BIODNA™

NATURE'S CHEMISTRY

Natural Probiotic Solutions

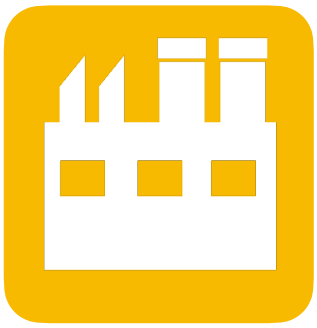
Probiotic Enviro Odour Neutralizer

PROBIOTIC ENVIRO

BIODNA Probiotic Enviro Range provides high-quality, performance-driven, environmentally-responsible, solution-specific microbial products. It offers an effective and sustainable alternative to traditional chemicals across a wide range of industries.

We offer comprehensive and effective solutions for use in municipal wastewater treatment, septic & grease collection systems to maximise efficiency, reduce costs and assist in regulatory compliance. Our probiotics use good beneficial bacteria degrading the volatile fatty acids and organic intermediates. They act quickly to neutralise foul-smelling systems, especially at lower pH ranges found in grease traps and grease interceptors. Contaminant levels in wastewater can be greatly reduced through the introduction of our application-specific bacteria strains found in our products.

This product is demonstrably more effective than conventional enzyme products as it is designed to produce a continuous and renewable supply of highly active beneficial bacteria for fat and grease degradation. Unlike enzymes, that have short and limited activity, the good bacteria strains in our Probiotic Enviro Range can adapt to different conditions present and produce the correct enzymes required for optimal and complete FOG breakdown. This continuous bio-film adheres to the system, continually degrading FOG and preventing blockages in drains and malodours in waste treatment systems.



PROBIOTIC ENVIRO - ODOUR NEUTRALIZER

Natural Probiotics to remove unpleasant smells

BIODNA - Odour Neutralizer is a liquid product designed to tackle odours via a multi-pronged approach, using a combination of chemistry, fragrance and microbiology.

A chemical counteractant binds malodours and prevents the nose from detecting them providing an immediate odour control. Next, the broad metabolic capabilities of the specially selected *Bacillus* consortia are able to degrade a wide range of odour causing compounds such as amines, volatile fatty acids and sulphur containing organics.

A wide range of extracellular enzymes help to degrade various organic solids helping combat the long term causes of odour generation.

What is it?

Liquid product designed to tackle odours via a multi-pronged approach.

Uses

For use in misting and nebulising systems around or within wastewater or other facilities.

Eco credentials

Contains non-pathogenic Class 1 microorganisms that are both environmentally responsible and safe for the end user. All ingredients are biodegradable and non-hazardous.

How it works

A combination of chemistry and microbiology provides both immediate and long term odour control.

Liquid odour counteracting that encapsulates odours and works to degrade their sources

