Bio-Enzymatic Cleaners

WHAT ARE BIO-ENZYMATIC CLEANERS

"BIO Cleaners" are natural, safe, good for the environment and use the magic of nature to produce extraordinary results and customer satisfaction.

BIO Cleaners are formulated specifically to dispose of soils safely, economically and rapidly. They contain the necessary quality and quantity of specific enzyme systems, both aerobic and anaerobic bacteria, and microbial nutrients. BIO Cleaners work quickly and efficiently to digest chemical and organic waste with no odor or noxious gas.

These microorganisms and right type of enzymes break apart the waste, and the bacteria itself converts this waste into two basic compounds: carbon dioxide and water.

The microorganisms in BIO Cleaner formulations continue to **work long after application - up to 80 hours after they are applied. They clean those "hard to clean" places that chemical cleaners alone miss - in this way, they give you a "deeper clean".** The waste that you are trying to clean or that is generating odor is actually "food" for the microorganisms.

HOW DO THEY WORK?

What is bacterial digestion?
Bacterial digestion is the process of bacteria consuming organic matter. The bacteria feed on the organic waste, deriving nutrition for growth and reproduction. Using complex chemical reaction, the organic waste is metabolized down to water and carbon dioxide, providing the bacteria with energy to sustain their life. The end result of this process; organic waste is consumed, used up, and no longer present to produce odor pollution or unsightly soil and contaminents.

What is an enzyme and how does it aid in digestion by the bacteria?
An enzyme is a chemical catalyst that breaks up long, complex waste molecules into smaller, simpler pieces. The smaller, broken up pieces can then be digested directly by the bacteria.

Enzymes are not living things, and they cannot grow or reproduce themselves. They are chemicals that are manufactured and used by bacteria in order to digest waste. When added to the organic waste, enzymes immediately go to work breaking down the waste. The bacteria are able to consume these fragments immediately, so they now have a plentiful supply of prepared food waiting for them. The growing bacteria will then start to reproduce and generate their own enzymes, thus keeping the cycle going.

A microorganism's genetic code is like a computer program which allows it to produce enzymes. These microorganisms are capable of determining what organic soils are present in an environment. If their computer program allows, they can produce specific enzymes to break down those organics. It is important to have quality microorganisms with codes for a wide range of capabilities.

Products with the right microorganism can degrade materials that cause soils to adhere making surfactants more effective in removing them. Once surfactants have done their work and the surface is wiped/mopped the residual microorganisms remain to provide deep, residual cleaning as long as conditions allow them to be active.

Obviously, this population (typically doubling in size every 15 minutes) cannot increase forever. At some point, the food source will be depleted, or some other change in the environment will cause the population to level off or decrease. These changes could be pH, temperature or oxygen content of the environment. The introduction of poisons to the environment (bleach or disinfectants) may have negative effects on the population, as well as competition from other types of bacteria.

WHY USE BIO-ENZYMATIC CLEANERS

There are four main reasons for using BIO Cleaners and odor control products:

1) BIO Cleaners are safer for the environment and safer for human health than traditional chemical cleaners and odor control products
2) BIO Cleaners use highly specialized enzyme producing microorganisms to clean and control odors by eliminating the soils that traditional chemical products alone cannot treat
3) BIO Cleaners provide residual cleaning up to 80 hours after application
4) BIO Cleaners help to displace unknown, potentially "pathogenic" (disease causing) bacteria with known, healthy microorganisms and in this way contribute to better human health

A FOCUS ON EFFICACY

By harnessing natural processes, BIO Cleaners provide both immediate effects and longer-term residual benefits for cleaning and odor control. The residual cleaning effects and the extended microbial cleaning capabilities provide penetration and organic removal efficacy unmatched by standard chemical products.

1) STRAIN SELECTION:

The ability to find and select unique, specialized microbes is the cornerstone of successful technology development.

2) SYNERGISTIC BLENDING:

Numerous microbial properties may be needed for a product to be effective. Often organisms with different capabilities are blended together producing a team that works together to greatly enhance activity. Each strain may break down a specific portion of a large, complex molecule making smaller molecules that feed the entire microbial population. Strains that breakdown different components of organic waste may be blended to provide a wide range of activity. This synergistic blend can greatly increase product efficacy or provide products with a broader scope of application.

3) QUALITY CONTROL & SAFETY:

Microbes are routinely tested to make certain they are safe to use in their recommended applications. Extensive QC procedures guarantee products are active and consistent.

4) FORMULATION:

Assists the microbes in a given product application by adding safe, environmentally preferable chemicals. Since microbial action tends to be less rapid than chemical reaction, Green chemistry can provide immediate effects such as dissolution and removal of soils while the microbes provide residual, long-term effects. Product additives may utilize surfactants, buffers, emulsifiers, co-substrates, or biostimulants to maximize microbial effects in targeted applications.

5) ESSENTIAL NUTRIENTS:

Special nutrients are added to supply the vitamins and minerals required for the greatest possible growth and activity of the bacteria. These vitamins and minerals may not be present in the waste and a lack of any one of them may seriously inhibit the growth or reproduction. They are added to the digestant product to assure the fastest, most efficient waste digestion.

CLEANING AND ODOR CONTROL APPLICATIONS

CLEANING:

Spills not only stain visible surfaces, they seep into cracks and crevices and the microscopic pores of surfaces such as tiles, concrete, wood, and grout. Over time, surfaces can appear dull and dirty because the organics have only been partially removed. In addition, malodors are generated by residual organics.

Many chemical products clean. Enviro-Solutions bio-products provide chemical cleaning plus the after-cleaning effects of microbial action. The microorganisms penetrate into cracks, crevices and pores of surfaces, removing them, providing a deep cleaning effect.

This residual deep cleaning is effective in many different applications.

ODOR CONTROL:

The same biological action that provides deep cleaning can also deliver long-term odor control. By binding, surrounding, and removing the organics that cause odors, bio-products eliminate odors and prevent their return.

Bio-products act to destroy these odor-causing compounds, not just cover them up. Some formulations provide immediate relief from odors by binding odor-causing molecules, reducing their volatility and preventing them from reaching the nose. Specially selected bacteria then degrade the odor causing molecules, destroying them and converting them into microbial cell components, carbon dioxide and water.

Unlike standard treatments, Enviro-Solutions bio-odor control products act to remove the odor at its source, thus preventing its return. Combining immediate control and long term destruction of the source of odors, bio-products offer more effective odor control than standard chemical treatments. No other technology works as well to eliminate persistent odors.

In addition to cleaning applications, bio-products can be used as a direct spray to control odors in bathrooms, garbage collection areas, pet cages, auto interiors, musty basements, etc.