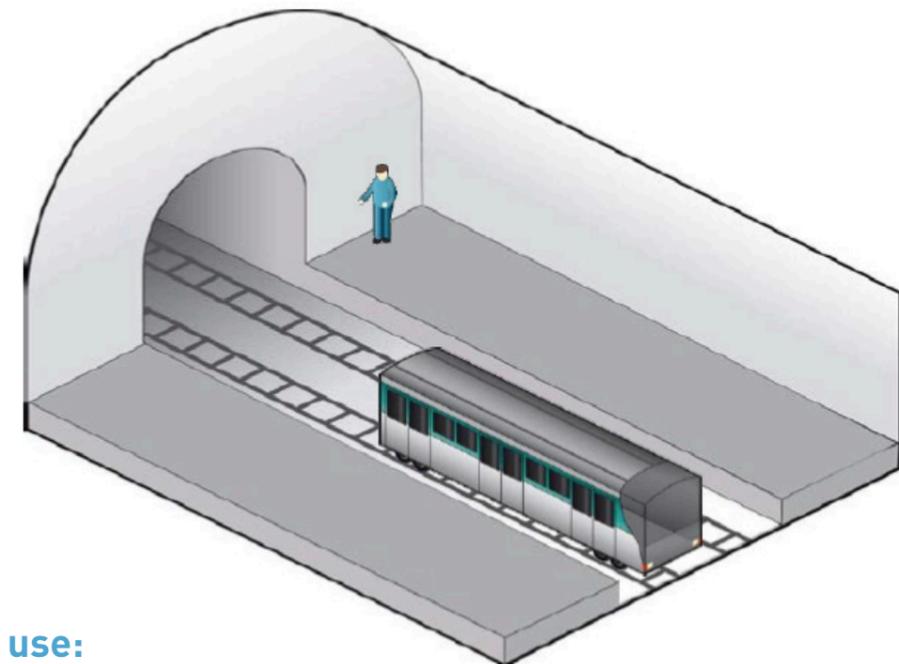
- Treatment not recycled wash water (tanker, auto-washer, vacuum ...):  
Recommended dilution: between 0.5 and 1%
- Treatment by recycled wash water (mops, ...):  
Recommended dilution: between 2 and 3%

Frequency of treatment: to be defined according to the intensity of the olfactory nuisances present on the site to be treated.

**Be careful not to combine this product with bleach.**

## Surface treatment: wild urinals

Exair® A-HR-20 is an emulsion for direct application to vertical surfaces. Thanks to its special formulation, Exair® A-HR-20 attaches to the walls and releases the active ingredients only very slowly in contact with the air, thus ensuring a lasting effect.



### How to use:

- Shake before use
- Always spray down avoiding the soil
- Application using a trigger spray or a pressure device (horticultural type) directly on the walls and periphery of the area to be treated (not on the urine).

**Light treatment:** 1 to 3 sprays per m<sup>2</sup> to 20 cm from the surface to be treated

**Difficult treatment:** 3 to 6 sprays per m<sup>2</sup> to 20 cm from the surface to be treated.

**Renewal of the treatment:** depends on the intensity and the renewal of the olfactory nuisances as well as the porosity of the supports and temperature conditions.



# BIOTHYS™

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