



ProfiKomp[®]

ProfiKomp[®] Lifting System



**ProfiKomp[®] Lifting System (PLS)
with GORE[®] Cover Laminate**

The only fully encapsulated
membrane cover technology

To respond to the increasing demand for fully enclosed biological treatment technologies in the waste management sector, ProfiKomp® developed in the first decade of 2000 a Laminate Lifting System. This combines the economic benefits of GORE® Cover Laminate during treatment and exceeds the standards for tunnel or container treatment technology in terms of both emissions and cost. It is suitable for use with all categories of waste.

With this fully encapsulated GORE® Cover application the user is able to complete the necessary biological decomposition process using much less energy than is required for tunnel composting without creating any odor load on surrounding areas. The advantages of the ProfiKomp® systems with GORE® Cover Laminate have been proven over the last 15 years in more than 60 plants in 15 countries; this success required combining the system with a full cover during heap setup and transfer. In the case of the PLS system, the odor management of the biological process (the intensive phase and during maturation) is controlled by the unique features of the GORE® Cover membrane. During project realization and operation our PLS solution clearly meets the demand for:



- lower investment costs (CapEx)
- optimized space utilization
- odor free biological treatment
- reliable operation with lower energy consumption (OpEx) compared to tunnel or container treatment technology.

The Laminate technology behind the GORE® Cover

With the waterproof and breathable GORE® membrane as its centerpiece, GORE® Cover's laminate is much more than just a closure surface. The unique microporous membrane based on ePTFE (expanded Polytetrafluoroethylene) is semi-permeable and enhances the biological process. Remaining waterproof and windproof over a very long lifespan, it protects composting materials from the elements, and consequently, from unwelcome fouling processes. Being permeable to vapor it manages the moisture content and retains bioaerosols and odor emissions at the same time. With its proven track record of over 20+ years, the average replacement time exceeds by far the guarantee period for the cover.



ABP (animal by-product)



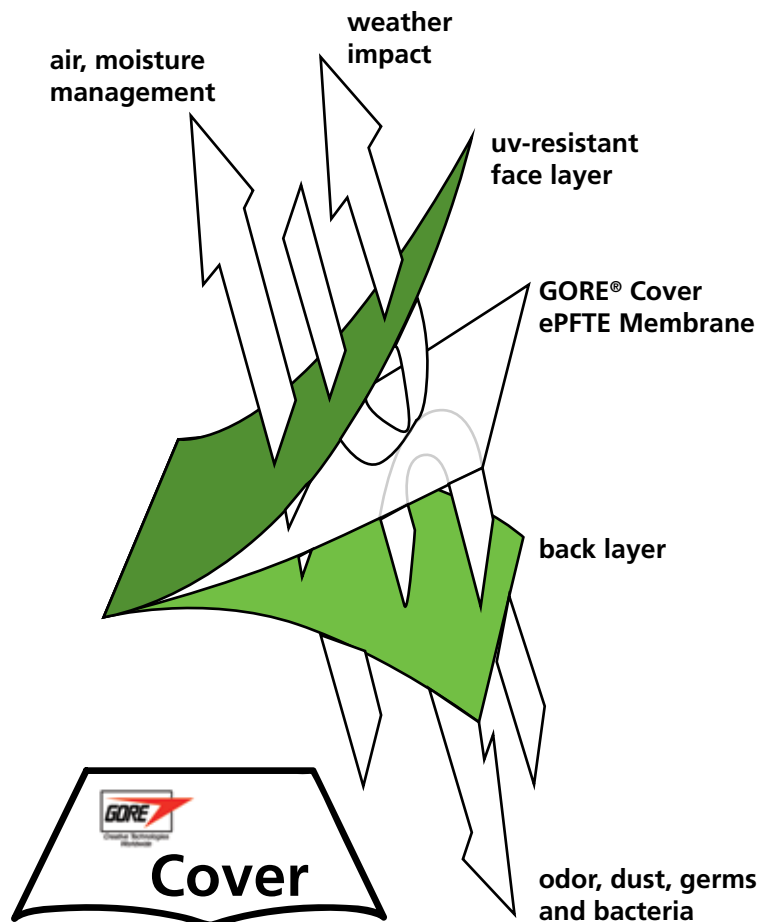
Sewage sludge (biosolids)



