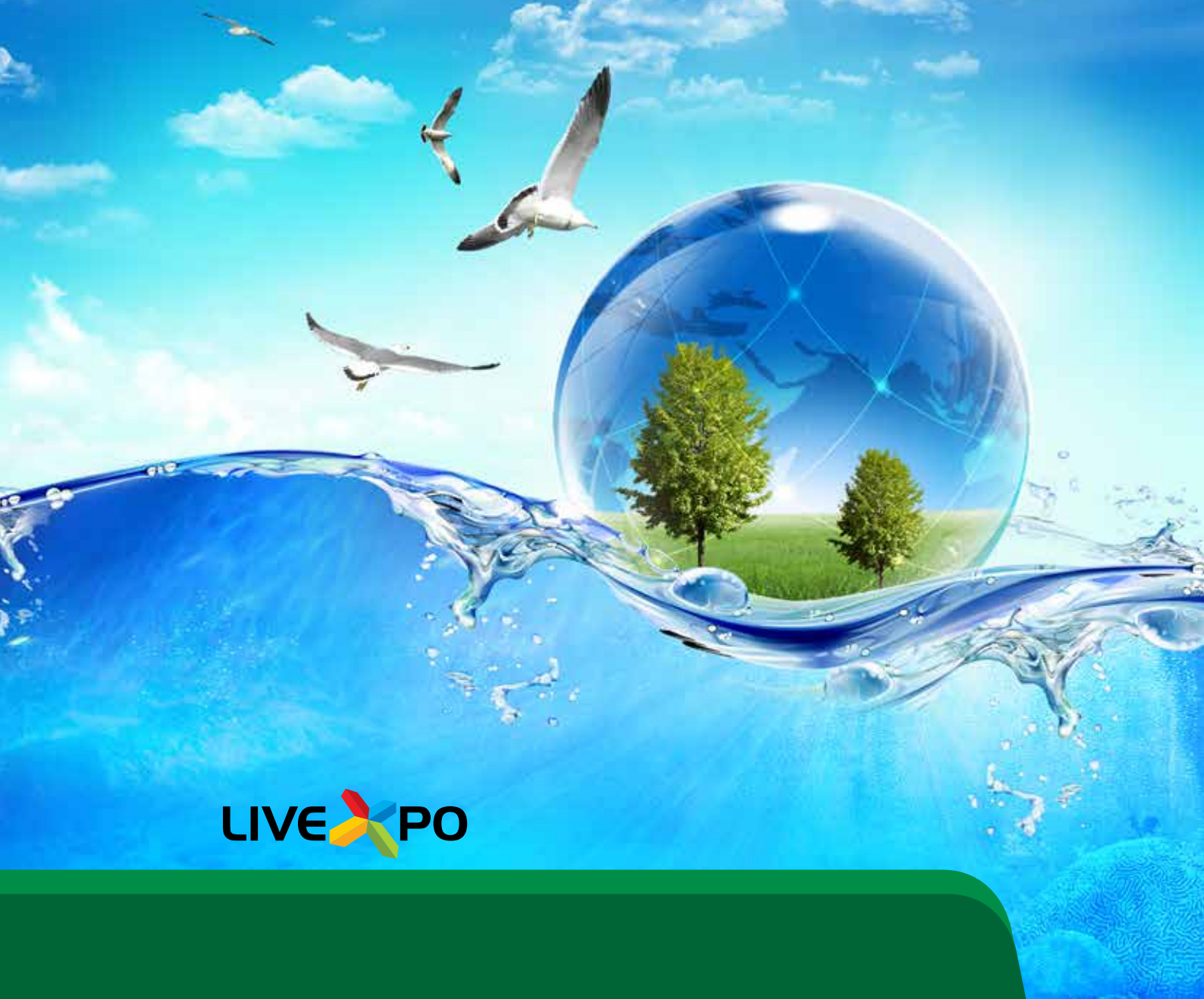


# SMART SCIENCE FOR A CLEAN WORLD



LIVE  PO



WATER, SCIENCE, NATURE

# Getting nature's technology to work

It is micro-organisms like bacteria and fungi that do the overwhelming amount of waste processing in the world. Therefore, the future of waste transformation lies in bringing technology and microbes together.

At the heart of our products is Bioaugmentation. It is the art of selecting, applying, and nurturing micro-organisms in a system to increase biodegradation of waste and contaminants.

Leveraging a natural process known as Bio-remediation, our products use such standardized bacteria and fungi (microbes), that convert waste oils, fats and grease (OFG) into harmless carbon dioxide and water.

Our unique bio-enzyme technology is based on bacterial strains guarantees a ground performance advantage. They degrade waste quicker, metabolise faster, reproduce quicker, survive longer, while our measurably higher CFUs (Colony Forming Unit) bacterial and enzyme counts ensure fast results.

# Replacing harsh chemicals

We bring together the power of nature, science and technology to offer a range of cleaning products that are Biodegradable and therefore safe and green.

These bio engineered products will allow you to migrate towards a safer and more sustainable way of life. Using natural processes to tackle cleaning and waste treatment challenges, instead of turning to chemicals.





# Eco-friendly Biological Products

We bring you a range of effective, high-quality cleaning products for professional, janitorial and industrial use. These Bio-degradable products leverage the power of advanced Bio-chemistry so that they are completely environment friendly, safe and do not leave a trail of harsh chemicals in our waterways.

