Experience of Both the Inventors and the Company

The SepAerator™ was developed over a 5 year period of time by Jesse James. Jesse has been in the septic system installation business for the past 20 years. During that time he and his company have installed many thousands of septic and specifically aerobic systems. As required by State law, his installation company provides service for each one of those systems a minimum of 4 times over the first 2 years and after that offers ongoing maintenance agreements on every aerobic system installed. Installing and servicing thousands of aerobic systems naturally provides one with a great deal of insight on how and why aerobic systems work. Based on this vast experience, and after a great deal and many years of testing, Jesse discovered just how to design the proper conversion equipment that would turn an existing septic tank system into an aerobic system. Currently Jesse has 2 patents pending on the SepAerator™ with one due to issue shortly.

What Type of Equipment is Needed?

ILLUSTRATION

1. Vented Housing and Platform

2. Hiblow Air Pump

3. Self-Positioning Diffuser Assembly

4. Spa-Flex Air Line

5. Patent Pending Air Particle Recirculator

6. Outlet

Extender

7. Airline Adapter Fitting

8. Installation and Maintenance Manual

A. The Air Pump **(See Illustration #2)**

A common misconception in the septic to aerobic tank conversion systems being sold today is to undersize the air pump. There are more than 40 Class 1 NSF Certified aerobic systems on the market today. A Class 1 aerobic system consists of a complete aerobic treatment unit including tankage, alarms, air pump, diffusers, and misc. equipment. The average Class 1 aerobic system as well as our SepAerator™ utilizes a 3.7 cubic feet of air per minute pump. There are some that use larger pumps and some that use smaller pumps. The smallest air pump utilized by any Class 1 aerobic system produces 2 cubic feet of air per minute.

It is our opinion based on 20 years experience in the aerobic industry that the 2 cubic feet of air per minute pump is at best the bare minimum needed. Without sufficient oxygen placed in the septic tank by the air pump aerobic bacteria will not proliferate to the extent necessary to process waste to our standards inside a septic tank. The purpose of aerating the septic tank is to produce enough aerobic bacteria to process the waste inside the septic tank and discharge as high as 95% clear and odorless effluent into whatever type of secondary treatment system you have. Further when producing plenty of oxygen and aerobic bacteria the excess of which can pass into a secondary treatment system and process the waste that has built up there over the years you utilized just a septic tank.

This excess aerobic bacteria and oxygen will break down the bio mat that has formed to process the raw sewage originally coming from a plain septic tank allowing the soils to absorb the clean water much easier. With the waste processed inside the septic tank the bio mat will disappear as it is no longer needed. Based on our 20 years experience in the aerobic industry we believe that at a minimum a 2 cfm air pump is just barely big enough and anything smaller than that cannot effectively process wastewater in a septic tank in comparison to the SepAerator™. The cleaner the discharge the better it is for your secondary treatment system rejuvenation.

Check out our **Sampling Results**, conducted by an independent third party laboratory.

B. The Patent Pending Diffuser Assembly **(See Illustration #3)**

Another common misconception concerning aerobic conversion equipment is what is the function of the Diffuser Assembly and how does it work. Most seem to think that the air pump forces air into a septic tank through some type of diffuser, which is correct in a simplified way. Some of these diffusers consist of some type of air stone, plastic discs, or several other designs. Some hang their diffuser from the top of the tank by pipe or floats while some set solidly on the bottom floor of the tank. Most simply provide a means to allow air from the air pump to be delivered into the septic tank and that is their only function.

The SepAerator™ Wonderfuser diffuser assembly performs multiple tasks. First it self-positions itself and sits solidly on the bottom of the septic tank ensuring that the air is introduced at a consistent height inside each and every septic tank. Secondly and very importantly anyone who has done any testing on these types of systems would understand that when oxygen is introduced into a septic tank the bubbles of oxygen created immediately want to rise straight to the top. I liken this action to holding a large beach ball under the water at your favorite beach or swimming pool and releasing it. The beach ball will shoot quickly to the top of the water and even exit. The same thing happens to the oxygen being introduced into a septic tank by an aerobic conversion system. Once the oxygen reaches the top it is lost and will no longer promote the growth of aerobic bacteria. Some conversion systems introduce oxygen high in the tank to begin with through their diffuser meaning that everything below their diffuser is receiving little or no oxygen. No oxygen in the bottom of the septic tank means no aerobic bacteria in that part of the septic tank.

The SepAerator™ Wonderfuser introduces oxygen some 10 inches off the bottom of a septic tank through a series of orifices angled at approximately 45 degrees from top to bottom. When the air passes through these orifices just like other diffusers the air bubbles want to go straight up. Some 15 inches off the bottom of the tank the Wonderfuser has a deflection area that all the rising air bubbles must hit and rather than going straight to the top is deflected outward 360 degrees around the diffuser. This allows the oxygen to stay in the tank much longer than other systems. Secondly the deflector creates a rolling action in the tank. This rolling action provides a very important function that causes the combined air and water movement to act somewhat like an oversized household blender.

Unique to the SepAerator™ Wonderfuser, by utilizing this deflected rolling action most solids that come into the tank are broken down into very small particles within 30 seconds. When those solids are rapidly broken into small particles that are continually moving inside the tank, aerobic bacteria generated by sufficient oxygen being put inside the tank, can quickly and easily attach themselves to those small particles. Much smaller and moving particles can be found and devoured by these aerobic bacteria very quickly. In summary the SepAerator™ Wonderfuser diffuser assembly:

a) Introduces oxygen close to the bottom of a septic tank
b) Deflects those air bubbles keeping them in the liquid much longer
c) Breaks most waste solids down into small particles usually within 30 seconds
d) Continually circulates those small particles allowing aerobic bacteria to quickly find

and devour them. Naturally very small particles can be devoured much quicker than large solids

C. The SepAerator™'s Patent Pending Air Driven Particle Recirculator

(See Illustration #5)

As mentioned in the prior Diffuser information the SepAerator™ will rapidly break waste solids down into small particles. In order to produce the cleanest effluent possible the SepAerator™ Premium Package comes with our patent pending Air Particle Recirculator. The aforementioned small particles that are moving around in the septic tank will naturally float towards the discharge area. The Recirculator, which consists of a filter assembly, large fiber filter, and an air diffusion system located just above the inlet, will eliminate any of those particles from discharging into the secondary treatment system.

By introducing air (from the same air pump that feeds the diffuser assembly) just above the inlet of the discharge outlet we can force all the small broken down particles away from the discharge area. Once blown away from the discharge area those particles will be caught up in the diffuser rolling action ensuring a quick breakdown. Naturally when you have a filter in a septic tank you have a major advantage of keeping anything but clean effluent from discharging, which will dramatically improve how your secondary treatment system works. On the downside you will need to clean the filter occasionally.

We recommend that this filter on the SepAerator™ Premium package be cleaned every 3 to 6 months, however we have found that many of these air recirculators are going more than a year between cleanings with some going indefinitely. With only clean effluent being discharged to the secondary treatment system the clogging bio-mat will breakdown allowing this clean effluent to much more readily be absorbed into even marginal soils.

By comparison a Class 1 Aerobic Treatment Unit has multiple compartments. Usually at least one of these compartments is where the air is introduced. After going through the compartment with the air the effluent would then travel into another compartment generally referred to as a settling compartment. In this compartment there is no introduction of air and all those small broken down particles can settle to the bottom where they are reintroduced to the air compartment again. The SepAerator™, when installed into an existing septic tank, many of which are single compartment tanks, utilizes this patent pending air particle recirculator to perform the same function as a settling compartment in a Class 1 Aerobic Treatment Unit. Without it filters would need to be cleaned much more often. Without a filter some particles will pass through the system and go into the secondary treatment system where they would need to be broken down. This will work fine but if one is interested in the best results achievable the SepAerator™ Premium Package with the air particle recirculator is a combination that is hard to beat.

What Are The Most Important Questions You Should Want Answered When Purchasing A Septic Tank Aerator?

How Many Cubic Feet of Air Per Minute Does the Air Pump Produce?

- **Answer: The SepAerator™ Premium Package produces 3.7 CFM.**

How High in the Septic Tank Does the System introduce Air into the Septic Tank?

- **Answer: The SepAerator™ introduces air in the septic tank between 10” and 15” above the floor of the septic tank.**

If the system has a filter how often does it need cleaned?

- **Answer: First of all as the old saying goes if it is too good to be true it probably isn’t. Anyone who says their filters never need cleaning is simply not providing an accurate answer. The SepAerator™’s Air Particle Recirculator found only in the SepAerator™ Premium Package is simply by far the best method available to force by means of air all the small particles away from the discharge area and the filter itself. This means a dramatic reduction of filter cleaning. To be on the safe side we generally recommend that our filter be cleaned every 3 to 6 months, however we are seeing many last more than a year between cleanings and some indefinitely.**

If the system does not have a filter how do you keep the small waste particles from being forced out of the septic tank and into the secondary treatment system?

- **Answer: In single compartment septic tanks any system that introduces enough air into the septic tank to proliferate the growth of aerobic bacteria will force some small particles out the discharge and into the secondary treatment system. This generally would be broken down in the secondary treatment system rather than in the tank itself.**

Can you provide me with any Third Party Sampling Results showing me just how clean of effluent discharge your system will generate?

- **Answer: Naturally the cleaner the effluent discharge the better for any type of secondary treatment system such as field absorption systems, mounds, sand filters, etc. This is the simplest and easiest way to determine how well any of these types of systems works. Anyone can generate a web site and talk the talk, however if their systems will walk the walk then the sampling data is extremely important. The SepAerator™ will process more than 90% of the sewage contaminates that pass through it discharging a clean and odorless effluent. We are proud to offer a summary of our extensive sampling results**