Food waste



MSW (municipal solid waste)



Example of a biosolids composting plant



Composting with the ProfiKomp® Lifting System – established in 2007

Composting and aerobic waste treatment with the ProfiKomp® PLS system consists of the same steps as with any other ProfiKomp® technology with GORE® Cover laminate.

The PLS heaps does not require a biofilter system as the GORE® Cover performs as the biofilter itself during the intensive and maturation phase. For this reason, CapEx and OpEx on extended biofilter equipment is reduced to the minimum needed for the pre-treatment and post-treatment phases.



Main elements of the ProfiKomp® Lifting System composting technology

- Laminate lifting unit with control system
- GORE® Cover Laminate
- GORE® Cover Laminate connector (the patented airtight interface with the building)
- ProfiKomp® aeration system
- Control system with ProfiKomp® SCADA composting management software
- Technology installation, training and ongoing consultation

The ProfiKomp® Lifting System is designed to create an airtight connection to enclosed buildings avoiding false air exchange at all time of the process.

Comparison of PLS to tunnel/box composting technology during intensive and maturation phases

	ProfiKomp® Lifting System PLS	Tunnel/Box composting
Hygienisation	Yes	Yes
Fully encapsulated system	Yes	Yes
BAT, BREF supported	Yes	Yes
Biofilter in intensive phase	Not required	Required
Biofilter in maturation phase	Not required	Required
Electrical power consumption per ton	1,5 - 2,8 kWh/ton*	45-60 kWh/ton**
Electrical power consumption per year for a 50 000 t/y capacity plant***	10 000 € - 18 000 €	290 000 € - 390 000 €

* Based on ProfiKomp® reference plants

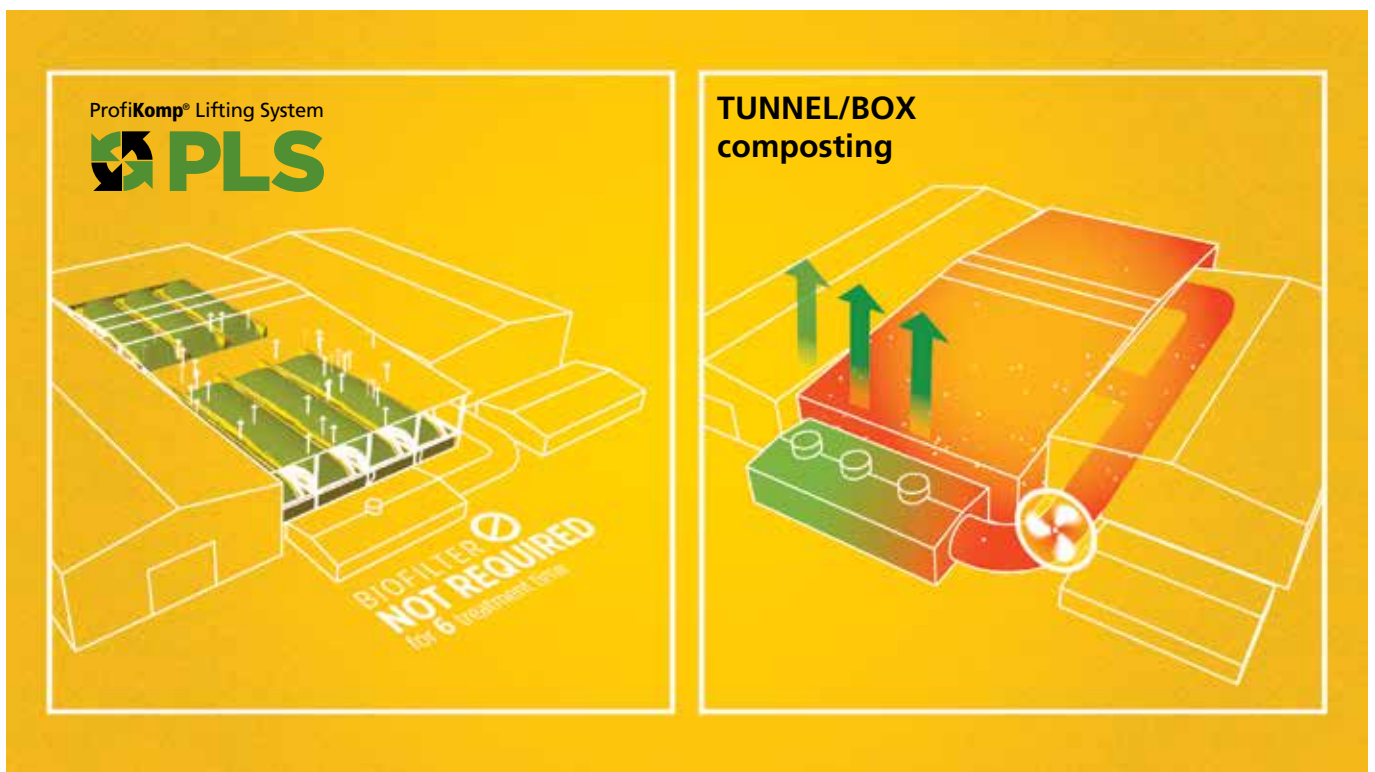
** According to DEDISA, 2011 www.epem.gr

