

APPENDIX A.

Summary of Cyclar Calculations

APPENDIX A

$$1. \text{ LHSV} = \frac{\text{FR}}{\text{FSG} \times \text{CV}}$$

Where: LHSV = Liquid hourly space velocity, 1/hr
 FR = LPG feed, mass flow rate, g/hr
 FSG = Feed density, g/cc
 CV = Catalyst Volume, cc

$$2. \text{ Weight Recovery} = \frac{\text{TF}}{\text{LP} + (\text{GV} \times \text{GD})}$$

Where: TF = Total feed during test, g.
 LP = Liquid Product Collected, g.
 GV = Gas volume collected, l
 GD = Gas density, g/l

$$3. \text{ Wt-\% Carbon in Feed} = \sum_{i=1}^n (\text{wt fraction C in } i) (\text{wt-\% } i \text{ in feed})$$

$$4. \text{ Wt-\% Carbon in Product} = \sum_{i=1}^n (\text{wt fraction C in } i) (\text{wt-\% } i \text{ in product})$$

$$5. \text{ Carbon Balance} = \frac{\text{wt-\% Carbon in feed}}{\text{wt-\% Carbon in product}}$$

The carbon balance assumes that the carbon left on the catalyst is negligible with respect to total feed processed. This assumption is easily valid for any test in this program.

6. Adjustments for Hydrogen and Carbon Balance

Adjusted wt-% Hydrogen

$$= 100\% - (100\% - \text{wt-\% unadjusted H}_2) \frac{100\% - \text{adjusted wt-\% H}_2}{100\% - \text{unadjusted wt-\% H}_2}$$

$$= 100\% - (\text{wt-\% non H}_2) \text{ (carbon balance)}$$

Adjusted wt-% Hydrocarbon

$$\text{Wt-\%} - (\text{Unadjusted wt-\% } i) \frac{100\% - \text{adjusted wt-\% H}_2}{100\% - \text{unadjusted wt-\% H}_2}$$

The adjustment procedures assume the carbon-balance error is in the H₂ measurement and renormalizes other components after correcting non-H₂ analyses for carbon balance. As a result, mass balance is achieved by definition.

$$7. \text{ Conversion } i = \frac{(\text{wt-\% } i \text{ in feed}) - (\text{adjusted wt-\% } i \text{ in product})}{(\text{wt-\% } i \text{ in feed})} \times 100\%$$

$$8. \text{ Selectivity } n = \frac{(\text{adjusted wt-\% } n \text{ in product})}{(\text{wt-\% } i \text{ in feed}) - (\text{adjusted wt-\% } i \text{ in product})} \times 100\%$$

Where: n = component selectivity (benzene for example)
i = LPG component (i = C₃ through C₅)

APPENDIX B.

Cyclar Pilot Plant Testing Summary

Overview of Direct and Indirect Cyclar Pilot Plant Runs

<u>Run No.</u>	<u>Feed (1)</u>	<u>Diluent</u>	<u>Rx Temp, °C</u>	<u>Pressure (2)</u>	<u>LHSV (3)</u>	<u>Relative Carbon on Spent Catalyst (4)</u>
1	Propane	--	540	P1	LHSV 1	0.5
2	DB1	--	520	P1	LHSV 1	0.6
3	DB1	--	540	P1	LHSV 1	1.0
4	DB1	--	520	P3	LHSV 1	1.5
5	DB1	--	540	P3	LHSV 1	2.7
6	DB1	--	540	P2	LHSV 1	1.5
7	DB1	--	520	P2	LHSV 1	1.2
8	Propane	--	540	P2	LHSV 1	0.4
9	Butane	--	540	P1	LHSV 1	0.5
10	Butane	--	540	P2	LHSV 1	0.7
11	Propylene	Nitrogen	540	P2	LHSV 1A	1.2
12	Butylene	Nitrogen	540	P2	LHSV 1B	7.9
13	IB1	Ethane	540	P1	LHSV 1	0.7
14	IB1	Ethane	540	P1	LHSV 2	0.7
15	IB1	Ethane	540	P3	LHSV 2	0.6
16	IB1	Ethane	540	P3	LHSV 3	0.6
17	DB2	--	540	P2	LHSV 1	3.8
18	DB3	--	540	P2	LHSV 1	7.3

Notes:

- (1) DB1, DB2 and DB3 refer to Direct Blends 1, 2 and 3 as described in Section 4.3. DB1 and DB2 are "Arge-type" blends, and DB3 is a "Synthol-type" blend. IB1 is an Indirect Cyclar blend (Arge type).
- (2) P2 = 1.5 x P1
P3 = 3.0 x P1
- (3) LHSV 2 = 1.25 x LHSV 1
LHSV 3 = 2.50 x LHSV 1
LHSV 1A = with respect to propylene content of DB1
LHSV 1B = with respect to butene content of DB1
- (4) Run No. 3 carbon chosen as reference and defined as 1.00. All other runs are weight ratios with the Run No. 3 carbon level in the denominator.

