

Septic tank additives are unnecessary and may do more harm than good

The Environmental Health Department has received a number of calls lately from people asking why they need to pump their septic tanks. Many of these folks regularly flush septic tank additives down their toilet believing they are prolonging the life of their septic system.

Based on a number of independent studies on septic tank additives, our recommendation is clear: The use of any type of septic tank additives – either biological or chemical – is unnecessary, is a waste of money, and may actually harm your septic system.

Furthermore, there is no substitute for regular septic tank pumping.

How septic systems work

Household wastewater flows into a septic tank where it separates into three components – settleable solids (sludge), clarified effluent (liquid), and floatable solids (scum). Both the sludge and the scum are retained in the tank until they're pumped out. The liquid passes through the tank into a drainfield where it is filtered by the soil and effectively treated by soil microbes.

Individual household wastewater treatment systems are remarkably simple and effective, and require a minimal amount of maintenance from homeowners.

The key word here is “minimal,” because they are not maintenance free!

Recommended maintenance includes regular septic tank pumping – every three to six years on average, depending on use – and for systems with effluent filters, hosing off the filter once or twice a year.

Septic tank pumping is analogous to changing the oil in your car. Doing it regularly will definitely prolong the life of the engine, doing it too often is probably a waste of money, and not doing it at all will surely hasten the engine's demise.

And just like the myriad oil and gas additives on the market that claim to add life to your car's engine, so too are there a plethora of products promising problem-free septic systems.

Pros and cons of septic tank additives

There are two distinct categories of additives used in a septic system: 1) chemical, including inorganic and organic compounds and 2) biological, including yeast, bacteria, and enzymes. There are approximately 1,200 additive products on the market today, many of which contain enzymes that can be purchased through septic tank pumpers, discount stores, and chemical companies.

According to Small Flows Quarterly, an independent journal dedicated to community wastewater issues, many studies have been conducted on septic tank additives in the last 40 years, and their effectiveness is very much in doubt.

The beneficial effects of biological additives on the septic system are still being debated, but two benefits may ultimately be identified. First, enzymatic products might have the ability to reduce the amount of oil and grease in the septic tank. Second, under septic tank bacterial “die-off” conditions, slight reductions in the amount of effluent solids have been achieved by using additives.

Die-off conditions occur when the bacteria in a septic tank are destroyed by a large dose of toxic substances like liquid bleach, disinfectant cleaners, or drain cleaners. Other factors that can cause die-off include the use of anti-bacterial agents, and, in certain cases, medications taken by the homeowner.

Research suggests that some biological additives may increase the biological activity to the point where excess solids can be carried into the drainfield. This occurs when anaerobic decomposition of solids causes the formation of methane gas. As they rise, bubbles push solids up from the settled portion of the septic tank. Ultimately, this may allow solids into the drainfield where clogging can occur.

Contrary to the ability of enzymatic products to reduce scum, the effects of degradation in the scum layer are believed to be detrimental to a soil absorption system. The scum layer holds fats, grease, and floatables, preventing their escape to the soil absorption system. Enzymatic products can break up this scum layer and increase its mobility, allowing it to enter the drainfield.

Some chemical additives that have been used in septic systems include hydrogen peroxide, formaldehyde, baking soda, and alum. Studies have found that such chemicals could agitate soils containing clays and silts, destroying the soil structure and thereby decreasing the soil's permeability.

A number of products sold over-the-counter for soil absorption systems and clogged drain pipes contain sulfuric acid, which is highly corrosive in concentrated form. This could affect the microbial population in the septic tank and soil absorption system, and contribute to structural weakness when applied directly to a concrete tank.

Are septic tank additives useful?

A homeowner does not need to add a stimulator or an enhancer to a septic tank that is designed, operated, and maintained properly—naturally occurring bacteria are already present within human fecal matter. Contrary to popular belief, yeast, antifreeze, or raw hamburger do not need to be added to the septic tank.

Chemical additives, such as caustic hydroxides and sulfuric acid, should never be added to a septic system. Adding these products will destroy the bacterial population in the septic tank, change the permeability characteristics of the soil absorption system, and may cause groundwater contamination.

Often, manufacturers of biological additives market their use to restore the bacterial balance in a septic tank on a monthly basis as part of a routine maintenance program. This is not necessary because these bacteria already reside in human feces.

Claims made on the effectiveness of additives to either eliminate pumping of a septic tank or restore permeability of the soil absorption system are unsubstantiated. No product will allow a homeowner to escape a regular septic tank pumping and maintenance schedule.

What about the cost?

Another reason to question the use of septic tank additives is the cost. A quick Internet search reveals additives with appealing names containing words like “bright,” “fresh,” “power,” and “remedy.” These dubious products range in price from about \$80 for enzymes to \$200 for the complete “remedy.”

The price of pumping a septic tank is about \$250 to \$350 normal size tanks. We believe, and certainly the research indicates, that pumping your tank every three to six years, is the most cost-effective method of maintaining your septic system.

For more information about septic systems, stop by the Environmental Health Department, 215 South Fourth Street, Hamilton or call 375-6565.

In order to help citizens understand more clearly many of the environmental health issues in Ravalli County and the role of the Environmental Health Department in addressing these issues, our department runs a series of bi-weekly newspaper articles titled "Environmental Health Talk."

In this ongoing series we hope to help raise the community's awareness of issues such as air and water quality and give readers useful tips on topics like recycling, collecting and disposing of hazardous materials and maintaining septic systems, just to name a few. To this end, we welcome public comment. If there's an environmental health issue you'd like us to address, write call or email the department: RCEH, c/o "EnviroHealth Talk," 215 South 4th St, Suite D, Hamilton MT 59840. Phone: 375-6571. Email: rdaniel@ravallicounty.mt.gov