

Simulation of Phenol Adsorption in a Packed Bed Column

Abstract

Water pollution is a very persistent problem. The intensive throwing up of different toxic substances without control constitutes a real danger for humanity. Phenolic compounds are common contaminants in wastewater, generated by petroleum and petrochemical, coal conversion and phenol producing industries. The phenols are considered as priority pollutants since they are harmful to organisms at low concentrations because of their potential harm to human health. United State Environmental Protection Agency(EPA) regulations call for lowering phenol content in wastewater to less 1 mgL⁻¹ before discharging. This study focusses on the feasibility of using activated carbon to remove phenol from waste water in industry. Simulation by Aspen Adsorption is conducted to investigate the feasibility. Several sensitivity analyses such as changing the parameters which affected the rate of adsorption are discussed. Besides that, it is found that the scaling up of the column is not practicable in industry.