Run	1	1	1	1	1	1
Period	2	3	5	6	7	9
Temperature, °C	538	539	539	538	541	538
Pressure	P1	P1	P1	P1	P1	P1
LHSV, hr-1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1
Feed, wt-%	Blend					
C2	0.00	0.00	0.00	0.00	0.00	0.00
C2=	0.00	0.00	0.00	0.00	0.00	0.00
C3	100.00	100.00	100.00	100.00	100.00	100.00
C3=	0.00	0.00	0.00	0.00	0.00	0.00
iC4	0.00	0.00	0.00	0.00	0.00	0.00
nC4	0.00	0.00	0.00	0.00	0.00	0.00
C4=	0.00	0.00	0.00	0.00	0.00	0.00
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00
Product, wt-%						
H2	3.80	3.57	3.37	3.20	3.07	2.72
C1	18.45	15.05	13.22	11.66	10.74	8.96
C2	10.10	9.06	9.00	8.33	7.99	7.17
C2=	1.22	1.48	1.56	1.61	1.59	1.62
C3	19.35	26.91	32.60	36.80	40.32	47.60
C3=	1.16	1.27	1.56	1.66	1.64	1.86
iC4	0.35	0.28	0.30	0.58	0.55	0.52
nC4	0.70	0.56	0.90	1.16	1.11	1.31
C4=	0.00	0.00	0.29	0.28	0.27	0.25
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	15.50	13.60	12.37	11.28	10.81	9.15
Toluene	18.49	17.59	15.58	14.65	13.89	11.97
Ethyl-benzene	0.44	0.49	0.50	0.50	0.47	0.42
para-Xylene	1.53	1.58	1.49	1.43	1.37	1.20
meta-Xylene	3.19	3.28	2.98	2.90	2.74	2.41
ortho-Xylene	1.49	1.55	1.39	1.37	1.25	1.11
Total BTX	40.65	38.09	34.30	32.13	30.52	26.26
A9	0.52	0.53	0.53	0.56	0.52	0.44
A10	0.40	0.41	0.10	0.37	0.32	0.25
A11	3.27	2.79	0.30	1.65	1.34	1.03
A12	0.00	0.00	0.86	0.00	0.00	0.00
A13	0.00	0.00	0.76	0.00	0.00	0.00
A14+	0.00	0.00	0.36	0.00	0.00	0.00
Total Aromatics	44.85	41.82	37.21	34.71	32.71	27.98
Total Product	100.00	100.00	100.00	100.00	100.00	100.00
Feed, wt-% C	81.71	81.71	81.71	81.71	81.71	81.71
Product, wt-% C	81.56	81.72	81.69	81.63	81.62	81.60
Mass Balance, wt-%	98.70	101.29	93.02	99.18	98.55	95.59
Carbon Bal, wt-%	99.82	100.01	99.97	99.90	99.89	99.86

Run Period	1 2	1 3	1 5	1 6	1 7	1 9
Adj. Products, wt-%						
H2	3.63	3.58	3.34	3.11	2.96	2.59
C1	18.49	15.04	13.22	11.67	10.76	8.97
C2	10.12	9.06	9.00	8.34	8.00	7.18
C2=	1.22	1.48	1.56	1.62	1.59	1.63
C3	19.39	26.91	32.61	36.84	40.37	47.66
C3=	1.17	1.27	1.56	1.67	1.64	1.87
iC4	0.35	0.28	0.30	0.58	0.55	0.53
nC4	0.70	0.56	0.90	1.16	1.11	1.32
C4=	0.00	0.00	0.29	0.28	0.27	0.25
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	15.53	13.60	12.37	11.29	10.82	9.16
Toluene	18.52	17.59	15.59	14.67	13.91	11.99
Ethyl-benzene	0.44	0.49	0.50	0.50	0.47	0.42
para-Xylene	1.54	1.58	1.49	1.43	1.37	1.21
meta-Xylene	3.20	3.28	2.98	2.90	2.74	2.41
ortho-Xylene	1.50	1.55	1.39	1.37	1.25	1.11
Total BTX	40.73	38.09	34.31	32.16	30.56	26.29
A9	0.53	0.53	0.53	0.56	0.52	0.44
A10	0.40	0.41	0.10	0.37	0.32	0.25
A11	3.28	2.79	0.30	1.65	1.34	1.03
A12	0.00	0.00	0.86	0.00	0.00	0.00
A13	0.00	0.00	0.76	0.00	0.00	0.00
A14+	0.00	0.00	0.36	0.00	0.00	0.00
Total Aromatics	44.93	41.82	37.22	34.75	32.75	28.02
Total Product	100.00	100.00	100.00	100.00	100.00	100.00
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
Carbon Bal. wt-%	100.00	100.00	100.00	100.00	100.00	100.00
Conversions, wt-%						
C3	80.61	73.09	67.40	63.16	59.63	52.34
C3=	---	---	---	---	---	---
C4	---	---	---	---	---	---
C4=	---	---	---	---	---	---
C5	---	---	---	---	---	---
C5=	---	---	---	---	---	---
Total C3-C5	78.39	70.98	64.34	59.48	56.06	48.38
Selectivity, wt-%						
H2	4.63	5.04	5.19	5.23	5.28	5.35
C1-C2	38.05	36.04	36.96	36.35	36.30	36.73
Benzene	19.81	19.17	19.23	18.98	19.30	18.94
Toluene	23.63	24.78	24.23	24.66	24.81	24.78
Xylenes + EB	8.51	9.72	9.87	10.43	10.40	10.63
A9+ Aromatics	5.37	5.25	4.52	4.35	3.90	3.56
Total Aromatics	57.32	58.92	57.85	58.42	58.41	57.91

Run Period	2 3	2 4	2 5	2 6	2 7	2 8	2 9
Temperature, °C	520	520	520	520	519	521	521
Pressure	P1	P1	P1	P1	P1	P1	P1
LHSV, hr-1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1
Feed, wt-%	Blend						
C2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C2=	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C3	41.94	41.94	41.94	41.94	41.94	41.94	41.94
C3=	20.42	20.42	20.42	20.42	20.42	20.42	20.42
iC4	3.50	3.50	3.50	3.50	3.50	3.50	3.50
nC4	12.81	12.81	12.81	12.81	12.81	12.81	12.81
C4=	16.72	16.72	16.72	16.72	16.72	16.72	16.72
iC5	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nC5	3.70	3.70	3.70	3.70	3.70	3.70	3.70
C5=	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Product, wt-%							
H2	2.67	2.66	2.49	2.45	2.28	2.24	2.16
C1	10.72	9.91	8.65	7.97	7.16	6.63	6.16
C2	7.36	7.04	6.40	6.19	5.85	5.59	5.40
C2=	0.92	1.01	0.96	1.04	1.08	1.17	1.14
C3	27.90	30.96	32.03	35.28	36.13	39.28	39.74
C3=	0.88	1.01	1.07	1.08	1.15	1.28	1.38
iC4	0.55	0.43	0.50	0.74	0.63	0.85	0.95
nC4	1.11	1.30	2.02	2.47	2.95	3.82	4.17
C4=	0.27	0.21	0.24	0.24	0.20	0.41	0.37
iC5	0.00	0.00	0.00	0.00	0.00	0.00	0.20
nC5	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	11.84	10.92	10.75	9.85	9.34	8.40	8.30
Toluene	20.93	19.77	20.36	18.87	18.69	17.08	16.87
Ethyl-benzene	0.85	0.83	0.87	0.83	0.86	0.85	0.83
para-Xylene	2.37	2.32	2.47	2.31	2.43	2.28	2.28
meta-Xylene	5.06	4.99	5.21	4.94	5.14	4.75	4.71
ortho-Xylene	2.37	2.37	2.43	2.31	2.39	2.21	2.28
Total BTX	43.42	41.20	42.09	39.10	38.85	35.57	35.27
A9	1.03	1.10	1.21	1.21	1.38	1.29	1.34
A10	0.18	0.13	0.17	0.16	0.20	0.18	0.22
A11	0.27	0.25	0.26	0.24	0.28	0.26	0.22
A12	1.07	0.97	0.65	0.57	0.57	0.44	0.36
A13	1.12	1.18	0.78	0.77	0.77	0.55	0.51
A14+	0.54	0.63	0.48	0.49	0.53	0.44	0.44
Total Aromatics	47.63	45.47	45.65	42.54	42.57	38.73	38.35
Total Product	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Feed, wt-% C	83.41	83.41	83.41	83.41	83.41	83.41	83.41
Product, wt-% C	83.37	83.24	83.47	83.27	83.46	83.18	83.26
Mass Balance, wt-%	98.20	100.79	94.77	96.81	98.34	93.14	99.87
C Balance, wt-%	99.95	99.79	100.07	99.82	100.06	99.73	99.81