*** Approximate values based on 0,13 €/kWh; electrical consumption for biological treatment

The use of a bio-filter is not required during the biological process.



Comparison of fully enclosed systems during treatment



The unique ProfiKomp® Lifting System offers the same guarantee against emissions as tunnel composting technology but with lower capital costs and considerably lower energy consumption. Nowadays, creating the smallest ecological footprint is a major consideration when making new investments. Considering the above statements, the ProfiKomp® Lifting System is to be considered the most sustainable composting solution for middle-size, fully encapsulated plants in areas with strict emission limits.





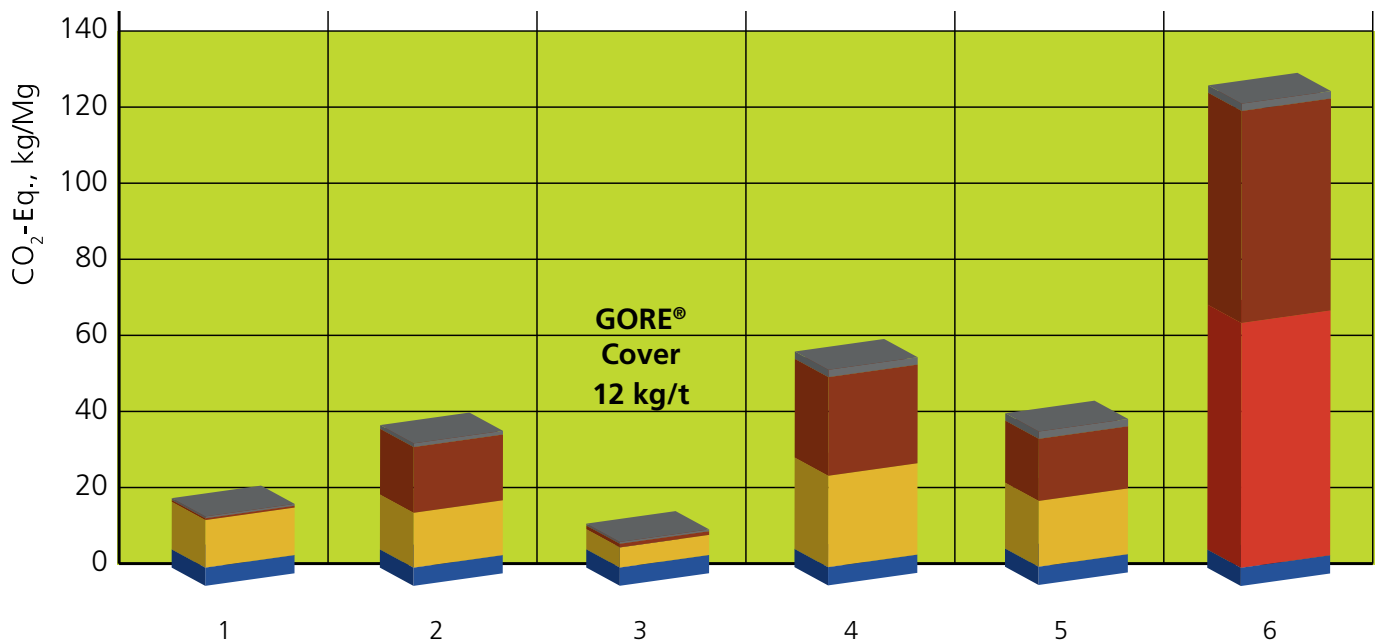
UBA Study 2009

Composting under semi-permeable membrane in comparison to enclosed and open composting methods

(CO₂-equivalents are methane and laughing gas)

1. Tunnel composting with Biofilter (no curing)
2. Tunnel composting with Biofilter and curing
3. Membrane composting (GORE® Cover) with curing
4. Open windrow composting with curing
