

About Waste Water Treatment

1. Why would I need to spend extra money for an aerobic treatment unit? Why can't I just have a septic tank installed?

A standard septic tank only removes about 60-70% of the organic waste in domestic wastewater, while a properly installed and functioning AQUASOL aerobic unit can remove more than 95% of the organic waste. This creates an effluent that is safer for people, animals, and the environment. It also means that you would need a smaller septic field for discharge of the effluent. In addition, many local regulations require some kind of secondary treatment (such as aerobic treatment) of wastewater, depending on the size of the property, proximity to rivers or lakes, source of drinking water, and soil conditions.

2. What can happen if my wastewater is not properly treated? Why should I care?

Improperly treated wastewater, when discharged into lakes, rivers, or groundwater, can and eventually will contaminate public and private water sources over a wide area. This contamination can lead to outbreaks of such deadly waterborne diseases as cholera, typhoid, paratyphoid, polio, hepatitis, and meningitis. You can also be fined if your system is causing pollution.

3. Who will tell me what type of installation/products are required in my area, and how much will it typically cost in my area?

Governments (Provincial or State) and local regulations can help you determine the requirements of your particular situation. Your trained, licensed AQUASOL dealer can help you decide which system will best meet your needs-technically and financially.

4. What is BOD5?

"Biochemical Oxygen Demand" is a measure of the amount of oxygen required to reduce an organic waste by biological activity in a five-day time period. The units of measurement are in milligram/liter (mg/l).

5. What is TSS?

"Total Suspended Solids" is a measure of both dissolved and suspended solids in a liquid media. It is measured in milligrams/liter (mg/l).

6. What is a conventional septic system?

The most common type of system installed, it receives waste generated in the house, that is transported to the septic tank via the building sewer. The tank, in most cases, is buried usually about 2 meters from the area of the building the main sewer line exits. The wastewater flows from the building sewer into the first chamber of the septic tank where primary treatment of the wastewater takes place. Wastewater is retained in this part of the tank typically for 2 days during that time, solids settle out and sink to the bottom. Anaerobic (without oxygen) treatment of the waste occurs in this tank where bacteria and microbes eat the sewage solids on the tank bottom. While this is taking place any oils and greases separate and form a scum layer along the top of the liquid thus a relatively clear layer of liquid is created between the scum and solids layers. When wastewater flows into the tank, an equal volume of effluent is transferred out of the first chamber and into the second chamber. After two to three years the tank must be pumped out to remove the solids and the scum that has accumulated in the tank. The effluent from the second chamber of the septic tank enters the drain field header and is distributed equally to the laterals (drain pipe) buried in gravel trenches. Effluent flows through the gravel then into the soil which provides most of the aerobic treatment of the wastewater by filtering out bacteria in the percolating wastewater. Some soils are well suited to this type of treatment, such as sand, and others are inappropriate, such as clay. Treatment will not occur in saturated soils (full of water, from high or perched water table). Poor soil drainage may result in groundwater contamination.

7. When should an Alternative Treatment be installed instead of a conventional one?

When enhanced treatment is desired, either greater nutrient or pathogen reduction. Also when a remedial site cannot accommodate a conventional septic system or if in new construction you want to avoid fill or retaining wall costs, or extensive mounding.

8. How does wastewater treatment system improve treatment to protect water quality?

By putting the effluent through a combination of aerobic and anaerobic treatment before effluent is released.

9. What kind of site constraints can be overcome with an alternative treatment?

Sloping sites, high groundwater, fast or slow percolating soils, proximity to wetland or other resource area. Where aquifers are already polluted and further treatment is required, because of soil conditions the site is too small for the drain field needed by a conventional septic system.

10. How long will wastewater treatment plants last?

When properly engineered, installed, and maintained, the overall system (I.e. tank, drain field and treatment zone) should last indefinitely. Individual components such as pumps, electrical components, and filter media may require replacement.

11. Why is an aerobic system better than other systems?

"Aerobic" means with free oxygen. The organic waste, measured in BOD, is reduced more efficiently and more rapidly via the aerobic system than any other form. This rapid process means less detention time for treatment and allows for smaller facilities. This all equates to the best treatment at the lowest cost with the highest degree of efficiency--better than 95% efficiency in treatment!

12. Are there any chemicals that I as a homeowner need to add to my system to make it work?

No. The aerobic treatment process works by the action of aerobic bacteria, which consume the organic waste present in domestic wastewater. These bacteria are naturally present in domestic wastewater. If your system will be discharging the treated effluent through a spray or drip irrigation system, some local regulations require that disinfection be accomplished after the water leaves the aerobic plant. This can be accomplished with a built-in ozone generator that we can provide.

13. Can I use my sinks and toilets just as I did when I was hooked up to the city sewage system?

Probably--depending on how you are accustomed to using your plumbing system. Remember that any solids that you introduce into the system through your drains or toilets will end up in the pretreatment tank (storage). Material that is not quickly biodegradable (plastic products, rubber or latex products, sanitary napkins or tampons, washcloths, cigarette butts, melon seeds, etc.) will overload the tank, requiring it to be pumped out much more frequently. Therefore they should not be put into the plant. For the same reason, garbage disposal use should be limited. In addition, you should not introduce chemicals into the system that can kill the aerobic bacteria responsible for the aerobic treatment process. These chemicals include bleach, harsh detergents, household disinfectants, petroleum products, paints or paint thinners, and medicines.

14. How will I know if my system needs servicing? How often must this be done?

Signs that servicing is required include backing up of plumbing lines into the house and a strong disagreeable odor coming from the aerobic unit or discharge area. In addition, alarms will alert you if the plant's pumps are malfunctioning. Apart from these signs, your unit should be serviced every 3-6 years (or sooner as demand requires).

15. Will the plant clean up wastewater so that it is safe enough for my children to play near the sprinklers?

Although the plant used in conjunction with UV/Ozone, produces a clear, disinfected, environmentally safe effluent, many local regulations do not allow the effluent to be discharged in an area where human contact is likely.

16. How much room does an installation require?

Space needed for an installation varies depending on your proximity to lakes and rivers, depth of groundwater, source of drinking water, size of property, type of soil, and local regulations.