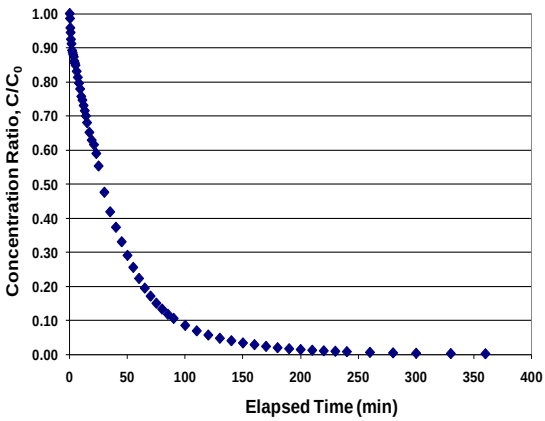
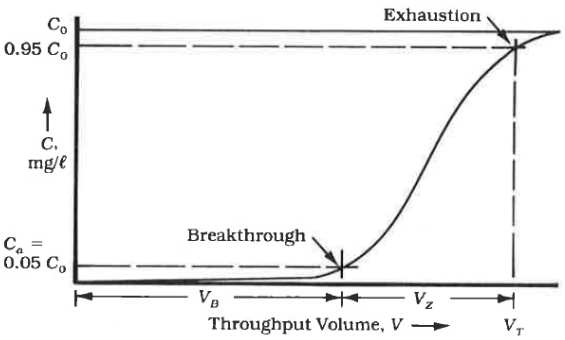
The Use of Adsorption as an Advanced Drinking Water Treatment Process

Objectives: As environmental regulations further restrict allowable discharges of various contaminants , research to develop processes that provide advanced treatment of drinking water sources so as to minimize the amount of contaminants (such as heavy metals) in drinking water becomes increasingly important. A process that is now being studied extensively for use in this type of application is a physical process known as adsorption. The goal of this mini-project is for students to integrate the results of experiments they will perform with the research results already available in scholarly literature to assess the suitability of adsorption as an advanced drinking water treatment process.

Multidisciplinary Nature of the Mini-project: This mini-project will provide teams of students with an opportunity to develop many basic skills necessary regardless of the specific engineering discipline the student plans to study. In addition, this mini-project will demonstrate how environmental engineering is a discipline that is significant to engineers who are trained both as Civil/Environmental Engineers and as Chemical Engineers.



Course Structure: The experimental aspects of this mini-project will include performing batch experiments and continuous (packed column) experiments to study the removal of copper from a simulated wastewater source. Based on the results of the experiments performed by ***all*** of the students enrolled in the class, and process-related design information presented in class, each team of 3 students will be responsible to design a field-scale process that would produce an effluent that complies with regulations. Short lab reports, design calculations and a poster presentation are the major "deliverables" in this mini-project.



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