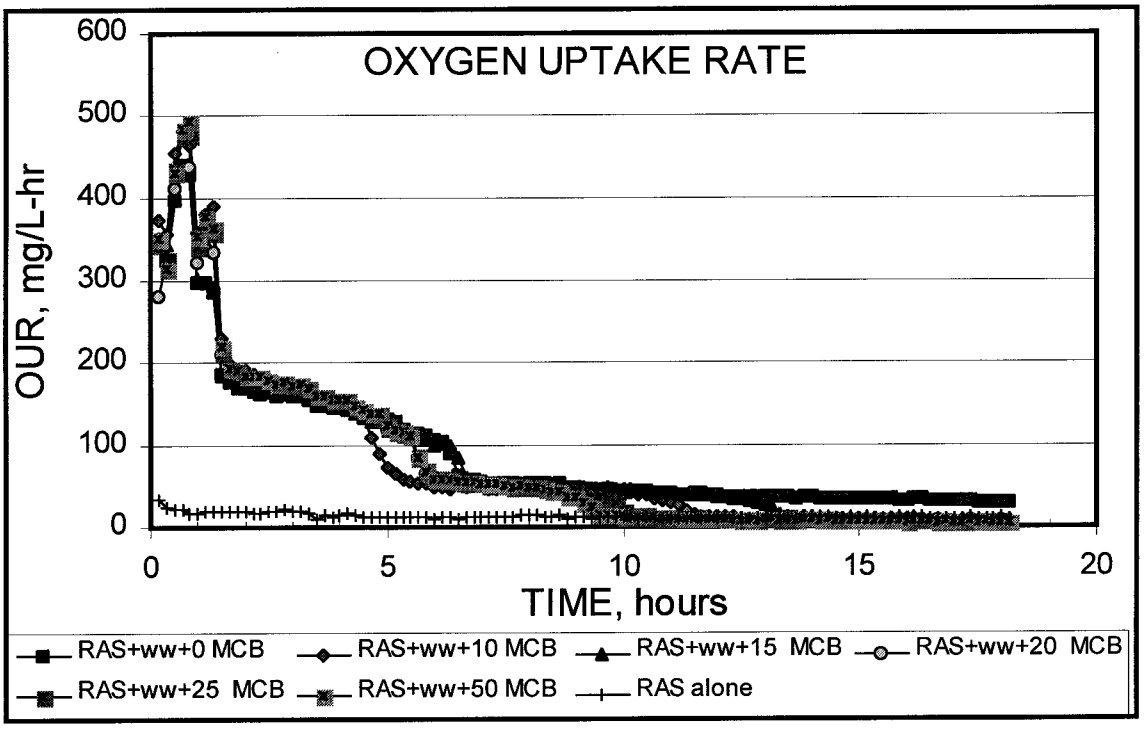
Pharmaceutical Wastewater



A pharmaceutical company was interested in knowing whether a specific component, MCB, inhibited the biodegradation of other wastewater constituents. A series of respirometer tests was set up using identical mixtures of wastewater and return activated sludge (RAS) plus varying amounts of MCB. The OUR fingerprint of this wastewater includes a first peak of about 500 mg/L-hr within the first hour of contact that represents the oxidation of highly-biodegradable organic constituents. A second group of readily biodegradable constituents caused a second high OUR peak between one and two hours. The relative position of OUR curves suggests that this peak represented the biodegradation of the MCB test chemical. This second OUR peak was followed by oxidation of a slowly degrading group of organic constituents that were completely oxidized between five and seven hours of contact. Oxygen uptake between seven and thirteen hours represents the biodegradation of a final group of constituents – possibly nitrification – before the OUR returns to endogenous rates. The fact that the OUR returned to endogenous rates indicates that essentially all the organic constituents of the wastewater were degraded.