Erin Cox

Part I- Oxygen Depletion Kinetics



Figure 1. Dissolved oxygen rate (data set 1) with a second-order reaction (n=2). For this model

k= .14 L/mg-min.



Figure 2. Dissolved oxygen rate (data set 2) with a zero-order reaction (n=0). For this model

k= 0.3 mg/L-min.



Figure 3. Dissolved oxygen rate (data set 3) with a first-order reaction (n=1). For this model

k= 0.11 1/min.

**MEMORANDUM**

**Date:** September 24, 2013

**To:** Coworker Bob

**From:** Ms. Erin Cox

**Subject:** Sorption of Chlordane

**Objective**

Chlordane begins in the aqueous form but with the addition of granulated activated carbon (GAC) it is absorbed to the adsorbate. The goal is to analyze data received from that reaction to determine an appropriate model fit.

**Methods**

Using the Kaleidagraph program, the data was fit to a linear and Freundlich model. The equation was used for the linear model. For the Freundlich fit the equation . In both equations q is the concentration of the absorbed adsorbate, K is the Fruendlich isotherm solid-water partition coefficient, and is the isotherm intensity parameter. The equations were applied and goodness of fit was determined by visual analysis.

**Results and Discussion**

The data best fit the Freundlich sorption isotherm model. In Figure 1 below, the model has been projected upon the collected data. This figure shows the high precision of the fit. For the Freundlich model values of 1/n=0.4 and K=245 L/g were determined. The linear model did not fit the data well and due to this, is not shown.



Figure 1. The concentration change of the aqueous absorbate compared to the absorbed concentration on granulated activated carbon. A Freundlich model fit was applied with a 1/n=0.4 and K=245 L/g.