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TITLE: **AEROBIC BIODEGRADATIONS OF MONONITROTOLUENES: BATCH AND CONTINUOUS PROCEDURES, CATABOLIC INTERACTIONS, AND MICROBIAL ANALYSES**

ABSTRACT: Nitrotoluenes are used in the manufacturing of dyes, herbicides, pharmaceuticals, and explosives. They are often released to surface water in waste streams. This contribution describes experimental results of biodegradations carried out in our labs. The investigation comprises aerobic degradations that were performed in batch and continuous processes. The following impacts on degradations were tested in batch processes: the presence of an additional carbon an energy source, the presence of an additional nitrogen source, the nitro group position and the degradation of MNT mixtures. Then the degradation rates of the individual NT isomers degraded as pure compounds and in a mixture were evaluated. Continuous degradations were carried out in a packed bed reactor (PBR) with a cocurrent waste water-air flow and in excess of oxygen. Measurements were performed under steady state conditions. The degradation rates of the individual NT isomers being degraded individually and in a mixture and the entire degradation rates for different modes of loading were evaluated. Metabolic interactions resulting in the inhibition of the degradation rates of all the NT isomers during a degradation of the NT mixture were proven. Also microbial analyses regarding the inoculum composition the biofilm composition, and the biofilm surface structure after 124 days of continuous PBR operation were carried out and will be discussed.

Tuesday, September 14, 2004, 4:00pm,

AG ENGR Bldg. 105

Refreshments Will Be Served