Run	2	2	2	2	2	2	2
Period	3	4	5	6	7	8	9
Adj. Products, wt-%							
H2	2.62	2.45	2.56	2.28	2.34	1.97	1.97
C1	10.73	9.93	8.64	7.99	7.16	6.65	6.17
C2	7.36	7.05	6.39	6.20	5.85	5.60	5.41
C2=	0.92	1.01	0.95	1.04	1.08	1.17	1.15
C3	27.91	31.02	32.00	35.34	36.10	39.39	39.81
C3=	0.88	1.01	1.07	1.08	1.15	1.29	1.38
iC4	0.55	0.44	0.50	0.74	0.63	0.85	0.95
nC4	1.11	1.30	2.01	2.48	2.95	3.83	4.18
C4=	0.27	0.21	0.24	0.24	0.20	0.41	0.37
iC5	0.00	0.00	0.00	0.00	0.00	0.00	0.20
nC5	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	11.85	10.94	10.74	9.87	9.34	8.43	8.31
Toluene	20.94	19.82	20.34	18.91	18.68	17.12	16.90
Ethyl-benzene	0.85	0.83	0.86	0.83	0.86	0.85	0.83
para-Xylene	2.37	2.33	2.47	2.31	2.43	2.29	2.29
meta-Xylene	5.06	5.00	5.20	4.94	5.13	4.76	4.72
ortho-Xylene	2.37	2.37	2.43	2.31	2.39	2.22	2.29
Total BTX	43.44	41.29	42.06	39.17	38.82	35.67	35.34
A9	1.03	1.10	1.21	1.22	1.37	1.29	1.34
A10	0.18	0.13	0.17	0.16	0.20	0.19	0.22
A11	0.27	0.25	0.26	0.24	0.28	0.26	0.22
A12	1.08	0.97	0.65	0.57	0.57	0.44	0.36
A13	1.12	1.19	0.78	0.77	0.77	0.55	0.51
A14+	0.54	0.63	0.48	0.49	0.53	0.44	0.44
Total Aromatics	47.65	45.57	45.61	42.62	42.54	38.84	38.42
Total Product	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00	100.00
C Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Conversions, wt-%							
C3	33.45	26.03	23.69	15.75	13.92	6.10	5.08
C3=	95.69	95.04	94.74	94.69	94.36	93.69	93.25
C4	89.84	89.34	84.57	80.27	78.02	71.33	68.57
C4=	98.40	98.75	98.55	98.57	98.78	97.55	97.81
C5	100.00	100.00	100.00	100.00	100.00	100.00	94.70
C5=	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total C3-C5	69.28	66.02	64.16	60.12	58.95	54.24	53.12
Selectivity, wt-%							
H2	3.78	3.71	3.99	3.79	3.96	3.64	3.72
C1-C2	27.44	27.26	24.92	25.33	23.88	24.75	23.96
Benzene	17.10	16.58	16.75	16.42	15.84	15.53	15.65
Toluene	30.22	30.02	31.71	31.45	31.69	31.57	31.81
Xylenes + EB	15.38	15.95	17.09	17.29	18.32	18.65	19.06
A9+ Aromatics	6.08	6.48	5.54	5.73	6.31	5.86	5.81
Total Aromatics	68.78	69.03	71.09	70.89	72.16	71.61	72.33

Run Period	3 2	3 6	3 7	3 8	3 9
Temperature, °C	539	541	541	541	541
Pressure	P1	P1	P1	P1	P1
LHSV, hr-1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1
Feed, wt-%	Blend				
C2	0.00	0.00	0.00	0.00	0.00
C2=	0.00	0.00	0.00	0.00	0.00
C3	41.94	41.94	41.94	41.94	41.94
C3=	20.42	20.42	20.42	20.42	20.42
iC4	3.50	3.50	3.50	3.50	3.50
nC4	12.81	12.81	12.81	12.81	12.81
C4=	16.72	16.72	16.72	16.72	16.72
iC5	0.00	0.00	0.00	0.00	0.00
nC5	3.70	3.70	3.70	3.70	3.70
C5=	0.90	0.90	0.90	0.90	0.90
Total	100.00	100.00	100.00	100.00	100.00
Product, wt-%					
H2	3.24	2.57	2.39	2.27	2.10
C1	13.33	7.13	6.15	5.47	4.81
C2	8.92	6.51	5.97	5.75	5.27
C2=	1.01	1.46	1.55	1.68	1.79
C3	17.83	33.98	35.16	37.32	38.74
C3=	0.96	1.70	1.74	1.95	2.12
iC4	0.36	0.70	0.64	0.81	0.95
nC4	0.71	2.57	3.43	4.46	5.86
C4=	0.00	0.45	0.41	0.59	0.73
iC5	0.00	0.00	0.00	0.20	0.19
nC5	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00
Benzene	15.23	10.03	9.76	8.65	7.94
Toluene	22.84	18.64	18.48	17.09	16.17
Ethyl-benzene	0.84	0.83	0.86	0.85	0.89
para-Xylene	2.29	2.35	2.42	2.33	2.32
meta-Xylene	4.82	4.91	4.97	4.77	4.60
ortho-Xylene	2.29	2.31	2.30	2.21	2.11
Total BTX	48.32	39.08	38.80	35.90	34.02
A9	0.89	1.30	1.37	1.39	1.46
A10	0.10	0.16	0.20	0.22	0.25
A11	0.40	0.37	0.36	0.34	0.32
A12	1.64	0.61	0.52	0.41	0.32
A13	1.64	0.81	0.69	0.60	0.50
A14+	0.65	0.61	0.61	0.64	0.57
Total Aromatics	53.64	42.93	42.56	39.50	37.45
Total Product	100.00	100.00	100.00	100.00	100.00
Feed, wt-% C	83.41	83.41	83.41	83.41	83.41
Product, wt-% C	83.32	83.30	83.49	83.38	83.39
Mass Balance, wt-%	100.98	91.99	93.55	94.33	95.04
C Balance, wt-%	99.89	99.87	100.10	99.96	99.98

