EXHIBIT B

EPAct STUDY TEST FUEL MATRIX DESIGNS

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EPAct TEST FUEL MATRIX DESIGNS
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Fuel Matrix Design #0-A
G-Efficiency = 83.6%

Fuel No.	T50, °F	T90, ° F	ETHO %	DVPE, psi	AROMATICS %
1	235	300	10	7	15
2	235	350	0	9	15
3	195	350	10	9	15
4	195	350	0	7	40
5	195	300	10	7	40
6	235	300	0	7	40
7	215	350	10	7	15
8	215	300	10	9	15
9	215	350	0	9	40
10	215	300	0	7	15
11	215	300	10	9	40
12	215	350	10	7	40
13	195	350	0	7	15
14	195	300	0	9	15
15	235	350	10	9	40
16	195	300	0	9	40

Fuel Matrix Design #0-B
G-Efficiency = 70.1%

Fuel No.	T50, °F	T90, °F	ETOH %	DVPE, psi	AROMATICS %
1	235	300	10	7	15
2	235	350	0	9	15
3	195	350	10	9	15
4	195	350	0	7	40
5	195	300	10	7	40
6	235	300	0	7	40
7	215	350	10	7	15
8	215	300	10	9	15
9	215	350	0	9	40
10	215	300	0	7	15
11	215	300	10	9	40
12	215	350	10	7	40
13	195	350	0	7	15
14	195	300	0	9	15
15	235	350	10	9	40
16	195	300	0	9	40
20	160	300	20	7	15
21	168.2	300	15.3	7	15
22	160	350	20	7	40
23	160	300	20	9	40
24	160	350	20	9	15
25	195	300	15.3	7	15
26	168.2	350	15.3	9	40
27	195	350	15.3	9	40
28	160	350	20	9	40

Fuel Matrix Design #0-C
G-Efficiency = 67.5%

Fuel No.	T50, °F	T90, °F	ETOH %	DVPE, psi	AROMATICS %
1	190	350	0	7	40
2	220	300	0	10	40
3	150	350	10	10	15
4	220	350	10	7	15
5	240	300	0	7	40
6	150	300	10	7	40
7	190	300	0	7	15
8	220	350	0	7	15
9	190	350	0	10	40
10	190	350	10	10	40
11	190	300	10	7	15
12	240	350	0	10	15
13	220	300	0	10	40
14	190	300	10	10	15
15	150	350	10	7	40
16	150	300	10	10	15
17	160	300	20	7	15
18	160	300	20	7	40
19	160	350	20	7	15
20	160	300	20	10	15
21	160	350	20	7	40
22	160	350	20	10	15
23	160	300	20	10	40
24	150	350	15	7	40
25	160	350	20	10	40

Fuel Matrix Design #0-D
G-Efficiency = 67.4%

Fuel No.	T50, °F	T90, °F	ETOH %	DVPE, psi	AROMATICS %
1	190	350	0	7	40
2	220	300	0	10	40
3	150	350	10	10	15
4	220	350	10	7	15
5	240	300	0	7	40
6	150	300	10	7	40
7	190	300	0	7	15
8	220	350	0	7	15
9	190	350	0	10	40
10	190	350	10	10	40
11	190	300	10	7	15
12	240	350	0	10	15
13	220	300	0	10	40
14	190	300	10	10	15
15	150	350	10	7	40
16	150	300	10	10	15
17	160	300	20	7	40
18	160	350	20	10	15
19	160	300	20	10	40
20	160	350	20	7	15
21	160	300	20	10	15
22	160	350	20	10	40
23	150	350	15	10	15
24	160	350	20	7	40
25	160	300	20	7	15

Fuel Matrix Design #0-E
G-Efficiency = 65.6%

Fuel No.	T50, °F	T90, °F	ETOH %	DVPE, psi	AROMATICS %
1	150	300	10	10	15
2	240	350	0	10	15
3	220	300	10	7	15
4	220	350	10	10	15
5	240	300	0	7	40
6	190	350	10	7	15
7	190	300	0	7	15
8	220	300	0	10	15
9	190	350	0	10	40
10	220	350	10	7	40
11	190	300	10	10	40
12	150	350	10	10	40
13	220	350	0	7	40
14	190	350	0	7	15
15	190	300	0	10	40
16	220	300	10	7	40
17	190	300	15	10	40
18	190	350	15	7	15
20	150	300	15	10	15
21	150	350	15	10	40
19	160	350	20	7	15
22	160	300	20	7	40
23	160	350	20	10	40
24	160	300	20	10	15
25	160	350	20	10	15

Fuel Matrix Design #0-F
G-Efficiency = 68.1%

Fuel No.	T50, °F	T90, °F	ETOH %	DVPE, psi	AROMATICS %
1	150	300	10	10	15
2	240	350	0	10	15
3	220	300	10	7	15
4	220	350	10	10	15
5	240	300	0	7	40
6	190	350	10	7	15
7	190	300	0	7	15
8	220	300	0	10	15
9	190	350	0	10	40
10	220	350	10	7	40
11	190	300	10	10	40
12	150	350	10	10	40
13	220	350	0	7	40
14	190	350	0	7	15
15	190	300	0	10	40
16	220	300	10	7	40
17	150	350	15	10	15
23	150	300	15	10	40
18	160	300	20	7	40
19	160	300	20	10	15
20	160	350	20	10	40
24	160	350	20	7	15
21	190	300	15	7	40
22	190	350	15	10	40
25	190	300	15	10	15

Fuel Matrix Design #0-G
G-Efficiency = 68.3%

Fuel No.	T50, °F	T90, °F	ETOH %	DVPE, psi	AROMATICS %
1	150	300	10	10	15
2	240	350	0	10	15
3	220	300	10	7	15
4	220	350	10	10	15
5	240	300	0	7	40
6	190	350	10	7	15
7	190	300	0	7	15
8	220	300	0	10	15
9	190	350	0	10	40
10	220	350	10	7	40
11	190	300	10	10	40
12	150	350	10	10	40
13	220	350	0	7	40
14	190	350	0	7	15
15	190	300	0	10	40
16	220	300	10	7	40
18	150	300	15	10	15
22	150	350	15	10	40
21	160	350	20	10	15
24	160	350	20	7	40
19	160	300	20	7	15
25	160	300	20	10	40
23	190	350	15	10	40
17	190	350	15	7	15
20	190	300	15	7	40

Table 8, Fuel Matrix Design #1
G-Efficiency = 72.6%[1]

Fuel No.	T50, °F	T90, °F	ETOH %	DVPE, psi	AROMATICS %
1	150	300	10	10	15
2	240	340	0	10	15
3	220	300	10	7	15
4	220	340	10	10	15
5	240	300	0	7	40
6	190	340	10	7	15
7	190	300	0	7	15
8	220	300	0	10	15
9	190	340	0	10	40
10	220	340	10	7	40
11	190	300	10	10	40
12	150	340	10	10	40
13	220	340	0	7	40
14	190	340	0	7	15
15	190	300	0	10	40
16	220	300	10	7	40

[1] EPAct Appendix A, Re-Design, *supra* note 9, at A-4.

Fuel Matrix Design #2[2]
G-Efficiency = 68.1%

Fuel No.	T50, °F	T90, °F	ETOH %	DVPE, psi	AROMATICS %
1	150	300	10	10	15
2	240	340	0	10	15
3	220	300	10	7	15
4	220	340	10	10	15
5	240	300	0	7	40
6	190	340	10	7	15
7	190	300	0	7	15
8	220	300	0	10	15
9	190	340	0	10	40
10	220	340	10	7	40
11	190	300	10	10	40
12	150	340	10	10	40
13	220	340	0	7	40
14	190	340	0	7	15
15	190	300	0	10	40
16	220	300	10	7	40
17	160	300	20	7	40
18	160	300	20	10	15
19	160	340	20	10	40
20	160	340	20	7	15
21	150	340	15	10	15
22	150	300	15	10	40
23	190	300	15	7	40
24	190	340	15	10	40
25	190	300	15	10	15

[2] The first 16 fuels are the same as those in Design #1.

Fuel Matrix Design #3
G-Efficiency = 68.7%

Fuel No.	T50, °F	T90, °F	ETOH %	DVPE, psi	AROMATICS %
1	150	300	10	10	15
2	240	340	0	10	15
3	220	300	10	7	15
4	220	340	10	10	15
5	240	300	0	7	40
6	190	340	10	7	15
7	190	300	0	7	15
8	220	300	0	10	15
9	190	340	0	10	40
10	220	340	10	7	40
11	190	300	10	10	40
12	150	340	10	10	40
13	220	340	0	7	40
14	190	340	0	7	15
15	190	300	0	10	40
16	220	300	10	7	40
17	160	300	20	7	15
18	160	300	20	7	15
19	160	300	20	10	15
20	160	340	20	7	40
21	160	340	20	10	15
22	160	340	20	10	15
23	150	340	15	10	40
24	190	340	15	7	15
25	190	300	15	7	40

