



SEPTIC SYSTEM CLEANING with HC6056

HC6056 is a composition including the fermentation supernatant from the fermentation of yeast intended to be conveniently introduced through the wastewater plumbing system of a vessel or other facility into a septic system servicing the vessel or other facility to accelerate the ability of the bacteria resident in the septic system to substantially digest biologically available organic compounds present in the septic system and methods of accomplishing the same.

BACKGROUND

Vessels are not connected to a central sewage disposal and treatment system (like on shore) and rely on local septic systems to treat wastewater discharged from the vessel. Such septic systems typically have a septic tank for receiving the wastewater from the vessel. The wastewater and the solids entrained in it are deposited in the tank where they are decomposed by the action of bacteria and other micro-organisms. Grease and similar substances in the wastewater causes the pipes, valves and collectors to clog and /or the tank and pipes to discharge unpleasant odors throughout the vessel. The speed with which such a system failure occurs is dependent on the characteristics and condition of the pipes, valves, joints, tank, the amount of wastewater discharged and the materials found in the wastewater.

It is known that fermentation supernatants obtained from the fermentation of certain yeasts, when present in the appropriate concentrations, have the ability to accelerate the natural digestion of biologically available organic compounds present in sewage, sludge, grease, and the like. Typically, the fermentation supernatant with its protein component is combined with other ingredients such as surfactants, buffers, citric and lactic acids, urea, preservatives and the like and then diluted with water to form a protein rich cleaning solution. An example of such a protein rich cleaning solution is HC6056, a product containing fermentation supernatant, surfactants, buffers, etc. and available from Henco Solutions via VMP. In HC6056, the protein component itself represents about 1.5% by weight of the solution and water represents about 83% by weight. The surfactants, buffers, etc., make up the remainder.

THE USE OF HC6056 IN SEPTIC SYSTEMS

The clogging up of septic systems and associated drain fields is a problem faced by many vessel owners. Particularly the septic system tank must periodically be pumped out. While the use of a protein enriched cleaning solution could be used by the vessel owner to flush out and maintain the system, the periodic and careful application of the correct amount of the cleaning solution imposes a maintenance duty that many vessel owners are not ready to shoulder. In addition, of course, the vesselowner would have to buy and store the cleaning solution.

Using HC6056, cleaning of a septic system and its associated drain field can be accomplished with no conscious effort by providing the vessel owner with a fermentation supernatant



entrained in a liquid carrier. Such as common household cleaning products used by the vessel owner that in ordinary use will be passed through the plumbing system of the vessel into the septic system. For example, the protein component of the fermentation supernatant, the fermentation supernatant itself, or a protein enriched cleaning solution incorporating it, can be introduced into common household cleaning products which for this purposes is defined to mean liquid products such as dish washer detergent, washing machine detergent, liquid hand or bath soap, shampoo, toilet bowl cleaner and the like. The term "liquid" as used herein includes gels. It is therefore an object of HC6056 to provide a composition for cleaning a septic system by being introduced into the septic system through the wastewater disposal plumbing system of a vessel served by the septic system comprising a common household cleaning product carrier liquid, and a protein component from the fermentation of yeast intermixed with the carrier liquid, the protein component being present in an amount sufficient relative to the total wastewater flow through the septic system to substantially accelerate the ability of the bacteria resident in the septic system to digest biologically available organic compounds present in the septic system.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The average vessel holder uses a number of products that literally end up down the drain and takes advantage of that fact to use these products to introduce into the drain, and hence into a septic system, a protein enriched cleaning solution. This can be accomplished by adding a fermentation supernatant to a liquid carrier comprising a common household cleaning product in an amount sufficient relative to the total wastewater flow through the septic system to substantially accelerate the natural digestion of biologically available organic compounds present in the septic system by the bacteria resident in the septic system. Because the concentration of the supernatant necessary to adequately perform the cleaning function is dependent on the content of the wastewater, the amount of wastewater produced and the nature and condition of the tank into which the wastewater will be discharged, it will be recognized by those skilled in the art that it is not possible to state with precision the amount of fermentation supernatant that must be used in connection with any particular septic system. Based on field tests on various wastewater systems using HC6056, it is estimated that a concentration of about 1 to 15 parts per million of HC6056 in the wastewater would be appropriate for most, if not all, septic systems. Although estimates of the amount of water used, and wastewater produced, per capita in a vessel vary from place to place and time to time, one figure to consider as a basis for determining the amount of fermentation supernatant that must be introduced into the plumbing system to adequately clean the septic system is about 186 liters (about 49 gallons) of water per day per person. See, e.g., the estimate of the American Water Works Association for 1997 reported in Pipeline, Winter 2002, Vol. 13, No. 1, at page 5. According to this report, use of the clothes washer contributes 42.4 liters to the total; the shower/bath contributes 39.4 liters; the toilet, 37.9 liters; faucets, 56.4 liters; and the dishwasher, 4.2 liters. For a family of four, the wastewater produced on a daily basis would be about 200 gallons, or 1400 gallons per week. Assuming a mid-range value of 10 ppm. of HC6056 would be required, it would be desirable to introduce about 1/8 of an



ounce (3.55grams) of HC6056 into the vessels wastewater on a daily basis. This can be accomplished by adding the HC6056 cleaning solution into one or more of the commonly used household products mentioned above. Take, for example, a liquid clothes washer detergent. Liquid TIDE(R) detergent recommends using about 3 ounces (85grams) of detergent per normal wash. If 12.5 ounces (350grams) of HC6056 cleaning solution was added to a 300 ounce (8.5kg) container of liquid TIDE(R) detergent, or if 12.5 ounces of the detergent was replaced with HC6056 , a daily clothes washing would add a sufficient amount of HC6056 to treat the septic system. It is preferred that the substitution or addition of HC6056 be made to a detergent or other common household cleaning product in which the surface active agents in the product are non-ionic, anionic, or amphoteric.

Alternatively, if adding to the household cleaning products is not a viable option, HC6056 can be periodically diluted with water and poured daily/weekly in lavabos, toilets, sink etc, ending up in pipes, valves and ultimately in the tank, where it can enhance the actions of the bacteria already in the tank. 2% dilution for daily, 10% for weekly doses.