Run	3	3	3	3	3
Period	2	6	7	8	9
Adj. Products, wt-%					
H2	3.13	2.44	2.49	2.22	2.08
C1	13.35	7.14	6.14	5.48	4.81
C2	8.93	6.52	5.97	5.75	5.27
C2=	1.01	1.46	1.55	1.69	1.79
C3	17.85	34.02	35.12	37.33	38.75
C3=	0.96	1.70	1.74	1.95	2.12
iC4	0.36	0.70	0.64	0.81	0.95
nC4	0.71	2.58	3.43	4.46	5.86
C4=	0.00	0.45	0.41	0.59	0.73
iC5	0.00	0.00	0.00	0.20	0.19
nC5	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00
Benzene	15.25	10.05	9.75	8.65	7.94
Toluene	22.87	18.67	18.46	17.10	16.17
Ethyl-benzene	0.85	0.83	0.86	0.85	0.89
para-Xylene	2.29	2.36	2.42	2.33	2.32
meta-Xylene	4.83	4.91	4.96	4.77	4.60
ortho-Xylene	2.29	2.31	2.30	2.22	2.11
Total BTX	48.37	39.13	38.76	35.91	34.03
A9	0.90	1.30	1.37	1.39	1.46
A10	0.10	0.16	0.20	0.22	0.25
A11	0.40	0.37	0.36	0.34	0.32
A12	1.64	0.61	0.52	0.41	0.32
A13	1.64	0.81	0.69	0.60	0.50
A14+	0.65	0.61	0.61	0.64	0.57
Total Aromatics	53.70	42.99	42.51	39.52	37.45
Total Product	100.00	100.00	100.00	100.00	100.00
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00
C Balance, wt-%	100.00	100.00	100.00	100.00	100.00
Conversions, wt-%					
C3	57.44	18.88	16.26	10.98	7.62
C3=	95.29	91.66	91.48	90.43	89.61
C4	93.46	79.90	75.06	67.67	58.25
C4=	100.00	97.29	97.53	96.49	95.63
C5	100.00	100.00	100.00	94.68	94.81
C5=	100.00	100.00	100.00	100.00	100.00
Total C3-C5	80.12	60.54	58.66	54.65	51.40
Selectivity, wt-%					
H2	3.91	4.03	4.24	4.07	4.04
C1-C2	29.06	24.96	23.28	23.62	23.09
Benzene	19.03	16.60	16.63	15.83	15.45
Toluene	28.54	30.83	31.48	31.29	31.47
Xylenes + EB	12.80	17.20	17.97	18.59	19.29
A9+ Aromatics	6.65	6.37	6.40	6.60	6.66
Total Aromatics	67.02	71.00	72.48	72.31	72.87

Run	4	4	4	4	4	4
Period	2	3	4	5	7	9
Temperature, °C	521	523	523	523	522	522
Pressure	P3	P3	P3	P3	P3	P3
LHSV, hr-1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1
Feed, wt-%	Blend					
C2	0.00	0.00	0.00	0.00	0.00	0.00
C2=	0.00	0.00	0.00	0.00	0.00	0.00
C3	41.94	41.94	41.94	41.94	41.94	41.94
C3=	20.42	20.42	20.42	20.42	20.42	20.42
iC4	3.50	3.50	3.50	3.50	3.50	3.50
nC4	12.81	12.81	12.81	12.81	12.81	12.81
C4=	16.72	16.72	16.72	16.72	16.72	16.72
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	3.70	3.70	3.70	3.70	3.70	3.70
C5=	0.90	0.90	0.90	0.90	0.90	0.90
Total	100.00	100.00	100.00	100.00	100.00	100.00
Product, wt-%						
H2	1.63	1.62	1.62	1.63	1.63	1.62
C1	19.90	18.54	17.65	16.55	14.88	12.83
C2	16.67	15.74	15.22	14.56	13.56	12.07
C2=	0.34	0.41	0.41	0.40	0.48	0.47
C3	14.88	16.86	19.10	21.10	24.64	29.42
C3=	0.38	0.37	0.49	0.49	0.48	0.58
iC4	0.27	0.53	0.50	0.50	0.48	0.70
nC4	0.81	0.79	1.01	1.00	1.44	1.87
C4=	0.00	0.00	0.00	0.00	0.00	0.00
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	10.06	10.00	9.46	8.88	8.56	7.78
Toluene	18.15	18.38	17.79	17.75	17.72	17.12
Ethyl-benzene	0.82	0.86	0.84	0.88	0.86	0.87
para-Xylene	2.18	2.27	2.30	2.38	2.39	2.38
meta-Xylene	4.74	4.88	4.96	5.13	5.14	5.10
ortho-Xylene	2.26	2.31	2.38	2.46	2.43	2.42
Total BTX	38.21	38.70	37.73	37.48	37.11	35.67
A9	1.30	1.39	1.48	1.56	1.51	1.54
A10	0.29	0.29	0.29	0.29	0.28	0.27
A11	0.17	0.17	0.21	0.21	0.20	0.19
A12	2.05	1.77	1.60	1.56	1.16	0.92
A13	2.18	1.98	1.85	1.85	1.43	1.19
A14+	0.92	0.84	0.86	0.82	0.72	0.65
Total Aromatics	45.13	45.14	44.00	43.76	42.41	40.43
Total Product	100.00	100.00	100.00	100.00	100.00	100.00
Feed, wt-% C	83.41	83.41	83.41	83.41	83.41	83.41
Product, wt-% C	83.16	83.27	83.22	83.27	83.25	83.23
Mass Balance, wt-%	95.47	97.93	96.47	98.62	100.59	98.45
C Balance, wt-%	99.70	99.83	99.77	99.82	99.81	99.78

