BCN-100

The Biological degradation of the effluent from many industries and, indeed petrochemical & municipal effluent, gives rise to the production of Ammonia (NH_3) in addition to Carbon Dioxide (CO_2) and water (H_2O). Since Ammonia is toxic to fish and other aquatic life at very low levels and can lead to eutrophication in receiving waters it is extremely important that it is removed before final discharge. This removal process is known as Nitrification and involves the oxidation of Ammonia. The process is carried out by specialised organisms called nitrifying bacteria. These organisms grow at a very slow rate compared to the other microbes in a wastewater treatment system and are very sensitive to chemicals and environmental conditions. It is therefore very easy for Nitrification activity to be lost and it can be slow or difficult to restore. Under these circumstances the proactive approach is to add nitrifying cultures such as BCN-100.

Situations in which the use of BCN-100 is beneficial include:-

- Plant start up
- Re-seeding
- Marginal sludge age
- Shock recovery
- Ammonia overload
- Air emission control

BCN-100 uses only harmless, natural microorganism that deal with the problem by oxidizing the ammonia in a highly effective and environmentally acceptable way.

What is BCN-100?

BCN-100 is a product that has been specially formulated to contain Nitrosomonas species and Nitrobacter sp.. These organisms are involved in the first stage of nitrification - the oxidation of Ammonia (NH_3) to nitrite (NO_2) and subsequently to Nitrate (NO_3). This is the rate-limiting step in the Nitrification process so if it is not working efficiently the whole process becomes very slow or stops completely. The BCN-100 contains active cultures that will start to oxidise the Ammonia as soon as they are added to the system. The strains in the product work in harmony with the existing biomass and increase its overall efficiency so that plant performance is restored as quickly as possible. Since nitrifiers grow very slowly in a wastewater treatment system it is important to add strong active cultures so that Nitrification can be quickly restored.

Nitrifiers will only operate under conditions where the removal of BOD and COD is relatively complete. They are very sensitive to various chemicals so it may be necessary to use other BCI-series products to remove toxicity before starting a dosing programme using BCN-100.

The types of systems in which BCN-100 can be used include :-

- Activated sludge
- Attached growth system
- Pure oxygen system
- Oxidation ditches
- Aerated lagoons
- Biological gas scrubbers / Biofilters

Directions for use

BCN-100 contains active cultures and is stored at temperatures of 4 – 6°C. Therefore it is important that the product is acclimatised before addition to the system. This is achieved by adding the required quantity of product to lukewarm (~30 °C) water in a suitable container via Bug-farming process for ~ 8 hours. Apply the acclimatized product immediately prior to the aerated section of the treatment plant e.g. into a drain, pump sump or return sludge line.

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 BCN-100 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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