ENHANCEMENT OF THE KINETICS OF INCINERATION OF DILUTE HAZARDOUS ORGANIC VAPORS

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Abstract

The oxidation of dilute hazardous organic vapors (HOC) in air, sometimes called "afterburning", is often used to destroy a wide variety of organic pollutants before then are emitted to the atmosphere. High temperatures are needed for the high efficiency (>99%) destruction of odors, paint solvents, chlorinated hydrocarbons and other hazardous organics. The need for high temperatures sometimes results in the formation of other hazardous pollutants, such as dioxins. Addition of a material that could enhance the kinetics of the oxidation reactions in the post-flame zone could result in lower temperatures and thus prevent the formation of other hazardous compounds. Research proposed to test possible "enhancers" (hydrogen peroxide and ozone) for two specific HOCs of industrial significance is discussed.

SUPERCRITICAL EXTRACTION OF ORGANICS FROM WATER AND SOIL

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Abstract

Phenol, a common priority pollutant, was extracted from two environmental matrices, soil and water, by using near critical and supercritical carbon dioxide. The primary objective of this study was to determine the distribution of the contaminant between the soil or water and the supercritical phase, and the effect of soil moisture and co-solvents on the distribution coefficients. Static equilibrium extractions were performed on dry and wetted soil contaminated with 1 wt.% phenol and on water containing 6.8 wt.% phenol. Supercritical carbon dioxide (with and without entrainers) was chosen as the solvent for the study. An appropriate entrainer for dry soil extractions (methanol) differed from that found for aqueous extractions (benzene). However, soil mois-