

***Ex-situ* Bioremediation of Trichloroethylene (TCE) Contaminated Soil under Anaerobic Condition –**

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Summary

TCE artificially contaminated soil was cleaned under anaerobic, reductive conditions. A laboratory scale treatability studies were carried out to determine optimal physico-chemical and microbiological parameters for bioremediation process. Upon treatability studies results a sewage sludge mixture was chosen as a microorganism's source. The chlorinated solvents contaminated soil bioreactor (CSCS bioreactor) was designed and built. It consists of a 6 m³ reactor vessel, a gas recirculation system, a leachate recirculation system and a data acquisition system. The bioreactor vessel was designed as a continuous gas flow packed bed reactor. During 210 days 4 Mg of soil containing approximately 350 mg TCE/kg of soil has been completely remediated under anaerobic conditions. The obtained results indicate that the stepwise dechlorination of TCE to ETH occurs in the bioreactor. Increasing amounts of chloride in the leachate were correlated with dechlorination.