Run	4	4	4	4	4	4
Period	2	3	4	5	7	9
Adj. Products, wt-%						
H2	1.33	1.45	1.39	1.45	1.44	1.41
C1	19.96	18.57	17.69	16.58	14.91	12.86
C2	16.72	15.77	15.26	14.59	13.59	12.10
C2=	0.34	0.41	0.41	0.40	0.48	0.47
C3	14.92	16.89	19.14	21.14	24.69	29.48
C3=	0.38	0.37	0.49	0.49	0.48	0.58
iC4	0.27	0.53	0.50	0.50	0.48	0.70
nC4	0.81	0.79	1.01	1.00	1.44	1.88
C4=	0.00	0.00	0.00	0.00	0.00	0.00
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	10.09	10.01	9.48	8.90	8.58	7.80
Toluene	18.21	18.42	17.83	17.78	17.76	17.16
Ethyl-benzene	0.83	0.86	0.85	0.88	0.86	0.87
para-Xylene	2.19	2.28	2.30	2.39	2.40	2.38
meta-Xylene	4.75	4.89	4.97	5.14	5.15	5.11
ortho-Xylene	2.27	2.32	2.38	2.47	2.44	2.42
Total BTX	38.33	38.77	37.82	37.55	37.18	35.75
A9	1.30	1.39	1.48	1.56	1.52	1.54
A10	0.29	0.30	0.29	0.29	0.28	0.27
A11	0.17	0.17	0.21	0.21	0.20	0.19
A12	2.06	1.77	1.60	1.56	1.16	0.92
A13	2.19	1.98	1.85	1.85	1.44	1.19
A14+	0.92	0.84	0.86	0.82	0.72	0.65
Total Aromatics	45.27	45.21	44.11	43.84	42.49	40.52
Total Product	100.00	100.00	100.00	100.00	100.00	100.00
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
C Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
Conversions, wt-%						
C3	64.42	59.73	54.36	49.59	41.13	29.70
C3=	98.13	98.18	97.58	97.62	97.66	97.14
C4	93.38	91.91	90.71	90.80	88.23	84.18
C4=	100.00	100.00	100.00	100.00	100.00	100.00
C5	100.00	100.00	100.00	100.00	100.00	100.00
C5=	100.00	100.00	100.00	100.00	100.00	100.00
Total C3-C5	83.62	81.42	78.85	76.87	72.91	67.35
Selectivity, wt-%						
H2	1.59	1.78	1.76	1.89	1.98	2.09
C1-C2	44.27	42.69	42.30	41.08	39.74	37.75
Benzene	12.06	12.30	12.02	11.57	11.77	11.58
Toluene	21.78	22.62	22.62	23.13	24.36	25.48
Xylenes + EB	12.00	12.70	13.32	14.15	14.87	16.02
A9+ Aromatics	8.30	7.91	7.98	8.18	7.28	7.08
Total Aromatics	54.14	55.53	55.94	57.03	58.28	60.16

Run Period	5 3	5 5	5 6	5 7	5 8	5 9
Temperature, °C	541	542	541	541	541	541
Pressure	P3	P3	P3	P3	P3	P3
LHSV, hr-1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1
Feed, wt-%	Blend					
C2	0.00	0.00	0.00	0.00	0.00	0.00
C2=	0.00	0.00	0.00	0.00	0.00	0.00
C3	41.94	41.94	41.94	41.94	41.94	41.94
C3=	20.42	20.42	20.42	20.42	20.42	20.42
iC4	3.50	3.50	3.50	3.50	3.50	3.50
nC4	12.81	12.81	12.81	12.81	12.81	12.81
C4=	16.72	16.72	16.72	16.72	16.72	16.72
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	3.70	3.70	3.70	3.70	3.70	3.70
C5=	0.90	0.90	0.90	0.90	0.90	0.90
Total	100.00	100.00	100.00	100.00	100.00	100.00
Product, wt-%						
H2	1.82	1.88	1.90	1.88	1.80	1.85
C1	21.55	17.94	17.11	16.51	14.90	14.49
C2	16.71	15.39	15.28	15.26	14.27	14.23
C2=	0.34	0.50	0.50	0.50	0.57	0.57
C3	8.08	13.83	16.25	17.30	21.44	21.89
C3=	0.38	0.50	0.50	0.62	0.73	0.73
iC4	0.00	0.22	0.19	0.25	0.40	0.44
nC4	0.32	0.44	0.58	0.74	0.81	1.11
C4=	0.00	0.00	0.00	0.00	0.00	0.00
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	12.75	11.22	10.71	10.55	9.87	9.59
Toluene	20.15	20.14	19.67	19.36	18.90	18.65
Ethyl-benzene	0.79	0.86	0.89	0.88	0.54	0.89
para-Xylene	2.21	2.42	2.42	2.39	2.39	2.41
meta-Xylene	4.85	5.21	5.19	5.13	5.20	5.16
ortho-Xylene	2.36	2.51	2.51	2.48	2.52	2.50
Total BTX	43.12	42.36	41.39	40.80	39.43	39.19
A9	1.32	1.46	1.50	1.52	1.51	1.54
A10	0.33	0.41	0.35	0.35	0.38	0.38
A11	6.03	5.07	4.44	4.26	3.78	3.58
A12	0.00	0.00	0.00	0.00	0.00	0.00
A13	0.00	0.00	0.00	0.00	0.00	0.00
A14+	0.00	0.00	0.00	0.00	0.00	0.00
Total Aromatics	50.79	49.30	47.69	46.93	45.09	44.69
Total Product	100.00	100.00	100.00	100.00	100.00	100.00
Feed, wt-% C	83.41	83.41	83.41	83.41	83.41	83.41
Product, wt-% C	83.21	83.30	83.20	83.20	83.23	83.19
Mass Balance, wt-%	107.08	100.51	97.66	98.55	99.02	100.97
C Balance, wt-%	99.76	99.87	99.75	99.74	99.79	99.73