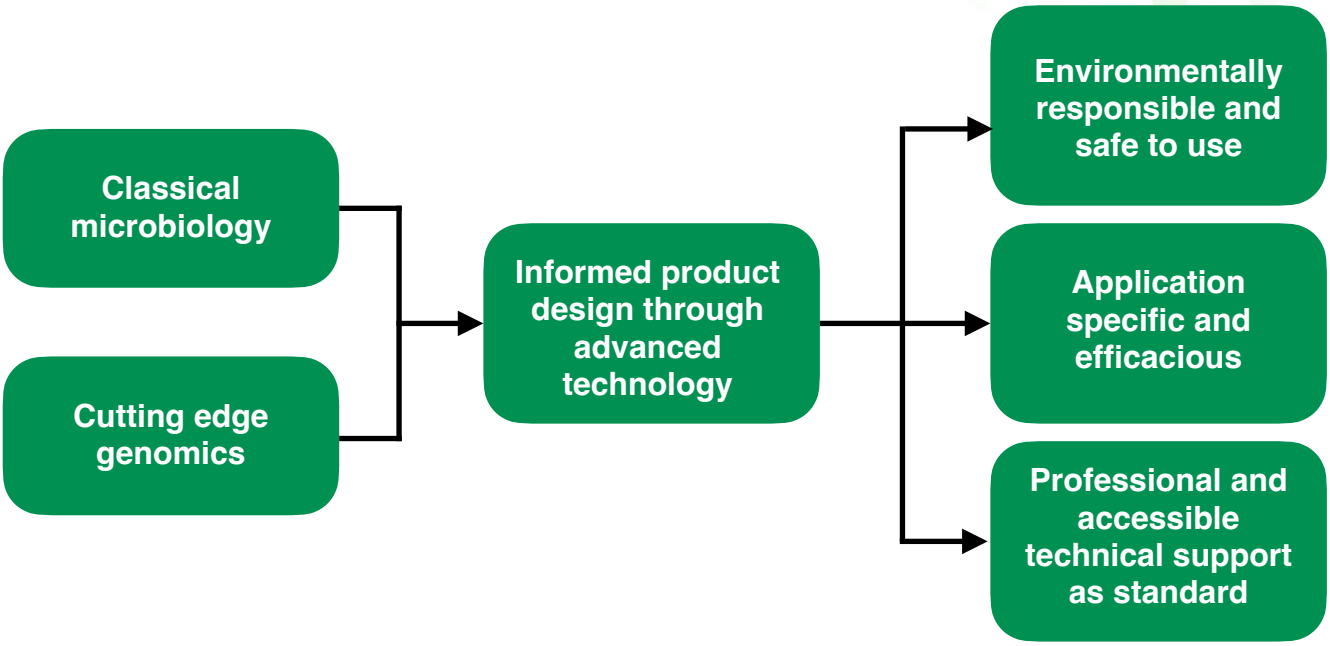
Advantages

- Superior formulation with focus on complete odour elimination.
- Unique odour encapsulation technology binds and traps odours immediately.
- Readily biodegradable, low toxicity components to minimise environmental impact.

Applications

- Municipal and industrial wastewater plants
- Landfill
- Slurry pits
- Refuse management
- Piggeries and poultry farming

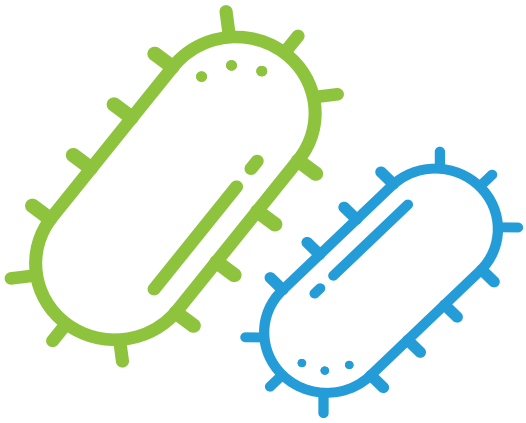
OUR APPROACH



What is Bacillus?

Bacillus are a genus of Gram-positive microorganisms found across the globe in a range of environments.

They are metabolically diverse and with a few notable exceptions are non-pathogenic and safe to use. They are able to survive when conditions move outside of those needed for survival through the production of spores.



Spore formation allows this type of bacteria to be grown in very high concentrations and blended into a stable product with a long shelf-life.

This makes it ideal for industrial applications where often a large amount of *Bacillus* cells are needed to amended a system.

Why is BIODNA different?

Our bacteria is of the highest standards (ISO 9001) so we can guarantee that the Bacillus we deliver are correct in both species and concentration and are free from contaminants. We have taken time to design our products to ensure they have minimal impact upon the environment and end user, whilst at the same time offering an efficacious and prolonged result.

As Bacillus is one of our main technologies, we ensure that we understand each of our isolates. We have invested in cutting edge genomic techniques to fully comprehend the potential of each of our *Bacillus* species, and in doing so we have created effective and truly application specific technology. All of our products come with expert technical support as standard.

THE TECHNOLOGY

Odours are a major problem in many situations. Products such as air fresheners are generally perfumes that use a strong, pleasant smell to mask the bad odour, but they usually work for only a short time and are easily overpowered.

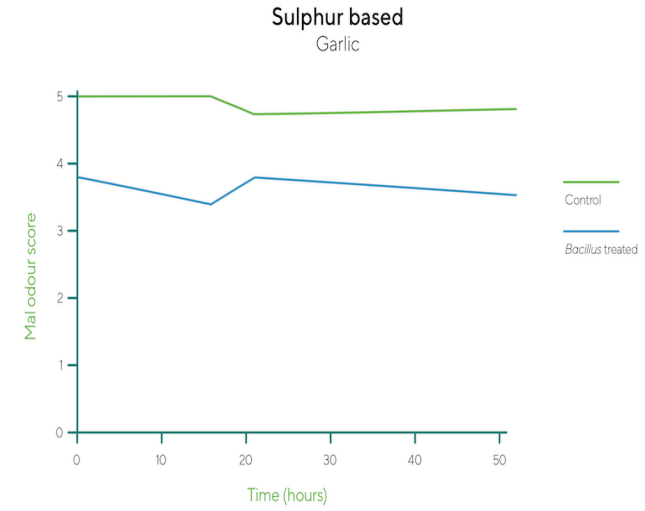
A range of chemical odour counteractant technologies have been developed and are now used in major retail brands. **BIODNA** has taken the best of these technologies and combined it with bacteria, which gives a three- pronged attack on odour problems:

