

DETERMINATION OF THE MOST EFFECTIVE SIZE OF MOVING BEDS FOR “MBBR” SYSTEM

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by

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Abstract

MBBR is Moving Bed Biofilm Reactor. This is the modern technology of waste water treatment in world. This biological process is used for waste water treatment both municipally and industrially for BOD removal, nitrification and de-nitrification.

MBBR consists of a tank with submerged but floating plastic (usually HDPE, polyethylene, polypropylene) media having specific gravity less than 1.0. The large surface area of the plastics provide abundant surface for bacterial growth. Biomass grows on the surface as a thin film whose thickness usually varies between 50-300 microns. Medium or coarse bubble diffusers uniformly placed at the bottom of the reactor maintains a dissolved oxygen concentration higher than the 2.5-3 mg/L for BOD removal. Higher DO concentration is maintained for nitrification. To retain the media flowing out of the tank, screens are placed on the downstream walls. A clarifier or a DAF is placed downstream of the MBBR tank to separate the biomass and the solids from the waste water. Sludge recycle is not required for this process.

There are several sizes of moving bed. These sizes are indicated as PE01, PE02, PE03, PE04, PE05 etc. This research is done for determination of the most effective size of moving bed for reducing COD in dye waste water.