Universiti Malaysia PAHANG
UMP
Engineering • Technology • Creativity

ASSIGNMENT 2

All the assumptions must be clearly stated

1.   The following experimental data for the equilibrium adsorption of monoethanolamine (MEA) from an aqueous solution to activated carbon are shown in Table 1.

   a) Fit the data to i) Freundlich isotherm, and ii) the Langmuir isotherm. In your opinion, which isotherm provides a better fit to the data?

   b) Using Langmuir isotherm found in (a), determine the final equilibrium values and the percent MEA adsorbed if the solution having a volume of 2 L contains 0.25 g MEA/cm^3 is mixed thoroughly in a batch process with 4.0 kg of regenerated granular activated carbon until equilibrium is reached. The chemical analysis indicated that the regenerated activated carbon was still contained 0.001 g MEA/ g activated carbon when it was utilized in the batch process.

C (g/cm^3)	0.004	0.0087	0.019	0.027	0.094	0.195
1/q (g activated carbon / g solute	38.46	22.22	14.28	12.19	8.13	7.75