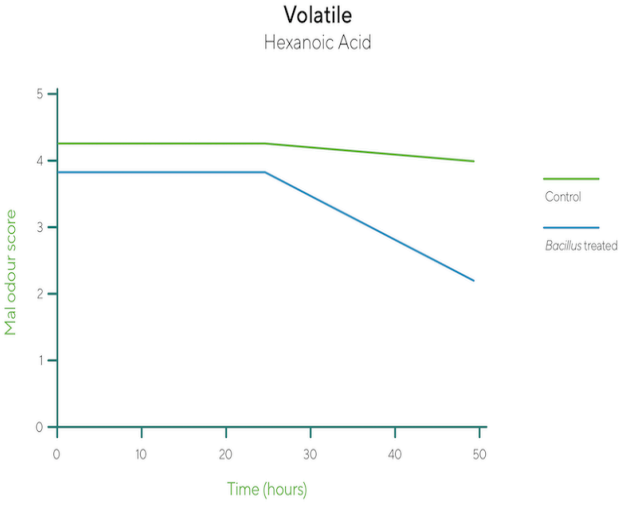
- The fragrance helps to immediately reduce and mask the malodour.
- The chemical odour counteractant then binds any existing odour molecules, preventing them from being detected by the nose.
- The application-specific bacteria within the product possess a diverse metabolic capability to degrade a wide range of both odour compounds and nutrient sources that have the potential to generate odours.
- Readily biodegradable, low toxicity components to minimise environmental impact.

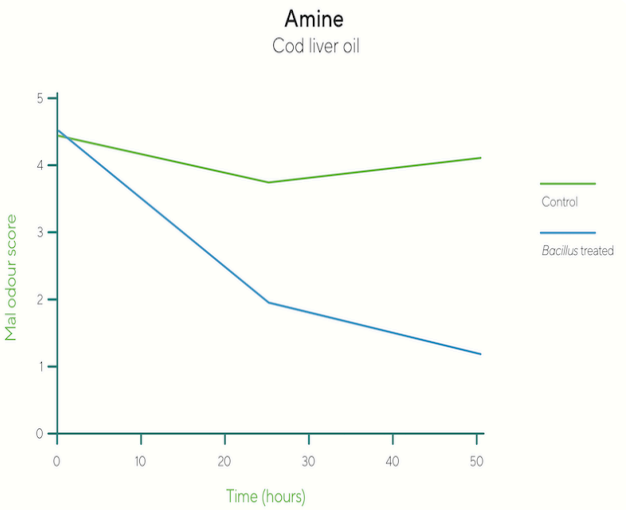
Tests were conducted by impregnating fabrics with causative agents for malodour and exposing them the *Bacillus* consortia. Malodour perception panels were then conducted where the strength of the malodour was scored a maximum of 5 for 'very strong' and 0 for 'no detectable odour.

For each malodour class the *Bacillus* consortia was able to reduce the perception of the malodour.

Graphs showing the impact of the **BIODNA - Odour Neutralizer** *Bacillus* consortia upon the common classes of odours associated with wastewater treatment.





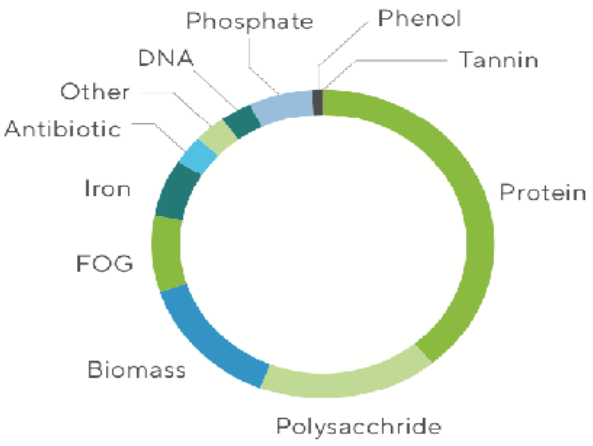


HOW IT WORKS

The product works through a complementary relationship between both the chemical and biological components. The chemical component acts to give an immediate to medium term reduction in odour whilst the biological component acts to tackle the route cause of odour delivering long-term control.
The Bacterial component contains specially selected species from the Genus *Bacillus* that are non- pathogenic and safe to use.

