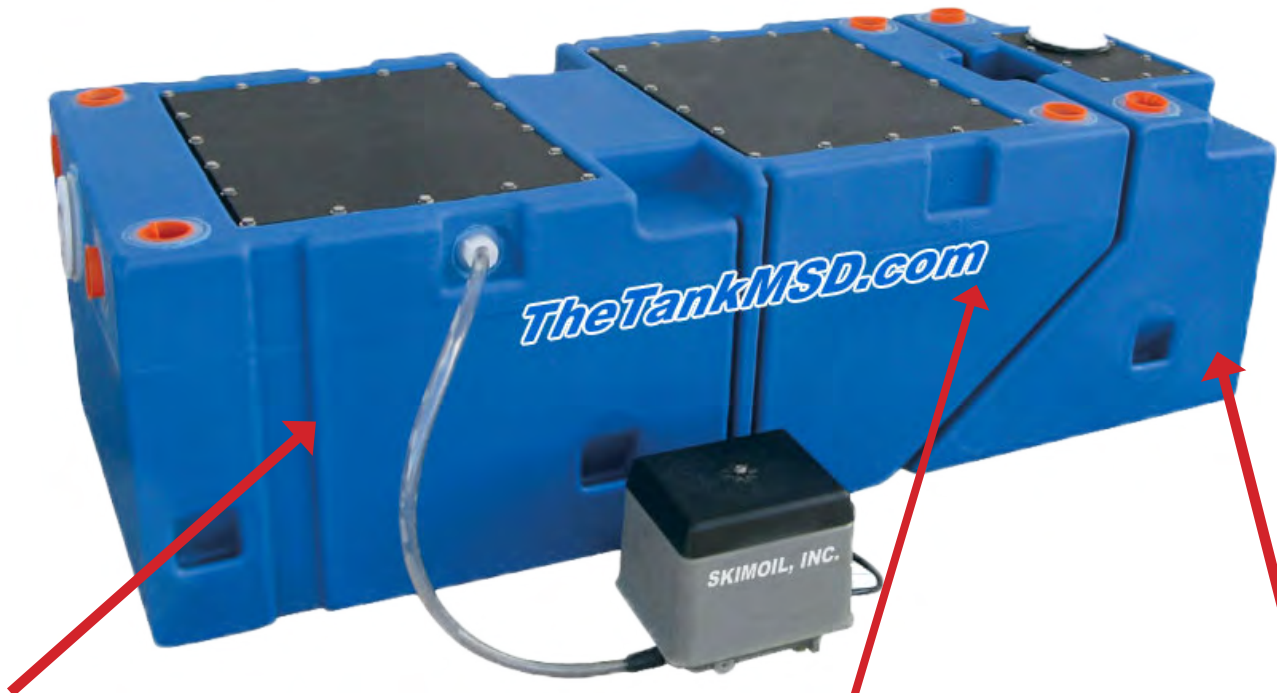




## How TheTankMSD Works

### THE PROCESS OF TREATING WASTE

The Type II Marine Sanitation Device is a biological Aerobic (bacteria and air) Sewage Treatment System. Liquid and solid wastes are removed from the water by bacteria naturally contained in sewage. The MSD consists of three treatment stages; aeration, clarification and chlorination. In the aeration chamber (Stage 1), the bacteria grows and multiplies using the sewage as their food supply. This action reduces the quantity and size of the solid matter. In the clarification chamber (Stage 2), the bacterial floc is separated from the treated water. The treated water is clear and free from solids; however, the liquid must be disinfected prior to discharge overboard to kill any disease-causing bacteria. Disinfecting is accomplished in the Chlorination Chamber (Stage 3) flow through these three chambers is caused by direct displacement. When new sewage flows into the aeration chamber, an equal volume flows into the clarification chamber. This volume, in turn, displaces an equal volume from the clarification chamber into the chlorination chamber, and overboard. No internal sewage pumps are necessary.



**Aeration Chamber**

**Clarification Chamber**

**Chlorination Chamber**



SkimOIL®, Inc / 103 W. Weaver Street / Carrboro, NC 27510  
(314) 579-9755 / Fax: (314) 558-9253  
www.skimoil.com

Marine and Industrial Solutions Since 1995

EMAIL: [contact@skimoil.com](mailto:contact@skimoil.com)

## How TheTankMSD Works

### **AERATION**

Sewage is aerated as soon as it enters the treatment system and mixes with the aerated liquid already in the aeration chamber. EPDM Air diffuser injects air near the bottom of the aeration chamber so that the sewage remains in a state of aerobic decomposition. This aerated liquid contains the bacterial sludge that reacts with the sewage to start the reduction process. The movement created by the injected air helps mix the sewage with the bacterial sludge and prevents sludge and sewage solids from settling to the bottom. The air discharged from the surface of the liquid in the aeration chamber is vented to the atmosphere through a vent line connection.

### **CLARIFICATION**

The liquid displaced from the aeration chamber flows into the clarification chamber for further treatment. Some of the suspended material will settle out into the bottom of the chamber below where it will return to the aeration chamber. The remaining sludge and waste material is removed as the liquid flows upward through the biological filter media. Bacteria grows on the surface of the media and produces a sticky, slimy film that traps small particles of waste. The bacteria on the surface of the filter media then consumes the trapped waste. By the time the liquid reaches the top of the filter media it has passed through several layers of bacteria, ensuring that the sludge and waste removal process is completed. Any floating solids are returned to the aeration chamber by means of an air lift pump. Clean water accumulates here until it is displaced into through the crossover line into the chlorination chamber.

### **CHLORINATION**

The water flowing out of the crossover line is directed through a chlorine tablet feeder (Model AT-6T & AT-12T only) coming in contact with the chlorine tablets before entering the chlorination chamber where it is held for a residence time sufficient to complete the disinfectant stage of the process.

### **DISCHARGE**

The disinfected water is then discharged overboard through a gravity overboard discharge connection. If desired, the treated liquid can be pumped overboard by means of an optional discharge pumping system. Note: Discharge is optional.