Summary Report of Experiments Investigating the Sorption of Oil to Oilsorb and Activated Carbon

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For

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This report presents Tables and Figures summarizing the results from two column experiments studying the sorptive capacity of Oilsorb and activated carbon to an aqueous-oil solution. A 13-inch long (33.1 cm) by 1.5-inch diameter (3.8 cm) column was constructed from poly-vinyl-chloride (PVC) and filled with the sorbent material to be studied. A peristaltic pump forced an aqueous-metal solution containing 1,200 mg/L vegetable oil up through the column to displace void-space air and ensure maximum contact with the sorbent material.. Samples were collected periodically at the outflow of the column and analyzed for organic composition using a chemical oxygen demand (COD) analysis.

Results in this report are presented in Tables 1 and 2 and in Figures 1 to 3 as identified below:

Table 1. Sorbent mass, porosity, flow rate and residence time information Oilsorb and Activated Carbon sorbent column experiments.

Sorbent	Mass Sorbent		Porosity	Flow Rate		Residence
	(kg)	(lb)		(mL/min)	(gal/hr)	(min)
Oilsorb	0.138	0.30	0.31	14.5	0.24	8.01
Act. Carbon	0.098	0.20	0.31	16.4	0.26	7.08

Table 2. 95% breakthrough for Oilsorb and Activated Carbon sorbent materials given in pore volumes and minutes along with estimated mass of oil sorbed per mass of sorbent in mg/kg, lb/lb and percent basis.

Sorbent	Breakthrough		Mass sorbed		Mass Sorbed/Mass Sorbent		
	PV	min	(g)	(lb)	(g/kg)	(lb/lb)	(% by sorbent)
Oilsorb	1150	9200	65.8	0.14	477	0.48	47.7
Act. Carbon	167	1182	9.4	0.021	96	0.09	9.6

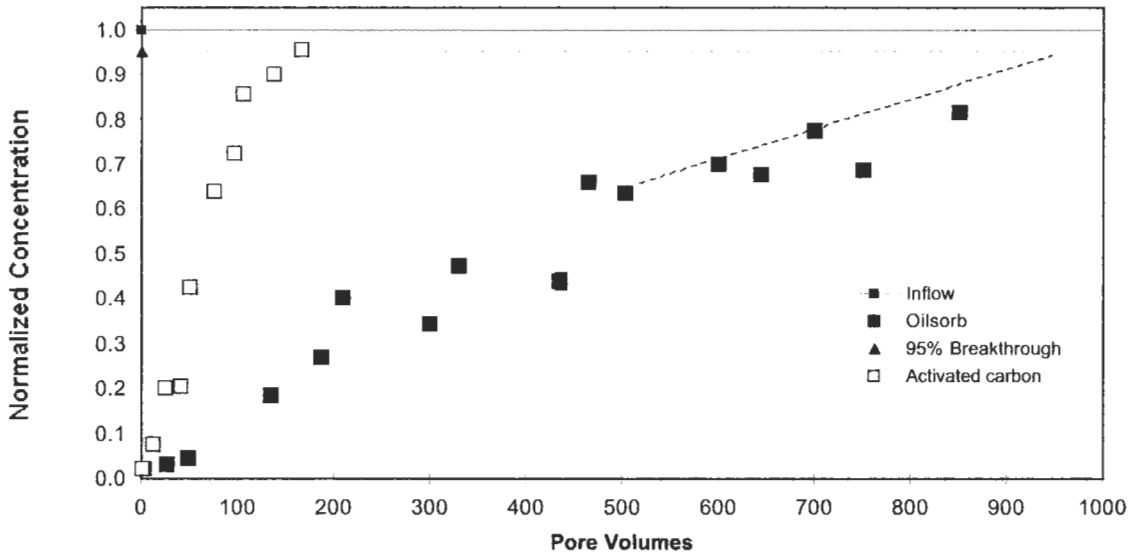

Figure 1. Comparison of breakthrough curves of oil through the two sorbents