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### "DEGRADATION OF AROMATIC COMPOUNDS USING MOVING BED BIOFILM REACTORS "

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#### Abstract:

For biological treatment of water, there are many different biofilm systems in use. Examples of them are trickling filters, rotating biological contactors, fixed media submerged biofilters, granular media biofilters and fluidized bed reactors. They all have their advantages and disadvantages. Hence, the Moving Bed Biofilm Reactor process was developed in Norway in the late 1980s and early 1990s to adopt the best features of the activated sludge process as well as those of the biofilter processes, without including the worst. Two cylindrical moving bed biofilm reactors were used in this study working in upflow stream conditions. Experiments have been done in aerobic batch flow regime. Laboratory experiments were conducted at room temperature (23–28° C) and synthetic wastewater comprising a composition of phenol and hydroquinone in each reactor as the main organic constituents, plus balanced nutrients and alkalinity were used to feed the reactor. The ratio of influent to effluent COD was determined at different retention times. The results indicated that the removal efficiency of each selected compound is affected by the detention time. At low phenol and hydroquinone concentration (from 700 to 1000 mg/L) maximum removal efficiency (over 80 %) was obtained. By further increasing in COD loading rate up to 3000 mg/L, a decrease in COD removal rate was occurred. In the reactor containing pyrogallol in COD of 1500 mg/L, the removal rate decreased to 10 percent because of its toxicity for microorganisms.

#### Keywords:

Hydroquinone . Moving Bed Biofilm reactor . pyrogallol

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