Fuel Matrix Design #4[3]
G-Efficiency = 64.1%

Fuel No.	T50, °F	T90, °F	ETOH %	DVPE, psi	AROMATICS %
1	150	300	10	10	15
2	240	340	0	10	15
3	220	300	10	7	15
4	220	340	10	10	15
5	240	300	0	7	40
6	190	340	10	7	15
7	190	300	0	7	15
8	220	300	0	10	15
9	190	340	0	10	40
10	220	340	10	7	40
11	190	300	10	10	40
12	150	340	10	10	40
13	220	340	0	7	40
14	190	340	0	7	15
15	190	300	0	10	40
16	220	300	10	7	40
17	160	300	20	7	15
18	160	300	20	7	15
19	160	300	20	10	15
20	160	340	20	7	40
21	160	340	20	10	15
22	160	340	20	10	15
23	150	340	15	10	40
24	190	340	15	7	15
25	190	300	15	10	40
26	215	325	0	9	29.5
27	202	325	9.5	9	24.9
28	195	325	14.5	9	22.6
29	150	325	10	10	40
30	160	325	20	7	40

[3] For reasons that are unclear, SwRI's Report included the preliminary test fuels used in Phase 1 and Phase 2 in Design #4, and labeled them as CRC fuels. EPAct Appendix A, Re-Design, *supra* note 9, at A-11. They are excluded from this matrix to avoid confusion with Phase 1 and 2 fuels.

Fuel Matrix Design #5[4]
G-Efficiency = 51.6%

Fuel No.	T50, °F	T90, °F	ETOH %	DVPE, psi	AROMATICS %
1	150	300	10	10	15
2	240	340	0	10	15
3	220	300	10	7	15
4	220	340	10	10	15
5	240	300	0	7	35
6	190	340	10	7	15
7	190	300	0	7	15
8	220	300	0	10	15
9	190	340	0	10	35
10	220	340	10	7	35
11	190	300	10	10	35
12	150	340	10	10	35
13	220	340	0	7	35
14	190	340	0	7	15
15	190	300	0	10	35
16	220	300	10	7	35
20	165	300	20	7	15
21	165	300	20	7	35
22	165	300	20	10	15
23	165	340	20	7	15
24	165	340	20	10	15
25	165	340	20	10	35
26	160	340	15	10	35
27	220	340	15	7	15
28	220	300	15	10	35
30	150	325	10	10	35
31	165	325	20	7	35

[4] The changes reflected in this matrix were not reached simultaneously during the design process. Nevertheless, the changes are reflected together to show EPA's final fuel matrix.

Phase 1 Inspection Data

PROPERTY	UNIT	TEST METHOD			
			17 E0	**18 E10**	**19 E15**
Density, 60ºF	g/cm^3	D4052	0.7583	0.7538	0.7502
API Gravity, 60ºF	ºAPI	D4052	55.1	56.2	57.1
Ethanol	**vol. %**	**D5599**	**<0.10**	**9.37**	**14.57**
Total Content of Oxygenates Other Than Ethanol	vol. %	D5599	-	<0.10	<0.10
Distillation IBP	ºF	D86 (**OptiDist** or equivalent for E10, E15 and E20 fuels)	90.7	99.5	90.7
5% evap	ºF		116.3	127.1	121.1
10% evap	ºF		130.7	136.7	131.1
20% evap	ºF		158.3	148.6	145.6
30% evap	ºF		182.0	154.6	156.2
40% evap	ºF		199.3	178.9	163.3
50% evap	**ºF**		**215.3**	**211.8**	**202.4**
60% evap	ºF		235.0	235.8	247.0
70% evap	ºF		263.3	268.1	263.9
80% evap	ºF		293.7	295.7	287.2
90% evap	**ºF**		**322.0**	**319.3**	**313.6**
95% evap	ºF		337.7	330.7	328.8
FBP	ºF		368.0	344.4	347.0
DVPE (EPA equation)	**psi**	**D5191**	**9.20**	**9.08**	**9.05**
Aromatics	**vol. %**	**D1319**	**29.1**	**23.1**	**22.0**
GC Aromatic Levels	**vol. %**		**32.5%**	**27.6%**	**27.5%**
Unidentified from GC	**vol. %**		**?**	**?**	**6.4%**
Cyclohexane	**vol. %**		**18.3%**	**13.0%**	**0.003%**
(RON+MON)/2	-	-	88.3	89.4	89.0