The extremely efficient FRESHER range of cleaning products caters to following segments:

- Automotive
- Food & Beverage
- Home Care & Household
- Housekeeping
- Laundry
- Office & Commercial

**fresher**®  
really **clean**, truly **green**



# It's time you got familiar with Biological Technology for cleaning and waste water treatment...



## How does Biological Technology work?

We use Biological additives to break down organic soils into smaller particles so they can be more readily separated and emulsified by surfactants for subsequent removal. Some residual organic soils often remain on surfaces due to incomplete solubilization, suspension of embedded soils or incomplete rinsing. Biological additives impart a residual activity to the cleaned surface allowing for a slow removal of deeply embedded soils.

Biological additives function through the action of enzymes, that are organic catalysts found in nature. These catalysts hasten specific chemical reactions. Each enzyme selectively speeds the breakdown of a single type of chemical bond. Four classes of enzymes are commonly used in cleaning:

- protease which breaks down protein
- amylase which breaks down starch
- lipase which degrades fats and oils
- cellulase which breaks down cellulose.

Enzymes are added to cleaning product formulations in the form of a stabilized extracellular concentrate or a wild type beneficial micro-organism that can produce the enzyme as needed at the site of use. These micro-organisms detect the organic soils present and provided they have the genetic capability, they produce the specific enzymes needed to degrade those organics.

## What are bacterial, probiotic, microbial and enzyme products?

Nature's biological workers are the multitude of natural microbes; both bacteria and fungi that have the capacity to biologically degrade waste and render it harmless. Over time, science has learned to harness the power of microorganisms, making them a fundamental component of biological cleaning products and wastewater and solid waste treatment.

A bio-enzyme products perform better and have no negative effect on environmental and human health when compared with competing harsh chemicals serving the same purpose.

## What are the types of Cleaning products available?

### Biological Cleaning Products

These products use biological decomposition to clean and deodorize, harnessing nature's own processes to recycle waste into simple and essential substances. When a biological cleaning product is applied to a surface, the microbials eat at the organic waste turning it into water and carbon dioxide. In comparison, the chemical based products, which may address the problem locally, but leave a residual toxic cocktail in their wake.

### Enzymatic Products

These are used when instant effect is required, such as in general surface cleaning, odour eradication, and disinfection. Bacteria, which produce enzymes in a slower but continuous way, are used where longer-term biological cleaning treatments are needed, such as cleaning and odour control in drains, urinals, sewer plants, septic systems and oil spill degradation. Both types of these products offer a number of distinct advantages over traditional chemical methods, which include user safety, cost and time savings and reduced environmental impact.

### Biological Laundry Detergents

Biological laundry detergents and cleaning products contain natural enzymes, the biological catalysts that work to 'boost' efficacy of the product by breaking down proteins, fats, oils and starches in dirt and stains. These enzymes are most effective at low temperatures, between 30-50 degrees Celcius, That is why biological washing powders and liquids are gaining popularity, as they enable even heavily soiled clothes to be washed at lower temperatures which is more efficient in terms of both cost and energy. True biological cleaning products use microbes, which produce enzymes.

## What are the key benefits of these products?

### User Benefits

Biological and bio-enzyme cleaning solutions, being natural and generally harmless, are safe to use, compliant with health and safety. Their less complex guidelines help simplify storage, transport, and staff training for these green and environmentally friendly solutions.

As biotechnology products are very specific in application, the effluent cleaning processes can often be carried out more effectively and quickly. As enzyme action is continuous, biological cleaning products also have

a high re-use capacity. This is particularly relevant in applications with recycling capacity and where there is no ready supply of water.

### Environmental Benefits

With biological and biodegradable products, the adverse environmental impact of many chemicals and operations can be reduced or eliminated. Biological products work by degrading soils ranging from the simplest residual food to heavy industrial oils and effluents. As a result, the by-products of the green process are less damaging to effluent treatment plant and the rest of the downstream environment. In fact the use of bio-enzymes actually helps sewer and wastewater plants to function more optimally! These benefits also translate into direct cost savings, with effluent treatment costs being cut in excess of 10% to 50% after the introduction of enzyme producing bacterial products and systems.

## Who Uses Biological, Bacterial and Enzyme Products and Solutions?

Biotechnology is being widely used in North America, Europe and Australia for both practical and commercial reasons. Food processing, manufacturing and transport industries are using such products to clean floors, walls, ducting and machinery, to remove fats, grease starch proteins lubricating and fuel oils, paints and tyre marks etc.

In the holiday, leisure, and healthcare markets, enzymes and biological cleaning products are rapidly gaining ground for general and problem cleaning, sanitising, and even viral control.

Microbes can be added daily, weekly, or monthly to drainage systems to degrade the organic matter that causes pipe blockages and odours. This simplifies drain, grease trap, sewer and pumping station maintenance, makes it more economical and pleasant for operators.

Oil spills can be quickly and easily remediated onsite with enzymes and bacteria, turning the oil into carbon dioxide and water.

Sewer plants can get rid of sludge handling and greatly reduce odours. Sewage and human waste can simply be degraded to drastically improve the quality of life of users and get rid of diseases. Dams, ponds and rivers can be quickly treated and safely remediated.

## The Future

Biotechnical products and biological products for most solutions are now available for nearly all applications. In addition, products can easily be designed to meet the specific needs of industry by combining traditional chemistry with biotechnology. Governments and industry globally are embracing this biotechnology for its numerous and measurable benefits.

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