

Microbes Versus Enzymes

It is not uncommon for PMP and sanitation professionals to use the terms “microbe” and “enzyme” synonymously. However the two are not the same. Enzymes are the chemicals that are produced by microbes to “digest” organic matter. Microbes are living “enzyme factories”. Different strains produce enzymes that specialize in digesting different types of organic matter (fats, proteins, carbohydrates, etc). Once a molecule of enzyme is used to break down organic matter, it is gone.

Products based solely on enzymes, unless large quantities are used, will tend to only partially digest organic matter, because they get “used up” but there is still more organic matter. Due to this effect, enzyme products used to treat grease traps will tend to partially digest the grease and move it into the sanitary sewer system. Because it is only partially digested, the grease solidifies downstream and can create blockages and other problems. For this reason, some municipalities have banned the use of enzymes in grease traps. Similar products can occur with chemicals that have been sold for grease traps, such as d-limonene. These chemicals tend to partially emulsify the grease and move it into the sanitary sewer system, like enzymes.

Microbial products like InVade work differently. The microbial spores come in contact with the grease and begin producing colonies of bacteria that produce enzymes to digest the grease, or other organic matter. This process of enzyme production and digestion continues as long as the conditions are favorable. Conditions can be made unfavorable by things such as heavy disinfectant use. In practice, continuous dosing of microbes is most effective for grease traps, using dosing systems, or slow-dissolving blocks like InVade Bio Bullets. As grease is digested, the pH can change and that can affect the microbe’s ability to continue to function. InVade products contain multiple strains of microbes that are designed to function in these conditions. InVade products, if used properly do not cause partial digestion or partial emulsification of grease.

One other issue with enzyme-only products is that they can be unstable in the bottle during storage, so they may be even less effective once they are used, as some of the enzyme content can break down, depending on the formulation and how it is stored. The same thing can happen with microbial products, wherein the microbe count can decrease over time if the product is not formulated to be properly preserved. InVade products are formulated to maximize the stability of the product in storage, as well as the efficacy. In practice, some loss of microbes during storage is not as damaging as it is for enzyme products, because the microbes are living organisms, and once they get into a favorable environment with their food source (the organic debris), they will begin reproducing, and their numbers will double every 20 minutes.

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