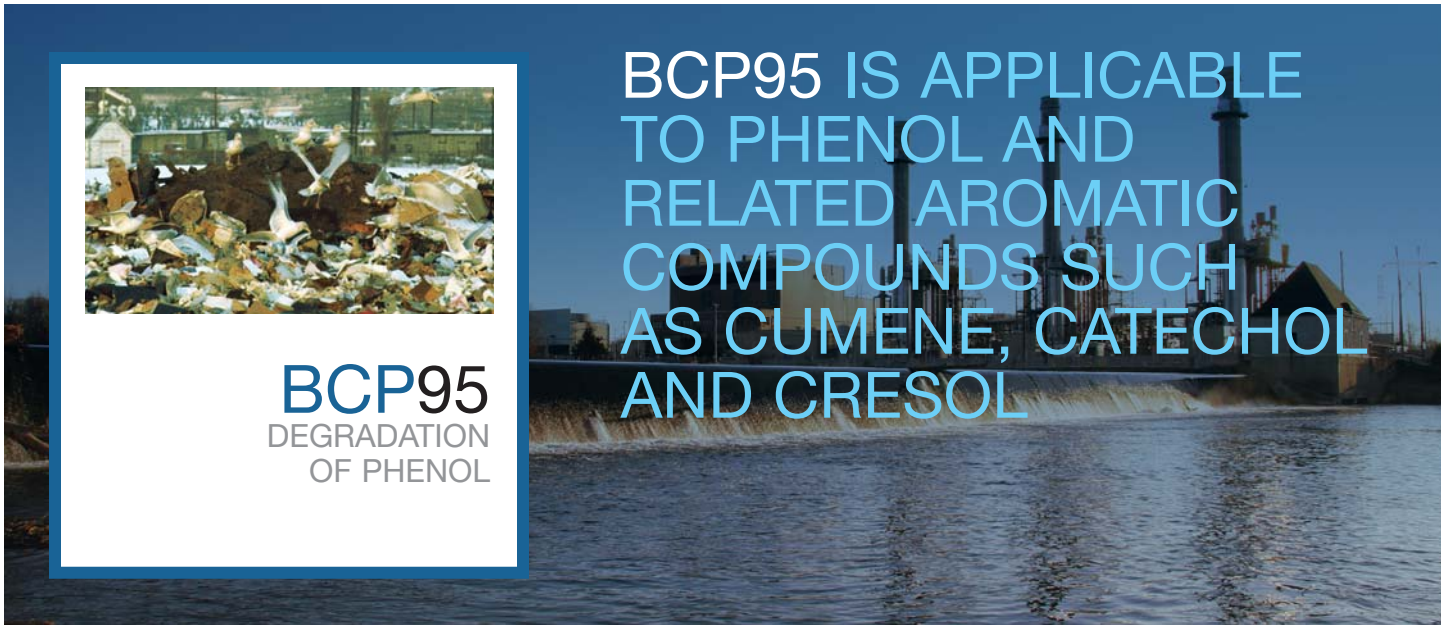

BCP95
DEGRADATION OF PHENOL

BCP95 IS APPLICABLE TO PHENOL AND RELATED AROMATIC COMPOUNDS SUCH AS CUMENE, CATECHOL AND CRESOL

Applicable processes include steel coking, coal conversion, petroleum cracking, plastic resins and pharmaceuticals.

BIOAUGMENTATION WITH BCP95 CAN:

- Help plants recover from toxic shocks caused by phenol and related compounds;
- Prevent poor removal efficiencies, disrupted flocculation, or general plant upsets that result from variable phenolic loadings;
- Reduce the inhibitory effects of phenol by increasing the growth rates and viability of phenol-degrading biomass;
- Degrade various halo-substituted aromatics such as bromo- and chlorophenols.

PRODUCT TEST

Background – In order to accelerate the treatment of a series of lagoons (aerobic and anaerobic) at a landfill site in Quebec, a treatment program based on nutrient balance and selective bioaugmentation was instituted. The program was based on the physical and chemical properties of the incoming water, and the volumes and flow rates of the lagoons. The anaerobic lagoon had been sampled for 6 months and results showed that phenol, nitrogen ammonia, COD and BOD levels were considerably higher than the allowable limits.

