

A Study of Trichloroethylene (TCE) Sorption on Various Building Materials

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Trichloroethylene (TCE) is a volatile organic compound (VOC) classified as a potential human health hazard. Vapor from groundwater contaminated by TCE could be introduced into the indoor air environment. It is well acknowledged that building materials could affect indoor air quality by adsorbing and releasing VOCs, decreasing the peak concentration and prolonging the exposure time. Therefore, it is important to study how indoor VOCs concentrations might be affected by sorption processes and how this will impact the risk of exposure to these chemicals. In widespread vapor intrusion problems, TCE is a VOC of significant current concern, particularly when it is at low concentration. In this project, adsorption isotherms and partition coefficients data will be collected to understand the equilibrium and dynamic process of different building materials, using experimental chamber method and gas chromatography (SRI 8610C). The adsorption and desorption parameters could improve the computational vapor intrusion model to predict the real indoor contaminant concentration.

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