



Products



“Bio-Bugs” Defined:

The vast majority of bio-products on the market today are comprised of spore forming bacteria, enzymes, surfactants, and sometimes chemicals. After evaluating these types of products one might think that the only reason bacteria are added is so a product can claim that it is a “bio-product”.

Bacillus bacteria: Spore forming bacteria or (seeds). This is the most common type of bacteria used in drain line/septic and grease trap products today. The reason for this is simple, COST. Spores are relatively inexpensive to grow and preserve. The draw back with spores is that they are just like seeds. A seed requires optimal environmental conditions in order to germinate. This includes a certain temperature, a narrow pH range, oxygen and proper nutrients. Even if the conditions are favorable the spores will usually take twenty-four hours to germinate before they become fully metabolically active (The point where they are able to eat and consume organic matter.) Usually by this time they are washed through the system. If the conditions are not favorable the spore forming bacteria will *not* germinate and thus will be of little/no use in the degradation process. (The breakdown and consumption of organic matter.) Due to these inefficiencies manufacturers of these products will add enzymes and surfactants.

Here’s an example; envision a corn seed; if you set this corn seed down on a table and come back in a week. What happens? It’s still a corn seed, no change! In order for this corn seed to become a plant it must first germinate. The same is true with spores and seeds. These types of bacteria require oxygenation, proper pH, temperature, etc., otherwise they simply will not germinate. If they don’t germinate they can’t degrade (eat) oil & grease & organic matter.



Products



Page 2

“Bio-Bugs” Defined (cont’d)

Enzymes: are usually added to inefficient bio-products to aid in the degradation process. Like spore forming bacteria, enzymes are very pH and temperature specific. Enzymes may partially degrade organic matter, such as liquefying oil and grease. While this may or may not be a critical problem in a drain-line maintenance product, it can be detrimental in an onsite sewage disposal system, be it commercial or residential. Since enzymes only partially degrade organic matter, it usually dislodges the organic matter allowing it to flow further into the system (usually sand) where it can re-suspend and cause additional problems.

Surfactants: Soaps and emulsifiers are usually added for the same reason as enzymes. Surfactants emulsify oil and grease and act as a transporter allowing these organics to flow down through the system similar to enzymes, where it can later re-suspend.

Chemicals: are incorporated into a product because they are fast acting. They are easy to find. They are available in most retail markets such as Wal-Mart, K-mart, Lowes, Home Depot etc.

The problem with these types of products is that they can be dangerous and toxic to humans as well as the environment. They can be corrosive to plumbing. They do not work on build-up further down the line. They can kill any of the native, or natural bacteria that might have been in your waste water system.



Page 3

“Bio-Bugs” Defined (cont’d)

Very few companies who sell and manufacture these types of bio-products are actually biotech companies. The vast majority of these companies are blenders and re-formulators, similar to what you find in the specialty chemical business. Quite possibly this may be another reason for the addition of enzymes and soaps.

BioPlus Microbes: The multi strains of microbes begin to work immediately when introduced into the drain system. There is no germination time required as with spores. The patented microbes can work with or without oxygen. These unique microbes literally eat, consume, and digest oil, grease and organic matter, converting it into Carbon Dioxide and water.

BioPlus Microbes contain no chemicals, no fillers, no soaps, no surfactants, no perfumes, no scents, no enzymes, no emulsifiers, no seeds, no spores, and no pathogens. There is no mixing, no waiting, and best of all no clean up time.

BioPlus Microbes are patented, all natural, live vegetative, environmentally safe, State-of-the-Art, next generation performance based product, **that really and truly works**. It is simply the right thing to do!