



BCI-108

Sulphides develop in wastewaters from the anaerobic decomposition of organic matter containing sulphur or from the reduction of sulphites and sulphates. The most common sulphide encountered is hydrogen sulphide (H₂S). This is a colourless, inflammable gas with the characteristic odour of rotten eggs - a foul smell.

Odour control is a major concern in the operation of many municipal and industrial wastewater treatment plants. Foul odours are a public nuisance and give rise to unfavourable publicity. Environmental legislation is becoming stricter all the time especially in relation to odours / air emissions released adjacent to sensitive areas such as housing, recreation parks, schools, etc.

The blackening of wastewater and sludge usually results from the formation of H₂S which in turn combines with the iron present to produce ferrous sulphide - which produces a noxious odour when disturbed e.g. when pumping wastewater from storage lagoons or when wasting and thickening sludge.

H₂S released to the atmosphere above the wastewater in sewers not flowing to full capacity tends to accumulate at the crown of the pipe. H₂S can be oxidised to produce sulphuric acid that will attack both cast-iron and concrete sewage pipes - this corrosion can be severe enough to cause collapse.

H₂S is toxic to nitrifying bacteria. These bacteria are highly sensitive and if H₂S is present even at low concentrations the nitrifying biomass can be wiped out. The result is lost nitrification, increased levels of ammonia in the final effluent, possibility of fish kills if final effluent is discharged to a sensitive river as well as heavy fines if discharge licence is exceeded.

Build-up and accumulation of H₂S in enclosed areas such as pump sumps can be detrimental to the health of the operator. In many pump sumps the operator has to descend a ladder to check or repair a float, etc. If gas has accumulated in this area then the health and safety of the operator is comprised.

BCI-108s is a biological product that has capabilities of oxidising H₂S and other reduced sulphur compounds to produce non-harmful, non-corrosive, odourless end products.

Typical situations in which the use of BCI-108 is beneficial include:-

- Treatment of odours associated with primary and secondary sludges
- Removal of H₂S associated with storage of wastewater for long periods of time
- Removal of toxicity in wastewater associated with nitrification
- Seeding or reseeded of biological gas scrubbers / biofilters
- Prevention of build-up and accumulation of H₂S gas in enclosed spaces.

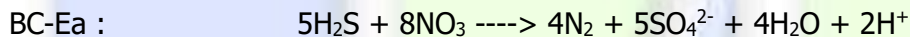
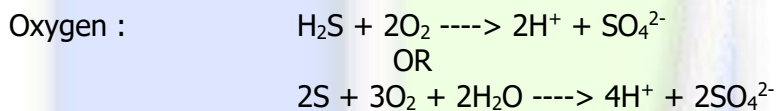


BCI-108 uses only harmless, natural microorganisms that eliminate the problem by oxidising soluble sulphides in a highly effective and environmentally acceptable manner.

What is BCI-108?

BCI-108s is a biological product specially formulated to provide chemolithotrophic microbial strains that effectively oxidise H₂S and other reduced sulphur compounds to ultimately produce sulphate. Oxygen or BC-Ea formulation are used as terminal electron acceptors.

The equations below illustrate the route of oxidation in the presence of oxygen or nitrate.



The microbial species in BCI-108s grow slowly so it is important to add sufficient numbers so that an effective population is generated as fast as possible. Regular maintenance dosing will sustain biomass and performance.

In industrial wastewaters, alkalinity in excess of 50mg/l expressed as CaCO₃ may be required.

The types of systems in which BCI-108 can be used include:-

- Biological gas scrubber / Biofilter
- Pump sump
- Sewerage pipe network
- Storage lagoon
- Anoxic tank
- Primary sedimentation tank
- Thickened sludge storage tank
- Sludge press

BCI-108 can be used with other BCI series products to address additional problems in a system.

Storage

Refrigerate BCI-108 upon receipt and maintain storage at below 5°C. **Do not freeze.**

Directions for use

BCI-108 is a liquid, tan coloured, turbid product containing active cultures, which must be stored at low temperatures as mentioned above. It is important that the product is



acclimatized before addition to a system. 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.

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 and recommending a suitable dose point.

Product safety

The micro-organisms in BCI-108 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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