

TOWARDS BETTER ONSITE WASTEWATER MANAGEMENT IN VICTORIA - COMMUNITY EDUCATION SERIES

FACT SHEET 2: PACKAGE TREATMENT PLANTS (BASIC DESIGN INFORMATION)

This information will be of interest to you if you live on a property that is not connected to a reticulated or town sewerage system. You will either have a package treatment plant or a conventional septic system (for information on septic systems refer to Fact Sheet 1: Septic Tanks and Absorption Trenches). This fact sheet focuses only on package treatment plants. To gain an understanding of the entire package treatment system, it is recommended that this fact sheet be read in conjunction with Fact Sheet 6: Common Disposal Methods.



2.1 WHAT IS A PACKAGE TREATMENT PLANT?

There are many different makes of treatment systems. The following are the main features of package treatment plants which begins at the primary clarifier chamber:

PRIMARY CLARIFIER CHAMBER

This is where the wastewater from your toilet, kitchen, laundry and bathroom travels to first. Here the solid material is allowed to settle out and forms a sludge at the bottom of the chamber. There is no oxygen in this chamber and there is some digestion of the wastewater by good bugs that live in a low oxygen environment. This is called anaerobic biological treatment. The wastewater then goes to the next stage – aerobic biological treatment in the aerated chamber.

AERATION CHAMBER

Here the wastewater is mixed with air and this allows good bugs that require oxygen to digest the wastewater. The digestion process in this chamber is much quicker than anaerobic digestion. The wastewater then goes to the next stage – sedimentation and clarification in the secondary sedimentation/clarification chamber.

SETTLING CHAMBER

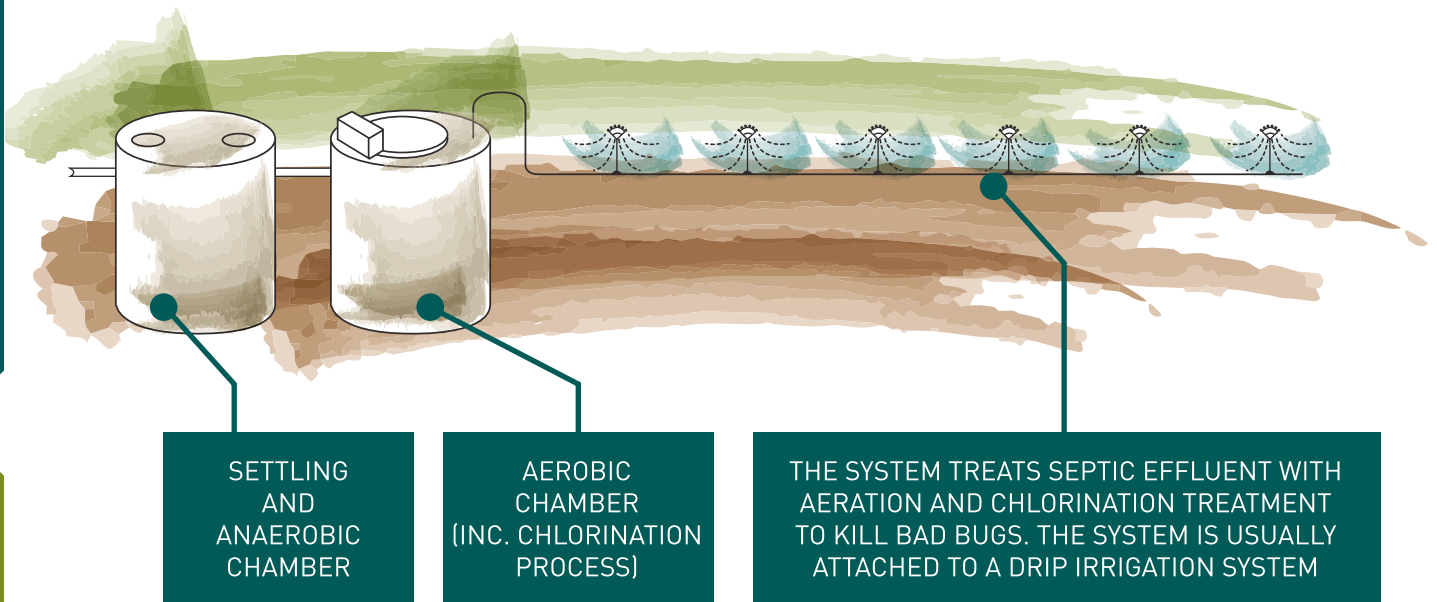
Here more of the solid material is allowed to settle out and you will see that the remaining wastewater appears quite clear. However, this water still contains high numbers of bad bugs that can be harmful to your health. This is the end of the treatment process for many makes of package treatment plants. The final wastewater from these systems is then delivered to an underground irrigation system located in your yard. There are other makes that have another stage to the treatment process, and this involves chlorinating the water.

