

Eco-Pure Peat Moss Biofilter System Overview

The Eco-Pure Waste Water Systems 300 Series Peat Moss Biofilter is an advanced secondary wastewater treatment system that utilizes a specially cultivated and harvested sphagnum peat moss for the treatment of septic tank effluent.

Sphagnum peat moss provides an excellent environment for micro and macro organisms that provide a high level of wastewater treatment. The treatment occurs by a combination of physical, biological and chemical processes. Due to its unique process, the 300 Series Peat Moss Biofilter is patented.

The raw wastewater first enters a septic tank where pre-treatment of the wastewater occurs. Please note that a septic tank effluent filter is required for every Eco-Pure system. From the septic tank, the effluent enters the Eco-Pure 300 Series Peat Moss Biofilter either by gravity or through the use of pump tank containing a small incremental horsepower effluent dosing pump, typically 1/3 to 1/4 HP.



The dimensions of the high density polyethylene (HDPE) module are 7 feet wide x 10 feet long x 4 feet high. Eco-Pure, Inc. manufactures the module at its Fort Myers, Florida facility, using the rotational molding process. Eco-Pure uses only virgin HDPE resin for the module. This assures uniformity and structural integrity of the module. In addition, the resin contains the highest form of protection against harmful ultra-violet (UV) light.

Each module is capable of treating peak flows of up to 600 gallons of wastewater per day from a four bedroom home up to 3,200 square feet in size (homes larger than this, with 5-8 bedrooms, require a second peat unit). This is based on typical, residential strength wastewater. Properly installed, operated and maintained, test results have shown the effluent discharged from the 300 Series Peat Moss Biofilter to meet the following standards:

- < 20 mg/l Biochemical Oxygen Demand (BOD5)
 - < 20 mg/l Total Suspended Solids
 - 99.99% Fecal Coliform Bacteria Removal

The wastewater enters the 300 Series Peat Moss Biofilter at the top of the module and is evenly distributed over the sphagnum peat moss bed through a high density polyethylene distribution plate, placed directly on top of the peat moss. The retention time of the septic tank effluent within the sphagnum peat moss is critical to the performance of the 300 Series Peat Moss Biofilter. This allows time for each organism within the peat moss to do its role in treating the septic tank effluent and allows for proper filtration of the wastewater. Depending on daily flows, detention time can range from 8 to 24 hours.

A predetermined amount of sphagnum peat moss is placed within the proprietary high-density polyethylene (HDPE) module. This amount was determined through the extensive research and development of the system.

The amount of peat moss used is controlled by the use of pre-packaged peat "pillows". The pillows are mesh, polypropylene, non-degradable bags filled with sphagnum peat moss. The pillows are filled to the appropriate amount using an automated machine at Eco-Pure's facility.

Each module contains 42 pillows. Properly placed, the pillows will fit together without any void space. The pillows are placed in two rows, perpendicular to each other, one on top of the other. In order to fill in any potential voids, the placement of ten (10) loose peat moss bails is required. The peat moss pillows and bails are placed on a pallet and shrink wrapped. One module contains one pallet of peat.

The treated effluent is collected at the bottom of the module in a 4" diameter collection pipe. This 4" pipe sits in the channels manufactured in each module. The treated effluent is discharged at the bottom of the module.

The 4" pipe also serves as a vent pipe for the 300 Series Peat Moss Biofilter and is critical to the performance of the system.

The vent pipe runs to the top of the module and is connected to the vents located on each side of the cover. This cover cannot be buried to allow for air movement throughout the peat moss. Many of the organisms responsible for treating the wastewater cannot live in an anaerobic (without air) thus blocking the air vent is detrimental to the system.