Treatment –
First the balance of nutrients (C:N:P) in the lagoons was adjusted with the addition of phosphoric acid. Then calculated amounts of BCP95 and BCP655 were added, along with calcium nitrate to help boost the initial seeding. Products for cold temperatures were used as this treatment took place at water temperatures lower than 10°C. The water-soluble pouches of bacteria were added to the surface of the lagoon and the water in the lagoon was kept circulating with a pump. The lagoon was tested 5 to 7 days after initial treatment to check BOD, COD, nitrogen ammonia, phenol and residual phosphorous levels. A week after treatment start-up, maintenance dose of BCP95 and BCP655 were added at the entrance to the lagoon. This sequence of treatment was repeated every 5 to 10 days until readings reached the allowable contaminants level and water was then release to the environment thus limiting the risk of overflow of the lagoon during the rainy season.

Results – Test results during and following the treatment with BCP95 and BCP655 showed that phenol, nitrogen ammonia, COD and BOD levels were reduced below the allowable discharge limit. BCP95 is effective in increasing the efficiency of phenol removal from incoming contaminated water in both cold (below 10°C) and warm waters.

SPECIFICATIONS

Description	Tan colour, free-flowing powder
Packaging	250g water-soluble packages; 10kg plastic pail
Stability	Max. loss of 1 log/yr
pH	6.0 – 8.5
Temperature Range	5°C (41°F) - 40°C (104°F)
Bulk Density	0.5 – 0.61g/cm^3
Moisture Content	15%
Nutrient Content	Biological nutrients and stimulants
Bacteria Count	5 billion per gram
Storage and Handling	DO NOT FREEZE! Store in a cool dry location. Do not inhale dusts. Avoid excessive skin contact. See MSDS.

Bionetix INTERNATIONAL *We work for nature*

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BCP95
DEGRADATION OF PHENOL

APPLICATION INSTRUCTIONS

Treatment Plants –

Flow Rate	Initial Dosage	Maintenance**
Up to 0.1 L/sec	0.5kg/day for 3 days	0.5 kg/week
Up to 0.5 L/sec	0.5kg/day for 3 days	1.0 kg/week
Up to 2 L/sec	5 kg*	1.5 kg/week
Up to 5 L/sec	8 kg*	2.0 kg/week
Up to 25 L/sec	15 kg*	0.25 kg/day
Up to 50 L/sec	25 kg*	0.5 kg/day
Up to 100 L/sec	50 kg*	1.0 kg/day
Up to 500 L/sec	50 kg/100 L/sec*	1 kg/100 L/sec/day
Up to 1,200 L/sec	50 kg/100 L/sec*	0.75 kg/100 L/sec/day
Up to 10,000 L/sec	30 kg/100 L/sec*	0.5 kg/100 L/sec/day

*Spread this initial dosage out over the course of 10 days.
** Add as regularly as possible. If one day is missed, double the daily dosage the next day.

Dosage rates will vary with flow rates, retention times and system variations. The rates above are for a typical, well-maintained system.

Activated Sludge Systems – Activated Sludge Systems include various process flow sheets: e.g. extended aeration, contact stabilization, step aeration, oxygen activated sludge.

The application rate for all products is based on the average daily flow rate to the aeration basin, excluding the return sludge stream.

Trickling Filter and Rotating Biological Contactors – The application rate for all products is based on the average daily flow rate to the filter or contactor, excluding any recirculating process stream.

Lagoon Systems –

- ***Aerated systems –*** application rate is based on the average flow rate to the lagoon.
- ***Facultative systems –*** application rate is based on the lagoon surface area:

Day 1-5	20 kg/10,000m^2/day
Day 6+	2 kg/10,000m^2/week

- ***Anaerobic systems –*** Application rate is based on the total volume of the anaerobic lagoon:

<200,000 L	1 kg – 2x/week/10,000L
>200,000 L	0.5 kg – 1x/day/10,000L

- ***Lagoons in cold climates –*** commence program when the water temperature is at least 11°C (50°F).

For further information about applications, contact your BIONETIX technical representative.