5. Open windrow composting with curing (greencut only)
6. Fermentation with curing

-  Refining and product storage of fresh and finished compost
-  Curing / maturation of finished compost
-  Main rotting phase
-  Fermentation process
-  Delivery and pre-treatment of material



Comparison of the emissions of different composting methods

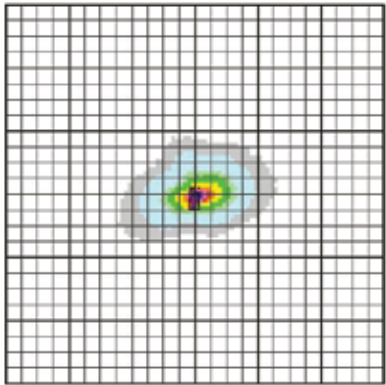
The data clearly indicate that static composting with positive aeration using a semi-permeable membrane generates fewest emissions compared to the other technological processes. In

this case study windrows at different stages of the decomposing process were taken into consideration.

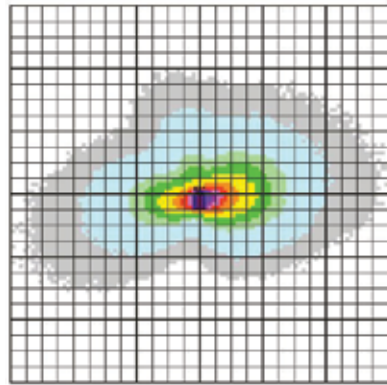
The research demonstrated that use of the membrane technology reduced emissions from an industry average of 47 kg per ton to 12 kg per ton.

ProfiKomp® Lifting System (PLS) with GORE® Cover Laminate

GORE® Cover system



Tunnel/Box system



Odor modeling comparison based on 10 000 tones/year food and green waste composting plant using a GORE® Cover laminate.