CHLORINATION CHAMBER

For package treatment plants that have this treatment process, the wastewater is exposed to chlorine and then is usually sent to a surface irrigation bed in your yard. The wastewater is held in this chamber to allow the chlorine to do its work and kill any remaining bad bugs.

If you have one of these systems, it is very important that the chlorine tablets in the chlorine chamber do not run out or the wastewater that leaves the package treatment plant will still contain high levels of bad bugs.

DIAGRAM 1: A BASIC PACKAGE TREATMENT PLANT SYSTEM



2.2 WHAT ARE THE COMMON ISSUES ASSOCIATED WITH PACKAGE TREATMENT PLANTS THAT YOU SHOULD BE AWARE OF:

- Package treatment plants are mechanical systems made up of many parts, which can break down and need to be regularly serviced in order to continue to operate safely and efficiently. You need to have the plant serviced by an accredited person once every three months or as indicated within the Certificate of Approval. Their reports need to be submitted to your local council.
- The package treatment plant should have an electronic alarm fitted to warn you of any malfunctions. You need to make sure that your alarm has been installed and is working correctly.
- If your system includes a chlorination treatment stage, then there needs to be a constant supply of chlorine tablets.
- The irrigation system can become damaged (e.g. drippers damaged by kangaroos looking for water) or blocked by solids in the effluent. In these cases you need to contact a licensed plumbing practitioner to have any required work carried out.
- Too much sludge in the primary chamber. This can result in wastewater heavy with solids entering other chambers of the tank, clogging components and reducing the ability of the tank to treat the wastewater adequately.
- Too much water entering the package treatment plant. Your wastewater treatment system has been designed to manage a calculated amount of wastewater. Should this be exceeded, the ability of the system to adequately treat the wastewater may be reduced.
- Toxic chemicals, such as bleach and commercial cleaners, entering the system can result in good bugs being killed off, halting the digestion process.
- Common signs of a failing wastewater treatment system include: water draining away too slowly; pipes making noises or gurgling when draining; sewage smells; or water ponding in the area of the irrigation system.

2.3 SETBACK DISTANCES FOR PACKAGE TREATMENT PLANTS:

Package treatment plants should be installed at least two metres from a house or other structure.

There are other setback distances which can be found in Fact Sheet 6: Common Disposal Methods.

2.4 IRRIGATION SYSTEMS:

For information on these disposal systems please refer to Fact Sheet 6: Common Disposal Methods.

2.5 COMPARISONS BETWEEN CONVENTIONAL SEPTIC TANKS AND PACKAGE TREATMENT PLANTS

CONVENTIONAL SEPTIC SYSTEM	PACKAGE TREATMENT PLANT
Generally does not require power, unless the effluent needs to be pumped.	Requires a continual supply of power.
Limited maintenance - a de-sludge every 3-5 years, depending on use.	Requires regular maintenance – serviced once every 3 months, annual water sample test and a de-sludge every 3-5 years, depending on use.
Generally costs between \$7,000 & \$10,000.	Generally costs between \$10,000 & \$15,000.
<i>Information on this fact sheet is not intended to favour one system over another.</i>	
Check with manufacturers for specific details and your local environmental health practitioner (EHP or EHO: Environmental Health Officer) for suitability when choosing a new system for your house.	

Package treatment plants may be a good alternative on properties with environmentally sensitive features or limited available area.

2.6 WHO TO CONTACT:

PRODUCED AND FUNDED BY:

