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**APPENDIX**

Table 1A Weight of Thiophene in Feed and Product Streams with Time of Reference Experiments on CoMo Catalyst at Various Temperatures

Time (hr.)	Weight of Thiophene (g)							
	240°C (Exp.1)		240°C (Exp.2)		250°C (Exp.5)		260°C (Exp.6)	
	Feed	Product	Feed	Product	Feed	Product	Feed	Product
12	8.18	1.95	8.23	1.82	7.74	0.89	8.65	0.25
24	8.02	1.71	8.69	1.93	7.55	0.82	7.63	0.09
30	4.32	0.98	4.44	1.04	4.07	0.46	3.92	0.01
36	4.41	0.99	4.53	0.90	4.02	0.47	4.16	0.16
42	4.23	0.83	4.41	0.77	3.72	0.29	3.95	0.12
48	4.12	0.81	4.34	0.77	3.71	0.28	4.10	0.09
54	3.94	0.65	4.50	0.76	4.11	0.53	4.84	0.14
60	3.86	0.59	4.92	1.20	4.00	0.49	3.99	0.23
66	4.20	0.74	4.77	1.12	3.67	0.28	3.66	0.01
72	3.92	0.73	4.55	0.85	3.87	0.31	3.94	0.20
78	4.29	0.84	4.65	0.98	4.18	0.44	4.23	0.22
84	4.57	1.02	4.74	1.20	3.94	0.37	4.50	0.13
90	4.28	1.00	4.72	1.11	3.95	0.27	4.26	0.09
96	4.06	0.77	4.44	0.80	4.19	0.40	3.99	0.00
102	4.33	0.93	4.46	0.81	4.00	0.49	4.10	0.05
108	4.59	1.24	4.44	0.85	4.38	0.50	4.19	0.01
114	4.31	0.98	4.50	0.85	3.79	0.52	4.14	0.01
120	4.04	0.68	4.24	0.75	3.72	0.23	3.66	0.06
126	3.93	0.57	4.54	0.94	4.11	0.34	4.35	0.12
132	4.03	0.76	4.77	1.09	4.03	0.41	4.12	0.10
138	3.92	0.67	4.37	1.04	3.76	0.29	3.49	0.00
144	3.93	0.64	4.24	0.72	3.75	0.29	3.78	0.01



Table 2A Weight of Thiophene in Feed and Product Streams with Time of Reference Experiments on NiMo Catalyst at Various Temperatures

Time (hr.)	Weight of Thiophene (g)							
	240°C (Exp.3)		240°C (Exp.4)		250°C (Exp.7)		260°C (Exp.8)	
	Feed	Product	Feed	Product	Feed	Product	Feed	Product
12	7.97	2.27	7.67	1.65	8.07	1.06	8.59	0.32
24	8.04	2.79	8.09	2.24	7.58	1.11	7.94	0.25
30	4.24	1.40	4.14	1.50	4.04	0.53	5.03	0.25
36	3.97	1.25	4.21	1.39	4.32	0.81	4.76	0.21
42	3.92	1.53	4.10	1.21	4.21	0.84	4.14	0.18
48	4.45	1.63	4.04	1.14	4.07	0.52	4.19	0.13
54	4.01	1.46	4.19	1.19	3.98	0.53	4.23	0.13
60	3.79	1.31	4.58	1.46	4.90	0.97	4.41	0.28
66	4.29	1.51	4.44	1.41	3.73	0.59	4.37	0.25
72	3.40	0.94	4.24	1.12	3.83	0.62	4.29	0.13
78	4.05	1.31	4.33	1.22	4.29	0.85	5.11	0.19
84	4.32	1.67	4.42	1.30	3.99	0.61	4.28	0.15
90	4.76	1.79	4.40	1.39	4.11	0.61	4.12	0.14
96	3.99	1.34	4.14	1.06	3.89	0.65	4.19	0.09
102	4.12	1.42	4.15	1.15	3.99	0.73	4.89	0.36
108	3.77	1.19	4.13	1.22	3.92	0.68	4.60	0.18
114	3.99	1.42	4.19	1.17	3.80	0.54	4.14	0.14
120	3.63	1.02	3.95	1.14	3.88	0.50	3.98	0.15
126	4.18	1.33	4.23	1.38	3.99	0.57	4.50	0.27
132	3.70	1.08	4.44	1.16	4.13	0.64	4.46	0.31
138	4.00	1.29	4.07	1.09	3.73	0.46	3.98	0.26
144	3.74	1.29	3.95	1.18	3.71	0.55	4.02	0.17

Table 3A Weight of Thiophene in Feed and Product Streams with Time of Deactivation  
Experiments on CoMo and NiMo Catalysts at Various Temperatures

Time (hr.)	Weight of Thiophene (g)											
	CoMo						NiMo					
	240°C (Exp. 9)		250°C (Exp. 10)		260°C (Exp. 11)		240°C (Exp. 12)		250°C (Exp. 13)		260°C (Exp. 14)	
	Feed	Product	Feed	Product	Feed	Product	Feed	Product	Feed	Product	Feed	Product
12	7.83	2.03	7.91	0.89	8.03	0.26	8.64	2.63	9.47	1.68	9.37	0.55
24	7.74	1.81	7.66	0.68	8.15	0.22	8.23	2.85	7.46	1.12	8.65	0.66
30	4.42	0.81	3.88	0.42	4.91	0.12	3.97	1.34	4.29	0.68	5.06	0.32
36	4.46	1.09	4.14	0.48	4.11	0.08	3.57	1.01	3.88	0.57	4.02	0.17
42	3.88	0.75	3.85	0.35	3.96	0.01	3.98	1.29	3.59	0.55	4.02	0.18
48	4.16	0.82	4.12	0.34	4.11	0.01	4.09	1.11	3.70	0.45	4.40	0.17
54	4.06	1.33	4.49	1.35	4.58	1.16	4.83	2.48	4.31	1.97	4.62	1.86
60	4.07	2.37	4.42	2.28	4.43	1.89	5.00	3.57	4.69	2.93	4.56	2.46
66	4.00	2.48	4.37	2.56	4.27	2.09	4.45	3.26	4.06	2.83	4.28	2.75
72	4.45	2.94	4.32	2.60	3.99	1.98	3.92	3.00	4.04	2.86	4.36	2.83
78	3.89	2.43	3.85	1.89	4.19	1.65	3.97	2.77	3.77	2.48	4.49	2.63
84	4.07	2.46	4.58	2.06	4.00	0.94	3.99	2.60	4.19	2.54	4.29	1.81
90	3.93	2.28	4.28	1.80	4.14	0.66	3.89	2.51	3.60	2.05	4.17	1.36
96	3.69	1.95	4.19	1.35	4.16	0.48	4.01	2.51	3.71	1.72	4.14	1.07
102	3.91	2.16	4.41	1.96	4.22	1.43	4.52	3.03	4.45	2.59	4.68	2.47
108	4.15	2.49	4.40	2.40	4.51	2.05	5.56	3.88	4.47	2.98	4.25	2.56
114	4.02	2.68	3.83	2.38	3.75	1.85	4.48	3.26	4.02	2.79	4.04	2.58
120	3.91	2.74	4.35	2.83	4.76	2.57	4.34	3.36	3.92	2.85	3.94	2.67
126	3.96	2.62	4.21	2.49	4.42	1.77	3.83	2.82	4.04	2.63	4.50	2.67
132	4.17	2.69	4.08	2.30	4.82	1.33	4.49	3.16	3.93	2.44	5.32	2.58
138	4.06	2.50	4.46	2.37	4.42	0.81	3.89	2.69	3.84	2.22	3.83	1.31
144	3.88	2.35	3.81	1.85	4.11	0.67	3.67	2.48	3.68	2.02	4.36	1.34



### VITA

Boonsom Chotpaiboonpun was born on December 16, 1968 in Narathiwat, Thailand. She received her Bachelor of Science in Chemistry from Prince of Songkhla University in 1991.