

results indicate the potential of the waste water treatment process by activated sludge in air-lift reactor, with chemical oxygen demand removal rate of 85.6/.

- 1) Siegel, M. H., Brenner, A. & Merchuk, J. C. *Trans I Cheme* (72B), 1994
- 2) Ramalho, R. S. *Introduction to waste water treatment process*. 2^a ed., New York: Academic Press, 580 p, 1983.

WE 5319 DETERMINATION OF KINETICS OF ENDOGENOUS RESPIRATION IN THE ACTIVATED SLUDGE PROCESS IN THE SEQUENCING BATCH REACTOR (SBR)

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endogenous respiration, Sequencing Batch Reactor (SBR), Chemical Oxygen Demand (COD)

In this work it was studied the endogenous respiration of activated sludge process in Sequencing Batch Reactor (SBR) to the synthetic waste water treatment. A reactor was constructed in plane glass with square section of 20 cm with useful volume of four liters. The COD of the synthetic waste water used in these experiments is around 1,600 mg/L. It was possible to reduce 71% to 97% of COD with flow rate of 1040 mg/L and 420 mg/L respectively. The settling characteristics of the sludge were good with the sludge volume index (SVI) around of 30 ml/g.

- 1) Metcalf & Eddy, *Wastewater Engineering*, 3^a ed. New York: McGraw Hill, 1991. 1334 p.
- 2) Páca, J. *Changes in Catabolic Activity of Baker's Yeast during Continuous Biomass Production on Sulfite Liquor*. October, 194-198 p. 1984.
- 3) American Society of Civil Engineers (ASCE). *Standard Methods for the Examination of Water and Wastewater*. 16^a ed. (APHA, Washington), 1985.

WE 5401 CHLORO- AND NITRO-AROMATIC DEGRADATION BY MICROORGANISMS ON GAC COLUMNS

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biofilm, GAC, CSLM, SEM, aromatics

Several microbial consortia capable of degrading either chloro- or nitroaromatic compounds (chlorophenol, nitrophenol, chlorobenzene) were isolated, by batch enrichment, from a chloroaromatic contaminated site in Northern Portugal. The degradation kinetics of the aromatic compounds were determined, when supplied to the microbial populations both individually and as mixtures. A biofilm was established on a packed-bed GAC column reactor. Inoculum for the column was supplied from the batch grown chlorophenol degrading bacterial consortia, using a closed recirculation system. The formation of the biofilm at different depths along the length of the column was monitored by Confocal Laser Scanning Microscopy (CLSM) and Scanning Electron Microscopy (SEM). The column was supplied with a continuous flow of chlorophenol contaminated water when microscopy studies demonstrated that a suitable biofilm had been established. Chlorophenol disappearance and chloride liberation were monitored. The effect of chlorophenol adsorption to GAC both prior to and after inoculation and the effect of different supplied chlorophenol concentrations, on the development of biofilm communities was also investigated.

WE 5402 EFFECT OF OPERATIONAL PARAMETERS ON XENOBIOTIC REMOVAL PERFORMANCE OF BIOFILM REACTOR

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biodegradation; removal efficiency; specialised microbial strain; xenobiotics

p-Toluenesulphonic acid degradation by *Comamonas testosteroni* T-2 was studied in a continuously operated structured packing fixed bed biofilm reactor at several aeration and dilution rates under non-sterile conditions. Static mixer elements (Sulzer Chemtech Ltd., Switzerland) were used as a support matrix for biofilm formation. The influence of reactor recirculation and aeration on p-toluenesulphonate degradation by *Comamonas testosteroni* in multi-species biofilm was studied.