

**biototal** marine

shipboard solutions

TECHNICAL DATA SHEET

**BIOTAL MDS 3000**

## BIOTAL MDS 3000

Biototal MDS 3000 is a unique liquid toilet bowl cleaner combining eco-benign® chemistry with application-specific bacteria strains to provide effective cleaning of toilets and surrounding areas, reduced build-up of both inorganic and organic scale and biodegradation of organic matter in the black water systems.

### Product Description

Biototal MDS 3000 biological toilet cleaner is a liquid product that gives great deep cleaning results in the toilet and surrounding areas. The application-specific, naturally occurring microbes degrade human waste by releasing enzymes to provide the deep cleaning effect in the toilet and washroom whilst also preventing the build-up of urine scale and organic matter in sanitation piping systems.

Back in the 1990s, Biototal MDS 2000 was the first liquid biological toilet cleaner in the marine market and it almost created a new verb, to 'Biototal' the pipes. Although many other companies now offer apparently similar products, it is important to differentiate between a product containing bacteria strains chosen specifically for the application and a product containing generic 'off the shelf' bacteria. At Biototal Marine we use our in-house R&D capability to select the optimum bacteria for any particular application and then produce these bacteria in our own state of the art fermentation facility and formulate the bacteria with optimised chemistry to create the Biototal Marine products. We have an ongoing Research and Development program to demonstrate the capabilities of the Biototal Marine strains and this can also show the superiority of the Biototal application-specific strains over those used by competitors. Just as with human beings, not all bacterial strains are the same or will carry out a specific task with the same capability!

Biototal MDS 3000 also incorporates the latest eco-benign® chemistry to help prevent the formation of inorganic scales within the black water system. Scale forms in layers, with the inorganic ions joining together to form a regular and rigid lattice, hence scale is physically very hard and difficult to remove once formed. The scale deposition prevention biopolymer in Biototal MDS 3000 interferes with this rigid lattice, effectively lying between the layers in the lattice meaning that any scale that forms is massively reduced in extent and is also less rigid, making it softer and easier to remove, often by the water flow within the black water system itself.

When used daily as a toilet bowl cleaner, the bacteria in Biototal MDS 3000 biological toilet cleaner form a chemical resistant biofilm throughout marine sanitation systems. This provides a continuous source of bacteria that is highly effective in promoting the breakdown of fats, oils and grease and other organic waste in drainage systems and collection lines as well as reducing the build-up of sludge and deposits in holding tanks. Additionally, the powerful waste degrading bacteria in Biototal MDS 3000 biological toilet cleaner enhance the operation of the sewage treatment system, rather than causing harm as many chemical products do.

Ships with gravity based toilet systems will also benefit from the use of Biototal MDS 3000 biological toilet cleaner, in that not only does it do a great job in keeping crew washroom areas clean and fresh, it also has demonstrable effects on the pipe work, holding tanks and treatment systems. As it is totally safe to use, it reduces the number of dangerous chemicals on board.

### Application Area

The vacuum toilet systems favoured in larger and more modern ships suffer particularly from the build-up of scale and organic deposits in the black water piping due to limited water usage for flushing and the effects of air flow through the pipes. This build-up reduces the internal diameter of piping leading to increased risks of blockages, and also places unnecessary strain on the vacuum system and causes less efficient flushing increasing the risk of unpleasant odours.

Traditional solutions to the problem include treatment with chemicals such as acids, caustic, bleach and strong detergents which are not only dangerous but can kill the bacteria in the on board biological sewage treatment plant. In extreme cases, manual replacement of blocked sections of piping is necessary which is time consuming, labour intensive and expensive.

### Regulatory Environment

A revised Annex IV of the International Convention for the Prevention of Pollution from Ships (MARPOL) entered into force on 1 August 2005 and immediately applied to new ships engaged in international voyages of 400 gross tonnage and above or which are certified to carry more than 15 persons. Existing ships were required to comply with the provisions of the revised Annex IV by 27 September 2008. The Annex requires ships to be equipped with either 1) an approved sewage treatment plant or 2) an approved sewage comminuting and disinfecting system or 3) a sewage holding tank. Thus the management of sewage and sewage systems is one of the many challenges on board today's ships.

## Biotal MDS 3000: Features and Benefits

### Features

- Contains proprietary application-specific bacteria strains chosen specifically for the ability to degrade the waste found in shipboard waste systems
- Eco-benign<sup>®</sup> chemistry to clean toilet and prevent scale deposition in black water collection systems
- Low foaming for maximum vacuum system efficiency
- Very highly biodegradable (>95%)
- Suitable for use in all marine sanitary and sewage treatment systems
- Can be used with common materials such as stainless steel, steel, brass, copper, PVC, polyethylene and polypropylene

### Benefits

- Can be used as the only toilet cleaner with added benefits on the collection pipes and sewage plant
- Bacteria proven able to degrade uric acid based scales
- Eco-benign<sup>®</sup> scale prevention chemistry reduces inorganic scale build-up
- Digests all waste materials associated with black water and toilet wastes (paper, fats, proteins)
- Reduces both organic and inorganic build-up in sewage pipes, particularly in low water usage applications.
- Reduced build-up means lower odours
- Will also have a beneficial effect on the biological sewage treatment plant as opposed to chemical products which can harm it
- Deep cleaning action of the product bacteria in toilet bowls, urinals and surrounding areas that eliminates the source of unpleasant odours and provides an improved working environment
- Easy and pleasant to use, reduces the number of hazardous chemicals on board
- On vacuum systems with a history of severe scale build up scale can be used between descaling operations with Biotal AR 3000 BW
- On ships with gravity systems, when used as the only washroom cleaner, it will clean and freshen washrooms and help to keep pipework flowing well

## Application/directions for use

Flush toilet bowl, squeeze a small amount of Biotal MDS 3000 biological toilet cleaner around the bowl surface, allow a short contact time while the outer surfaces of the toilet are cleaned, then clean bowl surface thoroughly with toilet brush before flushing again.

For urinals activate flush if possible, then squeeze a small amount of Biotal MDS 3000 biological toilet cleaner over the urinal bowl surface allow a short contact time whilst cleaning the outer surfaces of the urinal, then thoroughly brush surface and rinse or activate auto flush again.

Biotal MDS 3000 biological toilet cleaner can also be used diluted 1:9 as a general washroom cleaner on all hard surfaces, wash-hand basin, tiles, floors etc. Dilute 50mls of Biotal MDS 3000 biological toilet cleaner with 450mls of water in a 500 ml trigger sprayer, spray over surfaces to be cleaned then wipe off with a damp cloth or mop, frequently rinsing it out in clean water.

For showers and baths use as above from a trigger sprayer, when finished cleaning squeeze a small amount of Biotal MDS 3000 biological toilet cleaner from the 1L bottle directly down the waste pipe, this will help keep these waste pipes clear of organic build-up.

## Packaging

Biotal MDS 3000 biological toilet cleaner is available in cases of 12 x 1 litre plastic squeeze bottles.

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