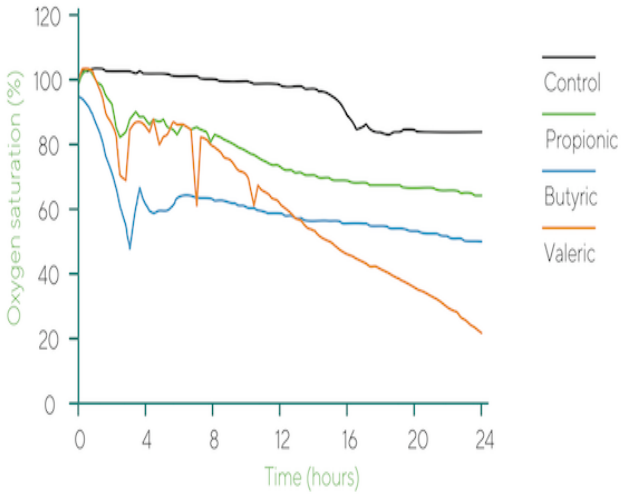
Both classical microbiological techniques and genomic methodologies have been used to select specific strains of *Bacillus* that are capable of degrading a wide range of polymeric materials and different volatile compounds which generate malodour.

The *Bacillus* consortium within **BIODNA - Odour Neutralizer** are not only metabolically diverse but are capable of performing over a range of temperature and pH ranges offering the operator a versatile technology to tackle odour across a diverse range of settings from landfills and piggeries to industrial wastewater treatment works.

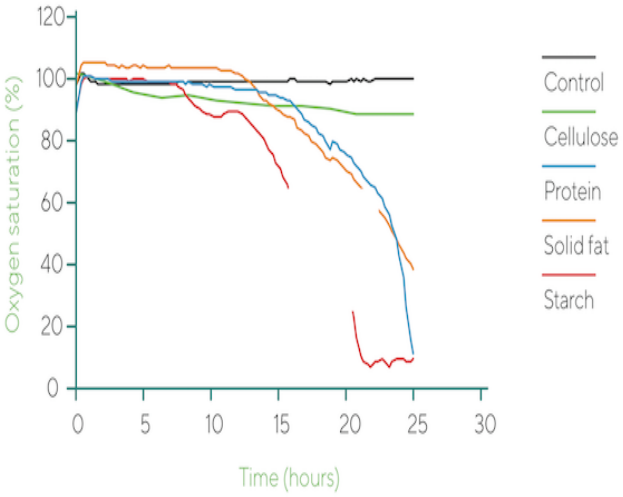


Pie chart showing the extracellular gene capability of the BIODNA - Odour Neutrilizer consortia (N = 547)

Graphs showing the ability of the *Bacillus* consortia to degrade malodours volatile compounds.



Graphs showing the capability of the consortia to degrade a range of polymeric substrates that could potentially fuel malodour.



Curves show the drop in oxygen concentration as the Bacillus subsequently break apart the polymers and consume the smaller submits.

DIRECTION FOR USE, CONSIDERATIONS & LIMITATION

BIODNA - Odour Neutralizer are supplied in 5lt & 25lt containers and is provided ready to use or in a 10X concentrate.

Dosing

The most common and effective way of dosing the product is via misting and nebulising systems around the area of concern or the site perimeter. As the product finds use across a broad spectrum of industries, we recommend either use of the product neat or diluted up to 1 in 10 depending upon the severity of the problem.

Recommended Effluent Types

As the product is manufactured under our BIODNA criteria it is safe to use in populated or built up areas as well as in applications that may have animals in close proximity. The product shows excellent results in tackling odours in the following areas: landfill, wastewater, piggery and poultry farming and refuse management.

Limitations

The product will perform poorly in highly alkaline (>pH 9) and highly acidic (<pH 4) conditions and will also lose activity at low (<5˚C) and high (>40 ˚C) temperatures. For more information please contact our technical support.

Packaging	Available in 5lt & 25lt container sizes.
Appearance	Straw coloured turbid liquid
Fragrance	Fresh, neutral
Bacterial Type	*Bacillus* spore blend
Salinity	Freshwater to seawater and above (no impact upon performance between 0 - 50 g/L)
pH	pH5 - pH 8.5 (see graphs for performance)
Temperature	10°C - 40°C (see graphs for performance)
Effluent Type	Organic rich (Protein, FOG, carbohydrates containing effluents such as municipal, dairy, bakery etc)
Shelf Life	24 months in original unopened container.

RECOMMENDED PRODUCTS

BIODNA - Odour Neutralizer is a liquid concentrate which combines unique chemistry and application specific bacteria to offer a proven, innovative and effective long term approach to odour control.

BIODNA - Boost Powder is a highly concentrated, specialised blend of application-specific bacterial cultures selected to degrade municipal, food processing and high fats, oils and grease waste.

BIODNA - Waste Water Block is a unique bacterial-laden solid, combining a high bacterial count with slow release technology, to dose bacteria into wastewater & effluent handling facilities.

BIODNA - FOG Brick is a unique bacterial-laden solid, combining a high bacterial count with slow release technology, for use in degrading organic waste in grease traps & grease interceptors.

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