



BCI-109

The effluent arising from the production of organic chemicals can contain a very wide range of compounds. Due to the nature of the processes used in chemical synthesis there can be major variations in the composition of the influent of the treatment plant. Some of the aromatic chemicals involved are phenols, benzene, toluene, ethyl benzene, xylene (BTEX), aniline etc. Some of the industries which produce effluents containing these aromatic include :-

- Pharmaceuticals
- Solvent production
- Agrochemicals
- Petrochemicals
- Wood preservatives
- Polymers
- Tanneries
- Paints
- Textiles
- Steel mills

Since there is such a wide diversity of industries and of aromatic compounds present in these effluent it is important to have a microbial product with a broad range of strains capable of dealing with the problem.

Typical situations in which the use of BCI-109 is beneficial include :-

- Plant start up
- Poor settlement
- Overloaded plants
- Odour removal
- Poor BOD/COD removal
- Removal of toxicity to nitrification
- Shock load recovery

Bio-Chem harnesses the power of environmental biotechnology to deal with the problems in the treatment of effluent from the chemical industry containing aromatics. This is achieved by the use of products such as BCI-109 that contain a range of specialized microbes with the ability to efficiently degrade a broad range of organic chemicals.

What is BCI-109?

BCI-109 is composed of a carefully selected blend of natural micro-organisms that have the ability to efficiently degrade a wide range of simple aromatic chemicals. These include phenols, cresols, aromatic amines, BTEX, nitrobenzene, mercaptans, cyanide, etc. The use of a wide range of strains ensures that the range of aromatic chemicals found in many chemical effluents can be effectively degraded. The strains chosen for the formulation can produce the complete range of enzymes required to degrade simple aromatic chemicals using a process of aromatic ring fission. These strains grow at a fast rate so that they can quickly establish dominance in the biomass, which is the heart of the wastewater treatment system. The product contains strains that have the ability to produce good floc structure. This helps to produce a biomass that will settle well and



produce a clear final effluent. Since many aromatic chemicals can prove to be toxic to the micro-organisms that are responsible for nitrification it is important to efficiently degrade these compounds so that toxicity to nitrifiers is reduced. The cultures in BCI-109 can provide this function. This is a key benefit from the use of the product since nitrification can be slow to restore once it is lost. 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-109 can be used include:-

- Activated sludge
- Pure oxygen systems
- Biotowers
- Sequencing batch reactors
- Aerated lagoons
- Biological scrubbers / Biofilters

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 ($\sim 30^{\circ}\text{C}$) 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.

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-109 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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