Run Period	5 3	5 5	5 6	5 7	5 8	5 9
Adj. Products, wt-%						
H2	1.58	1.75	1.65	1.63	1.59	1.58
C1	21.60	17.96	17.15	16.56	14.93	14.53
C2	16.75	15.41	15.32	15.30	14.30	14.27
C2=	0.34	0.50	0.50	0.50	0.57	0.57
C3	8.10	13.85	16.29	17.35	21.48	21.95
C3=	0.39	0.50	0.50	0.62	0.73	0.73
iC4	0.00	0.22	0.19	0.25	0.40	0.44
nC4	0.32	0.44	0.59	0.75	0.81	1.11
C4=	0.00	0.00	0.00	0.00	0.00	0.00
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	12.78	11.23	10.74	10.58	9.89	9.61
Toluene	20.20	20.17	19.72	19.41	18.94	18.70
Ethyl-benzene	0.80	0.86	0.89	0.88	0.55	0.89
para-Xylene	2.22	2.42	2.43	2.40	2.40	2.42
meta-Xylene	4.86	5.22	5.20	5.15	5.21	5.18
ortho-Xylene	2.36	2.52	2.51	2.49	2.52	2.50
Total BTX	43.22	42.42	41.50	40.90	39.51	39.30
A9	1.32	1.46	1.50	1.53	1.51	1.54
A10	0.33	0.41	0.35	0.35	0.38	0.38
A11	6.04	5.08	4.45	4.27	3.78	3.59
A12	0.00	0.00	0.00	0.00	0.00	0.00
A13	0.00	0.00	0.00	0.00	0.00	0.00
A14+	0.00	0.00	0.00	0.00	0.00	0.00
Total Aromatics	50.92	49.37	47.81	47.05	45.19	44.81
Total Product	100.00	100.00	100.00	100.00	100.00	100.00
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
C Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
Conversions, wt-%						
C3	80.69	66.98	61.16	58.64	48.78	47.66
C3=	98.11	97.56	97.55	96.95	96.44	96.42
C4	98.04	95.99	95.21	93.91	92.55	90.48
C4=	100.00	100.00	100.00	100.00	100.00	100.00
C5	100.00	100.00	100.00	100.00	100.00	100.00
C5=	100.00	100.00	100.00	100.00	100.00	100.00
Total C3-C5	91.20	85.00	82.43	81.04	76.57	75.76
Selectivity, wt-%						
H2	1.74	2.06	2.00	2.01	2.07	2.09
C1-C2	42.43	39.85	40.00	39.93	38.92	38.77
Benzene	14.01	13.21	13.03	13.06	12.91	12.69
Toluene	22.15	23.73	23.93	23.96	24.74	24.68
Xylenes + EB	11.23	12.96	13.39	13.45	13.94	14.51
A9+ Aromatics	8.44	8.18	7.65	7.58	7.42	7.26
Total Aromatics	55.83	58.08	58.00	58.06	59.01	59.14

Run Period	6 2	6 3	6 6	6 7	6 8	6 9
Temperature, °C	541	541	541	541	541	541
Pressure	P2	P2	P2	P2	P2	P2
LHSV, hr-1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1
Feed, wt-%	Blend					
C2	0.00	0.00	0.00	0.00	0.00	0.00
C2=	0.00	0.00	0.00	0.00	0.00	0.00
C3	41.94	41.94	41.94	41.94	41.94	41.94
C3=	20.42	20.42	20.42	20.42	20.42	20.42
iC4	3.50	3.50	3.50	3.50	3.50	3.50
nC4	12.81	12.81	12.81	12.81	12.81	12.81
C4=	16.72	16.72	16.72	16.72	16.72	16.72
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	3.70	3.70	3.70	3.70	3.70	3.70
C5=	0.90	0.90	0.90	0.90	0.90	0.90
Total	100.00	100.00	100.00	100.00	100.00	100.00
Product, wt-%						
H2	2.81	2.86	2.64	2.54	2.46	2.32
C1	18.97	16.13	11.18	9.92	8.92	7.75
C2	12.51	11.36	9.67	8.91	8.45	7.68
C2=	0.55	0.72	0.93	0.99	1.06	1.10
C3	8.81	13.27	24.38	27.67	30.91	33.56
C3=	0.41	0.67	1.01	1.11	1.22	1.42
iC4	0.00	0.27	0.50	0.46	0.46	0.60
nC4	0.40	0.54	1.01	1.38	1.84	2.58
C4=	0.00	0.00	0.24	0.22	0.22	0.19
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	15.44	14.03	11.51	10.64	9.55	9.17
Toluene	22.91	22.58	20.81	20.33	19.53	18.76
Ethyl-benzene	0.76	0.79	0.82	0.84	0.85	0.82
para-Xylene	2.21	2.37	2.39	2.45	2.43	2.44
meta-Xylene	4.77	5.09	5.19	5.22	5.20	5.13
ortho-Xylene	2.31	2.47	2.44	2.45	2.43	2.36
Total BTX	48.40	47.32	43.16	41.94	39.98	38.68
A9	0.92	1.21	1.44	1.53	1.59	1.56
A10	0.31	0.50	0.50	0.48	0.42	0.40
A11	5.90	5.14	3.34	2.85	2.47	2.16
A12	0.00	0.00	0.00	0.00	0.00	0.00
A13	0.00	0.00	0.00	0.00	0.00	0.00
A14+	0.00	0.00	0.00	0.00	0.00	0.00
Total Aromatics	55.54	54.17	48.44	46.80	44.47	42.81
Total Product	100.00	100.00	100.00	100.00	100.00	100.00
Feed, wt-% C	83.41	83.41	83.41	83.41	83.41	83.41
Product, wt-% C	83.16	83.22	83.27	83.30	83.23	83.31
Mass Balance, wt-%	99.40	99.12	99.51	97.04	103.31	93.07
C Balance, wt-%	99.69	99.76	99.83	99.87	99.78	99.88

Run	6	6	6	6	6	6
Period	2	3	6	7	8	9
Adj. Products, wt-%						
H2	2.51	2.63	2.47	2.41	2.25	2.19
C1	19.03	16.17	11.20	9.94	8.94	7.76
C2	12.55	11.39	9.68	8.92	8.47	7.69
C2=	0.55	0.72	0.93	0.99	1.06	1.10
C3	8.84	13.31	24.42	27.71	30.98	33.60
C3=	0.42	0.68	1.01	1.11	1.22	1.42
iC4	0.00	0.27	0.51	0.46	0.46	0.60
nC4	0.40	0.54	1.01	1.38	1.84	2.59
C4=	0.00	0.00	0.24	0.22	0.22	0.19
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	15.49	14.07	11.53	10.66	9.57	9.18
Toluene	22.98	22.63	20.84	20.36	19.57	18.78
Ethyl-benzene	0.76	0.79	0.82	0.84	0.85	0.82
para-Xylene	2.21	2.37	2.40	2.46	2.44	2.45
meta-Xylene	4.79	5.10	5.20	5.22	5.21	5.13
ortho-Xylene	2.32	2.47	2.44	2.46	2.44	2.37
Total BTX	48.55	47.43	43.23	42.00	40.07	38.73
A9	0.93	1.21	1.45	1.54	1.60	1.57
A10	0.31	0.50	0.50	0.48	0.42	0.40
A11	5.92	5.15	3.35	2.85	2.48	2.17
A12	0.00	0.00	0.00	0.00	0.00	0.00
A13	0.00	0.00	0.00	0.00	0.00	0.00
A14+	0.00	0.00	0.00	0.00	0.00	0.00
Total Aromatics	55.71	54.30	48.53	46.87	44.57	42.86
Total Product	100.00	100.00	100.00	100.00	100.00	100.00
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
C Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
Conversions, wt-%						
C3	78.92	68.28	41.78	33.93	26.14	19.90
C3=	97.97	96.69	95.04	94.56	94.02	93.05
C4	97.57	95.02	90.70	88.75	85.90	80.50
C4=	100.00	100.00	98.54	98.68	98.67	98.85
C5	100.00	100.00	100.00	100.00	100.00	100.00
C5=	100.00	100.00	100.00	100.00	100.00	100.00
Total C3-C5	90.35	85.21	72.81	69.12	65.28	61.61
Selectivity, wt-%						
H2	2.77	3.09	3.40	3.49	3.44	3.56
C1-C2	35.56	33.19	29.95	28.71	28.28	26.87
Benzene	17.14	16.51	15.83	15.42	14.66	14.90
Toluene	25.44	26.56	28.63	29.45	29.98	30.49
Xylenes + EB	11.16	12.60	14.92	15.88	16.75	17.48
A9+ Aromatics	7.92	8.06	7.27	7.05	6.88	6.70
Total Aromatics	61.66	63.73	66.65	67.80	68.27	69.57

Run		7	7	7	7	7
Period		2	3	4	6	9
Temperature, °C		520	521	521	521	521
Pressure		P2	P2	P2	P2	P2
LHSV, hr-1		LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1
Feed, wt-%	Blend					
C2	0.00	0.00	0.00	0.00	0.00	0.00
C2=	0.00	0.00	0.00	0.00	0.00	0.00
C3	41.94	41.94	41.94	41.94	41.94	41.94
C3=	20.42	20.42	20.42	20.42	20.42	20.42
iC4	3.50	3.50	3.50	3.50	3.50	3.50
nC4	12.81	12.81	12.81	12.81	12.81	12.81
C4=	16.72	16.72	16.72	16.72	16.72	16.72
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	3.70	3.70	3.70	3.70	3.70	3.70
C5=	0.90	0.90	0.90	0.90	0.90	0.90
Total	100.00	100.00	100.00	100.00	100.00	100.00
Product, wt-%						
H2		2.50	2.52	2.52	2.39	2.15
C1		17.88	14.29	13.08	10.04	7.74
C2		12.50	10.71	10.50	9.02	7.87
C2=		0.53	0.59	0.67	0.73	0.84
C3		12.92	18.91	21.89	29.26	34.51
C3=		0.40	0.63	0.63	0.85	1.03
iC4		0.33	0.28	0.53	0.50	0.84
nC4		0.66	0.85	0.80	1.49	2.30
C4=		0.00	0.00	0.00	0.24	0.20
iC5		0.00	0.00	0.00	0.00	0.00
nC5		0.00	0.00	0.00	0.00	0.00
C5=		0.00	0.00	0.00	0.00	0.00
Benzene		12.83	11.54	10.81	8.97	8.22
Toluene		21.47	21.61	20.94	19.43	18.18
Ethyl-benzene		0.77	0.80	0.83	0.82	0.81
para-Xylene		2.28	2.49	2.49	2.58	2.50
meta-Xylene		4.94	5.45	5.48	5.59	5.36
ortho-Xylene		2.38	2.58	2.58	2.62	2.54
Total BTX		44.68	44.47	43.12	40.01	37.61
A9		1.16	1.43	1.52	1.68	1.61
A10		0.10	0.14	0.18	0.17	0.16
A11		0.24	0.24	0.23	0.26	0.28
A12		2.57	1.91	1.61	1.12	0.89
A13		2.52	2.10	1.89	1.42	1.21
A14+		1.02	0.91	0.83	0.82	0.77
Total Aromatics		52.29	51.21	49.38	45.47	42.53
Total Product		100.00	100.00	100.00	100.00	100.00
Feed, wt-% C		83.41	83.41	83.41	83.41	83.41
Product, wt-% C		83.40	83.52	83.42	83.37	83.47
Mass Balance, wt-%		100.90	101.36	99.03	102.36	101.31
C Balance, wt-%		99.98	100.13	100.01	99.95	100.07

