biotal marine

shipboard solutions

TECHNICAL DATA SHEET

BIOTAL DC 3000

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Biotal DC 3000 is a highly concentrated, non-acidic liquid product based on latest eco-benign® cleaning technologies, for cleaning in place (CIP) and manual cleaning of marine separators, even at low operating temperatures. It is endorsed by a major separator manufacturer as it does not cause etching of separator parts, thus reducing wear and minimising re-soiling.

Product Description

Biotal DC 3000 is a highly effective, concentrated, non-acidic cleaner specially formulated to remove deposits from the disc stack of marine lube and fuel oil separators using cleaning in place (CIP) techniques.

The surfactant mix used in Biotal DC 3000 is extremely effective at lifting the varnish like deposits found on the separator discs; however after cleaning, the Biotal DC 3000 surfactant mix is also quick breaking. This means that when the solution reaches the bilges or the oily waste tank, the removed soil is no longer emulsified and the oily material separates out from the water. The use of Biotal DC 3000 to clean the lube and fuel oil separators is a way of minimising emulsion problems caused by use of inappropriate cleaning products within the engine room.

The major advantage of the Biotal DC 3000 is the ability to clean at low temperatures. Other cleaners for this application require heating the cleaning solution to around 80°C before the CIP process begins, but extensive testing of the Biotal DC 3000 has shown that it can remove >99% of soiling at temperatures as low as 40°C. The recommended two hour CIP can start as soon as the connections to the centrifuge have been made, rather than waiting for the mixture to heat, saving the crew valuable time. In addition, the formulation is low foaming so there is no need to monitor and control foam, allowing a 'fit and forget' approach to CIP, further saving time. The product is also low odour making it more pleasant to use than many competing acid based products.

Biotal DC 3000 was developed in collaboration with one of the major manufacturers of marine separators. Extensive corrosion testing formed part of the development, so the cleaner is proven to have minimal effects on the metals found within separators.

Biotal DC 3000 is also highly concentrated, with a standardised dilution rate of 1:19, compared with many competitor products which are diluted 1:5 as standard. This means that less product needs to be stored on board and one container delivers many more CIP operations.

Application Area

Marine lube and fuel oil separators (also known as purifiers) are highly engineered machines, and even small amounts of soiling within the disc stack can lead to significant loss of separation efficiency that can threaten the integrity of the engine. Therefore separators should be cleaned frequently to maintain peak performance, and cleaning in place is quicker and easier for the crew compared to dismantling and manual cleaning. Manual cleaning of separator discs with abrasives, or the use of many of the competing cleaners designed for separator cleaning which are highly acidic, can result in etching of the surface of the separator discs, again leading to loss of separation performance and more rapid re-soiling of the discs between cleans.

Certain surfactant based separator cleaners emulsify oils into the water based cleaning liquid, creating very stable emulsions, which then pose a real challenge for the oily water separator on board a ship. This in turn leads to more oily water being stored and requiring disposal in port, at ever increasing costs for the ship operators.

Regulatory Environment

The most important regulations for preventing pollution by oil from ships are contained in Annex I of the International Convention for the Prevention of Pollution from Ships (MARPOL), 1973, as modified by the Protocol of 1978.

Discharge of oil or oily mixtures from ship's machinery spaces, from any vessel, is prohibited unless the vessel is underway, the mixture has been treated by an approved oily water separator, and the oil content is below 15ppm. The authorities have shown a very strong commitment to detection of even the most minor violations of MARPOL Annex I. In addition to large fines amounting to literally millions of dollars, both company management and seafarers can be liable to criminal prosecution and imprisonment for any deliberate violation of Annex I.

The majority of oily water separators on board ships utilise gravity separation of the two phases and cannot deal with emulsified oil, and so if emulsification is present they do not achieve the 15ppm standard to allow discharge of oily water. Thus oily water must be retained on board ship, requiring significant amounts of storage capacity, and subsequent disposal at port facilities is an ever increasing cost for the ship operator. Any operation on board, including the essential cleaning of the lube and fuel oil separators, must not contribute to emulsification in the bilges, sludge or oily waste tanks.

Packaging

Biotal DC 3000 is supplied in 20 litre jerry cans as standard.

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BIOTAL DC 3000: Features and Benefits

Features

- Not acidic so will not etch centrifuge parts
- Contains no solvents or VOCs
- High cleaning efficiency at all temperatures
- No foaming, low odour
- Extensive testing to verify minimum possible corrosion on aluminium, brass, etc
- Highly concentrated: 1:19 dilution as standard compared to 1:5 for most competitor products
- Bilge friendly formulation means CIP liquor will not have a negative effect on the oily water separator (OWS)
- Endorsed by a major marine separator manufacturer
- Highly biodegradable formula
- Not classified as hazardous for transport

Benefits

- High soil removal keeps separators at peak efficiency and protects a major asset, the engine
- Will clean at low temperatures so cleaning time is shorter than if pre-heating required
- Low temperature cleaning capability and non-acidic nature make manual cleaning quicker and safer
- Reduces risk of costly on shore oily waste disposal
- Concentrated formula means less product needs to be stored
- Easy and pleasant to use

Application/directions for use

For CIP cleaning lube and fuel oil separators:

- Shut off the oil flow and stop the separator. Remove the oil inlet and oil and water outlet lines and make the connections between the inlets and outlets and the CIP Unit
- Mix 1 part Biotal DC 3000 with 19 parts hot water in the CIP system tank
- For Alfa-Laval separators, it is recommended to consult the addition table they provide to ascertain the correct water and CIP liquid volumes for the machine being cleaned
- Start the separator manually, close the bowl and start the CIP pump so cleaning liquid is circulating, according to the manual for the CIP system
- The recommended temperature for cleaning is 40-90°C but there is no need to pre-heat the cleaning solution before starting the CIP process
- CIP for two to three hours, then discharge the separator at regular intervals until the CIP tank is empty
- Refill the CIP tank with clean water, circulate for a short while, then discharge the water and stop the separator
- Disconnect the CIP hoses and reconnect the oil and water outlet and the oil inlet. The machine is then ready to re-start normal fuel or lube oil separation operations

Biotal DC 3000 can also be diluted and used for manual cleaning of lube and fuel oil separator bowl parts but care should be taken with the tools to be used to avoid scratching the bowl discs.

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