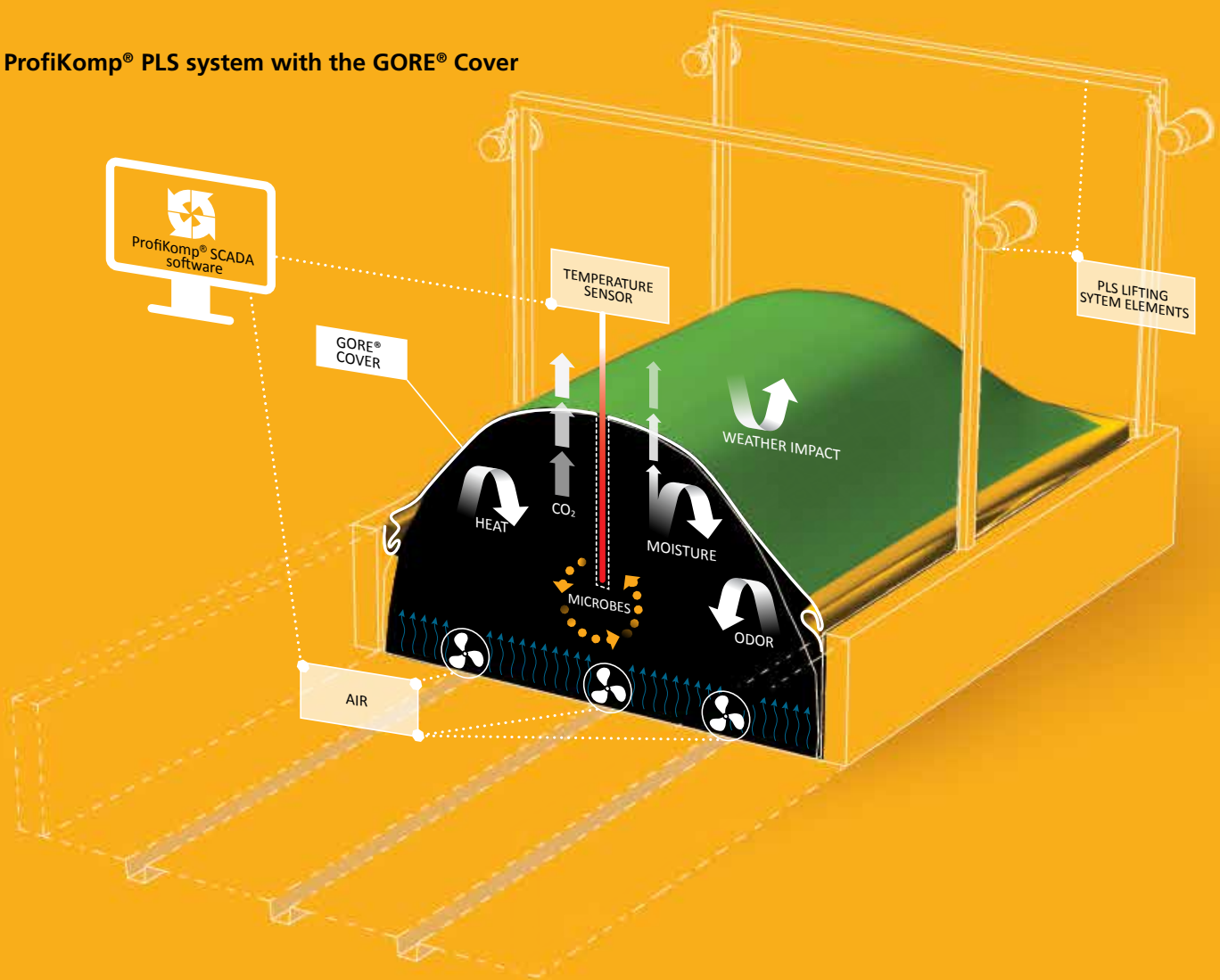
ProfiKomp® system with GORE® Cover

The ProfiKomp® system with GORE® Cover is a comprehensively aerated system that has been proven at multiple sites. It comes equipped with a controlled, positively aerated system and a temperature-monitoring device. This creates ideal composting conditions within the heap, while efficiently trapping odors and other emissions such as dust and VOCs. This results in a higher throughput on a smaller composting footprint area with low energy consumption and human involvement. Biological washing and filtration during the biological process are not necessary.



ProfiKomp®

ProfiKomp® PLS system with the GORE® Cover



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