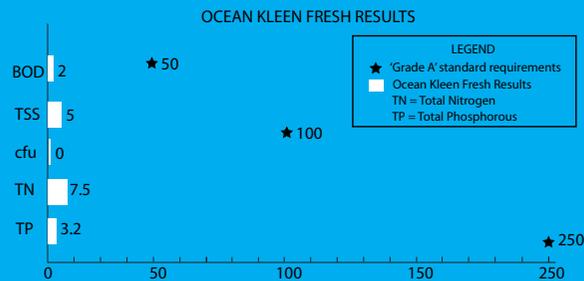
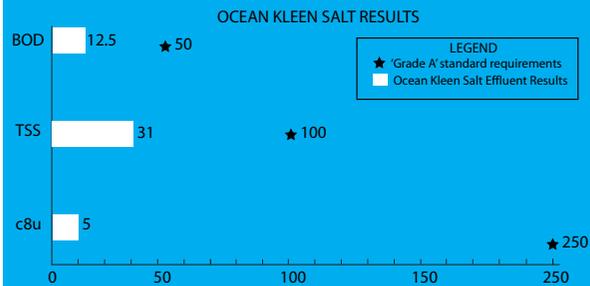


The treatment process

The activated sludge process starts treating all wastewater, ie toilets, bathroom, kitchen, laundry as soon as it enters the aeration compartment.

A complete digestion of organic waste takes place in the oxygen enriched environment in the aeration tank using naturally occurring bacteria, producing treated water of a high quality.



As shown by the graphs the quality of the effluent produced by the Ocean Klean far exceeds the 'Grade A' Standard, with Ocean Klean Fresh exceeding Advanced Secondary.

Dimensions - 4 sizes available

- 2400L x 2000W x 1200H
- 1200L x 1200W x 1200H
- 1200L x 700W x 1200H
- 1200L x 400W x 1200H

Constructed in polyethylene – this lightweight construction makes installation easier and less costly.

Marine Sewerage Systems (Aust) Pty Ltd originated on the Sunshine Coast in Queensland, Australia and supplies the Ocean Klean range of marine products.

For more information please contact us:
Marine Sewerage Systems (Aust) Pty Ltd
 59 Industrial Ave, Kunda Park Q 4556

P 5477 0699
 F 5477 0599
 email: info@oceankleen.com
www.oceankleen.com

YOUR LOCAL DISTRIBUTOR

On board treatment of sewage to 'Grade A' standard for discharge into closed waters

Tested and approved by the regulatory authorities (Qld Transport) including the Queensland Department of Health whilst under the supervision of Queensland Maritime Safety Authority

The treated effluent from this system is within the 'Grade A' standard or Marpol IV



OK For **OCEAN KLEEN™**
 SEWERAGE SYSTEMS

Design features

- Polyethylene rotomoulded tank
- Easy to handle and lightweight
- Speed of installation
- Easily transportable
- Simple connections on site
- Dept Health fully compliant
- High volume emergency storage
- Installation on or below deck
- Cost effective to run

Design requirements

The Department of Transport and the Queensland Maritime Safety Authority have established the standards for the level of treatment of wastewater/ sewage prior to disposal into particular zones is as follows:

The levels of treatment required for the discharge of treated effluent.

- Grade A: BOD<50 TSS<100 cfu<250/100ml
- Grade B: TSS<50 cfu<150 per 100ml
- Grade C: cfu<150/100ml

The company

With restrictions on discharge of waste water becoming a sensitive issue for Boat Owners, Governments and Environmental Departments, an Australian company, 'Marine Sewerage Systems (Aust) Pty Ltd' has designed and developed a treatment system to address the issues that are affecting the marine industry.

With over 30 years experience with domestic and commercial sewerage treatment systems a great deal of expertise has been developed. This has provided a strong base for research and development of the marine sewage treatment system.

The treatment system

There are two distinct processes utilized by the Ocean Kleen system for applications which involve:

1. Treatment of black water using saltwater flush toilet systems.
2. Treatment of black and grey water using only freshwater toilet systems and other fixtures.

We Refer To These Systems As Follows:

Ocean Kleen Salt

Ocean Kleen Fresh

The Ocean Kleen Salt system is designed for the treatment of toilet waste, (black water), with seawater flushing and is able to provide a level of treatment far higher than the internationally accepted Marpol IV standard upon which the 'Grade A' classification is based.

The system promotes the action of naturally occurring marine bacteria to breakdown and consume the waste in a controlled treatment process, which also offers denitrification of nutrients. The waste is converted to CO² and H²O with no unpleasant odours or production of methane gases. This makes it ideal if the system's installation is in the confined spaces within the hull of a boat.

The clear treated effluent is disinfected and is usually held in a suitable storage tank until discharge is legally permitted.

Discharge is not permitted in enclosed marinas, housing canal developments and specially declared 'Environmental Green Zones'. The treatment plant electronics has an optional feature controlled by G.P.S. location that can be added to the system to regulate the discharge of treated effluent in these zones. The electronics control the effluent discharge pump or automatic valve depending on which is installed.

The toilets can either be fitted with a full flush system or a grinder pump for small flush systems. The full flush system has an optional balance tank and grinder pump combo, which can be fitted, while the other includes a grinder pump fitted direct to the toilet.

The Ocean Kleen Fresh utilizes a similar treatment process as in the 'Ocean Kleen Salt' system, however, it is designed to treat the waste from fresh water flush toilets, with the added advantage of including and treating both grey and black water.

The added benefits to using fresh water flush toilets are numerous:

- No offensive odours arising from salt water flush toilet bowls, which have not been flushed for sometime.
- The use of standard dual flush domestic toilet sets which are inexpensive and much more reliable than other 12/24 marine toilets.
- The treated effluent can be reused back through the toilets for toilet flushing to conserve the vessels water supply.
- No jamming or blockages from accidental flushing of sanitary napkins or other extraneous matter.

The 'Ocean Kleen Sewerage Treatment System' utilizes the most effective way of treating sewage, which is similar to the modern municipal treatment plants. Our innovative process provides high quantity and quality of treated effluent in relation to the plants size and is able to handle shock loading by utilizing surge control, which is completely controlled by the systems electronics.

Our ever increasing range of rotomoulded polyethylene products are manufactured under an audited quality controlled program, ranging from treatment plants and holding tanks to marker buoys and pontoons, just to name a few.



OK
For

OCEAN KLEEN™
SEWERAGE SYSTEMS