
PERSNICKETY® BRAND 713 BIOLOGICAL INOCULANT

QUESTION AND ANSWERS

QUESTION: Why is bioaugmentation needed?

ANSWER: Waste decomposition is a complex biological process which requires countless bacterial actions and interactions over time to be achieved. The bacteria normally present in a waste system can, in a very real sense, become their own worst enemies. Microbes responsible for the breakdown of organic substrates in anaerobic conditions convert sulfur compounds into sulfides. The sulfur cycle is a critical step in the decomposition of waste as well as absolutely necessary to the survival of the organisms themselves. Unfortunately, hydrogen sulfide is released as an intermediate by-product of their normal metabolism. These bacteria not only cannot utilize this substance, it is toxic to them. Even low levels of H₂S result in unhealthy organisms. Their appetites are suppressed, motility slows, growth and reproduction fall off. High levels of H₂S can reduce biological activity to near zero.

QUESTION: How can Persnickety® 713 help?

ANSWER: Persnickety® 713 is a carefully selected, precisely balanced, blend of several bacterial strains chosen for their striking ability to utilize hydrogen sulfide in their metabolic process. Essentially, the H₂S molecules are oxidized by Persnickety® 713 to form elemental sulfur. The sulfur is then stored by the bacteria within cell structures for later use should H₂S become unavailable. This remarkable process results in dramatic H₂S reductions. Often, dissolved H₂S levels drop below 1 part per million (1 ppm). (This level of H₂S is generally agreed to be the threshold limit for odor.) By maintaining this extremely low H₂S level, odor generation, and the accompanying complaints, cease to be problematic. The second major benefit derived from the removal of H₂S is a healthy, efficient biomass. The impact of a highly toxic substance such as H₂S varies in specific effect from system to system. Many of the changes in a recovering biomass are subtle, some however, can be stunning.

QUESTION: Can Persnickety® 713 control fats, oils and grease?

ANSWER: Yes. Persnickety® 713 controls normal domestic loadings of F.O.G. in two ways. First, while these compounds are eventually degraded by normally present bacteria, they are exceptionally stable and require extended time for breakdown. Persnickety® 713 contains strains which can readily convert these substrates into more elementary components (i.e., proteins, fatty acids, glycerols, CO₂, H₂O). These simpler compounds are far more readily available to the normally present bacteria resulting in faster, more complete reductions. Secondly, grease buildup is almost always accompanied by escalating H₂S levels. As previously discussed, H₂S inhibits the functions of bacteria and will greatly impede a process which, without help, is slow at best.

QUESTION: Can Persnickety® 713 reduce and help control accumulation of sludge?

ANSWER: Yes. As mentioned earlier, some of the changes which Persnickety® 713 can bring to a wastewater treatment system are dramatic - sludge reduction is one of them. Again, H₂S reduction and the synergism produced by and between the Persnickety® 713 strains and the normally present bacteria are responsible. In simplified terms, the organic material available for decomposition is more "food" than a "sick" biomass can digest. Leftovers settle and form sludge. The anaerobic conditions that result produce more H₂S and a cycle is put into place that is difficult to break. Fortunately, these conditions are made to order for Persnickety® 713. Dissolved sulfide levels drop. The biomass is rejuvenated and populations increase at a tremendous rate. As the sludge is detoxified it becomes an available food source and can be reduced.

QUESTION: Why must Persnickety® 713 be added on a regular basis?

ANSWER: Since the unique blend of organisms found in Persnickety® 713 is not normally present in the system, it will be overwhelmed by the constant influx of the bacteria present in any treatment system. Ongoing inoculation at required levels provides the proper balance.

QUESTION: How is Persnickety® 713 introduced to a treatment system?

ANSWER: Persnickety® 713 is supplied in liquid suspension and is simply poured or metered into the wastewater stream. This may be at the head of the plant or, in ponds and lagoons, wherever maximum dispersion is likely.

QUESTION: What is the "count" of Persnickety® 713?

ANSWER: Persnickety® 713 is carefully cultured in deep-vat fermentation tanks. Throughout this process, periodic checks are made to ensure that proper balance is achieved between the strains in the product. The ratio of the strains to each other is far more critical to the proper functioning of Persnickety® 713 than is a total count of the bacteria. Other factors, such as motility, also are of more significance than sheer numbers. The real question is not "are there enough bacteria present," but are the bacteria present right for the task at hand? That question can only be answered by performance in the field.

QUESTION: Are there conditions under which Persnickety® 713 will not work?

ANSWER: Yes. pH is a very important consideration. Extended exposure to a pH of under 6.0 or over 9.0 can destroy the bacteria. High concentrations of heavy metals, chlorine, certain solvents, high levels of biocides or disinfectants, as well as extended temperatures over 108° F. can kill the bacteria.