Problem

Ex 6.4-1 Lactate dehydrogenase adsorption. This enzyme is being adsorbed in a fixed bed 1.3 m long, packed with modified cellulose. The bed is 7 cm in diameter and has a void fraction of 0.30. A diuted feed containing 1.7mg/L of the enzyme is being fed to this bed; at this dilution, the enzyme is adsorbed according to linear isotherm: q (mg/cm^3) = 38 y(mg/cm^3

The velocity in the bed produces breakthrough in 6.4 h and the bed is exhausted in 10 hr. Calculate the following

(a) Length of the adsorption zone at breakthrough

(b) Length of equilibrium zone at breakthrough

(c) Fraction of the bed's capacity which is being used