BCI-103

Oil terminals & refineries and petrochemical production plants produce effluents that contain a complex mix of compounds. These compounds are derived from the crude oil that is the primary feedstock for these plants. Among the compounds found in these effluents are aliphatic, aromatic, polar and asphaltenes. The compounds can range from volatile aliphatics and aromatics to heavy tars and waxes. Since there is such a structurally complex range of hydrocarbons present it can be difficult to establish an efficient biomass to treat it. It is therefore important to select a product with a broad range of strains and degradative abilities. The product of choice is BCI-103.

Situations in which the use of BCI-103 is beneficial include :-

- Plant start up
- Poor floc formation
- Poor settlement
- Shock recovery
- Poor final effluent quality
- Re-seeding
- Variable loadings

Bio-Chem harnesses the power of environmental biotechnology to deal with the problems in the treatment of effluent from refineries and petrochemical processing plants. This is achieved by the use of products such as BCI-103 that contain a range of microbes with the ability to efficiently degrade the range of organic chemicals especially Hydrocarbon in such effluents.

What is BCI-103?

BCI-103 consists of a carefully selected blend of natural micro-organisms that have been specially adapted to efficiently degrade hydrocarbons. These include aliphatics, aromatics and polar compounds. The strains chosen for the formulation can produce the complete range of enzymes required to effectively degrade complex chemicals found in refinery effluents. These strains have the ability to grow at a fast rate so that they can quickly establish dominance in the biomass and restore performance.

The product contains a number of strains that have the ability to produce good floc structure. This assists in the production of a biomass that will settle well and produce a well clarified final effluent. Since the bulk of the hydrocarbons in the wastewater have limited or no solubility in water the key to their degradation is the production of biosurfactants. These biosurfactants help to solubilise the hydrocarbons so that they can be efficiently degraded by the micro-organisms, even in higher water salinity. The strains in BCI-103 are very effective producers of bio-surfactant that able to expedite degradation of HC compound into simpler carbon chain for further degradation and bacterial metabolic absorption. This is a key benefit from the use of the product since the degradation rate is controlled by how quickly the hydrocarbons can be solubilised.

The strains in the product have been isolated from the natural environment so they work in harmony with the existing biomass and increase its overall efficiency so that plant performance is restored as quickly as possible.

The type of systems in which BCI-102 can be used include:-

- Activated sludge
- Pure oxygen systems
- Biotowers
- Sequencing batch reactors
- Aerated lagoons

The microbial strains are produces as single pure cultures, harvested, stabilized on a cereal base and blended together to produce the final product. Extensive checks are conducted throughout the process to ensure purity and quality of the product.

Directions for use

The product as supplied is on a cereal base so it is important that the bacteria are rehydrated before use. This is achieved by adding the required quantity of product to lukewarm (~30°C) water in a suitable container. Apply 1 part product to 10 parts water, stir well and allow to stand for 1 hour before application. Apply the rehydrated product immediately prior to the aerated section of the treatment plant e.g. into a drain, pump sump or return sludge line. To get immediate and optimum result will be to conduct Bug-farming programme for Bio-seeding.

Since each application is different and has different characteristics it is important to assess the site before deciding on a dosing programme. The Bio-Chem's Technical Department provides assistance in assessing the site and devising a treatment programme.

Product safety

The micro-organisms in BCI-103 have all been isolated from natural environments. They have not been genetically modified in any way. These microbial strains have been classified as being harmless to humans, animals and plants. The product is subjected to independent testing to ensure that it is free of *Salmonella* and other contaminants.

For further information on dosing programmes and product application please contact :-

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