

**Safe and Easy**

- Simple, safe, and cost-effective solution for even the largest ballast systems
- Noncorrosive to ship's piping and ballast tanks
- Environmentally friendly
- Degrades quickly in fresh and salt water
- Delivered as a safe, easily handled powder

**Effective and Economical**

- Demonstrated effective in destroying harmful aquatic nuisance species found in both fresh and salt water
- Ongoing laboratory and shipboard testing
- 1 to 2 grams of SeaKleen® can treat 1 tonne of ballast water
- Turnkey solutions available
- Effective alternative to ballast water exchange

**Thoroughly Tested**

- Toxicity to mammals, birds, and higher species of fish is extremely low
- Laboratory findings confirmed by shipboard trials
- Applications for approval made to appropriate agencies

# The Natural Ballast Water Treatment Solution

**The Simple, Safe, and Cost-effective Solution to Ballast Water Treatment**

This revolutionary natural product has been demonstrated to be effective in destroying harmful aquatic nuisance species found in ballast water. SeaKleen® is noncorrosive to ship's piping and ballast tanks and is very safe for the environment. Use SeaKleen® to treat ballast water as an alternative to ballast water exchange methods.

**SeaKleen® is Safe to Store and Use on Ships**

The active principal in SeaKleen® is vitamin K, which occurs naturally in mammals, plants, bacteria, and fungi. It is a compound that allows the proper functioning of most metabolic processes in mammals and humans.

Scientific data on the toxicity of this material to mammals, birds, and higher species of fish has been demonstrated to be extremely low. SeaKleen® degrades quickly in fresh and salt water dependent upon the conditions under which it is used. Studies indicate that under normal use SeaKleen® is undetectable after 48 hours. SeaKleen® is delivered in a safe powder that can be handled by crew members with no special training.

# SeaKleen®

## The Natural Ballast Water Treatment Solution

### PRODUCT DATA CONTINUED

#### SeaKleen® is Highly Effective Against a Wide Range of Invasive Species

In laboratory tests, a very low dosage of SeaKleen® has been shown to have significant effects against smaller marine organisms in both fresh and salt water. SeaKleen® has been tested on organisms such as *Isochrysis galbana*, *Neochloris*, Zebra mussel larvae, *Eurytemora*, *Cyprinodon* eggs, *Cyprinodon* larvae, *Vibrio fischeri*, Dinoflagellate cysts, Dinoflagellates, *Neomysis americana*, Benthic amphoid crustacean, Oyster mussel larvae, *Escherichia coli*, as well as Cholera and other test organisms. Independent testing has demonstrated that SeaKleen® is effective even in the presence of sediments.

After treatment, SeaKleen® breaks down into environmentally friendly compounds below toxic levels prior to discharge back into the sea.

Shipboard trials of SeaKleen® have demonstrated that the laboratory findings translate into real conditions. Tests were conducted in the Port of Baltimore aboard the *Cape May*, a 39,000-ton ship in the United States Ready Reserve Force. SeaKleen® was used to treat water taken from Baltimore Harbor and Chesapeake Bay.

Further tests and shipboard trials are planned to demonstrate the effectiveness



#### Eliminates invasive species in ballast water

of SeaKleen®. Applications have been made to appropriate state, federal and international regulatory agencies for required approvals.

#### SeaKleen® is Cost-Effective

Extensive laboratory and shipboard testing has demonstrated that approximately 1 to 2 grams of active material is effective in treating 1 metric ton of ballast water. SeaKleen's® high water solubility makes it suitable as a stand-alone treatment and the extremely low dosage rate (1 to 2 ppm) results in a user-friendly and economically viable ballast water treatment alternative.

#### SeaKleen® is Easy to Use

SeaKleen® is delivered as a soluble powder, which is dissolved in water prior to being injected into the influent ballast water stream. Hyde Marine will offer SeaKleen® in a turnkey ballast water treatment solution to meet a ship owner's unique requirements.



SeaKleen® dose per tonne sea water

*This information is offered as a technical bulletin for informational purposes only and is not an offer for sale of the product until your appropriate State, federal or International regulatory agency has issued any locally required approvals.*

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