Run	7	7	7	7	7
Period	2	3	4	6	9
Adj. Products, wt-%					
H2	2.48	2.64	2.53	2.34	2.22
C1	17.89	14.27	13.08	10.05	7.73
C2	12.50	10.70	10.49	9.03	7.86
C2=	0.53	0.59	0.67	0.73	0.84
C3	12.92	18.88	21.89	29.28	34.48
C3=	0.40	0.63	0.63	0.85	1.03
iC4	0.33	0.28	0.53	0.50	0.84
nC4	0.66	0.85	0.80	1.50	2.30
C4=	0.00	0.00	0.00	0.24	0.20
iC5	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00
Benzene	12.84	11.52	10.81	8.98	8.21
Toluene	21.48	21.59	20.94	19.44	18.17
Ethyl-benzene	0.77	0.80	0.83	0.82	0.81
para-Xylene	2.28	2.48	2.49	2.58	2.50
meta-Xylene	4.95	5.44	5.48	5.59	5.35
ortho-Xylene	2.38	2.58	2.58	2.62	2.54
Total BTX	44.68	44.41	43.11	40.03	37.58
A9	1.16	1.43	1.52	1.68	1.61
A10	0.10	0.14	0.18	0.17	0.16
A11	0.24	0.24	0.23	0.26	0.28
A12	2.57	1.91	1.61	1.12	0.88
A13	2.52	2.10	1.89	1.42	1.21
A14+	1.02	0.91	0.83	0.82	0.76
Total Aromatics	52.29	51.14	49.37	45.49	42.50
Total Product	100.00	100.00	100.00	100.00	100.00
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00
C Balance, wt-%	100.00	100.00	100.00	100.00	100.00
Conversions, wt-%					
C3	69.19	54.97	47.81	30.19	17.79
C3=	98.05	96.89	96.90	95.84	94.95
C4	93.96	93.07	91.82	87.78	80.80
C4=	100.00	100.00	100.00	98.56	98.79
C5	100.00	100.00	100.00	100.00	100.00
C5=	100.00	100.00	100.00	100.00	100.00
Total C3-C5	85.70	79.35	76.14	67.63	61.15
Selectivity, wt-%					
H2	2.89	3.33	3.32	3.46	3.62
C1-C2	35.08	32.21	31.84	29.28	26.88
Benzene	14.98	14.52	14.20	13.27	13.43
Toluene	25.06	27.20	27.50	28.74	29.71
Xylenes + EB	12.10	14.24	14.93	17.18	18.32
A9+ Aromatics	8.88	8.49	8.21	8.07	8.03
Total Aromatics	61.02	64.45	64.84	67.26	69.49

Run Period		8 2	8 3	8 4	8 5	8 6	8 9
Temperature, °C		539	538	539	539	539	539
Pressure		P2	P2	P2	P2	P2	P2
LHSV, hr-1		LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1
Feed, wt-%	Blend						
C2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C2=	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C3	100.00	100.00	100.00	100.00	100.00	100.00	100.00
C3=	0.00	0.00	0.00	0.00	0.00	0.00	0.00
iC4	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nC4	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4=	0.00	0.00	0.00	0.00	0.00	0.00	0.00
iC5	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Product, wt-%							
H2		3.06	3.12	3.05	3.04	2.91	2.68
C1		22.37	20.47	18.35	17.01	15.01	12.76
C2		14.13	13.40	12.76	12.63	11.77	11.19
C2=		0.74	0.85	0.93	1.03	1.10	1.16
C3		12.70	16.49	20.83	24.20	28.40	34.94
C3=		0.64	0.79	0.93	1.09	1.20	1.30
iC4		0.00	0.31	0.31	0.32	0.27	0.53
nC4		0.68	0.62	0.92	0.95	1.08	1.32
C4=		0.00	0.00	0.00	0.00	0.26	0.25
iC5		0.00	0.00	0.00	0.00	0.00	0.00
nC5		0.00	0.00	0.00	0.00	0.00	0.00
C5=		0.00	0.00	0.00	0.00	0.00	0.00
Benzene		14.05	13.39	12.75	11.86	10.15	10.76
Toluene		18.55	18.43	17.61	16.61	16.56	14.40
Ethyl-benzene		0.85	0.86	0.87	0.88	0.88	0.84
para-Xylene		1.61	1.60	1.62	1.59	1.68	1.42
meta-Xylene		3.50	3.47	3.45	3.39	3.52	2.85
ortho-Xylene		1.69	1.64	1.65	1.59	1.68	1.31
Total BTX		40.24	39.41	37.95	35.92	34.47	31.59
A9		0.60	0.61	0.66	0.66	0.74	0.50
A10		0.08	0.08	0.07	0.07	0.10	0.06
A11		0.28	0.27	0.26	0.24	0.27	0.27
A12		2.13	1.68	1.36	1.21	0.97	0.59
A13		1.73	1.41	1.18	1.14	0.97	0.53
A14+		0.60	0.50	0.44	0.48	0.50	0.33
Total Aromatics		45.67	43.95	41.92	39.72	38.02	33.87
Total Product		100.00	100.00	100.00	100.00	100.00	100.00
Feed, wt-% C		81.71	81.71	81.71	81.71	81.71	81.71
Product, wt-% C		81.99	81.91	81.92	81.82	81.91	81.87
Mass Balance, wt-%		101.35	98.41	99.89	97.64	98.37	99.10
Carbon Bal, wt-%		100.34	100.25	100.26	100.13	100.24	100.20

Run	8	8	8	8	8	8
Period	2	3	4	5	6	9
Adj. Products, wt-%						
H2	3.40	3.36	3.30	3.17	3.14	2.87
C1	22.29	20.42	18.30	16.99	14.97	12.74
C2	14.08	13.37	12.73	12.61	11.74	11.16
C2=	0.74	0.85	0.93	1.03	1.10	1.16
C3	12.66	16.45	20.78	24.17	28.33	34.87
C3=	0.64	0.79	0.93	1.08	1.19	1.30
iC4	0.00	0.31	0.31	0.32	0.27	0.53
nC4	0.68	0.62	0.92	0.95	1.07	1.32
C4=	0.00	0.00	0.00	0.00	0.26	0.25
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	14.00	13.36	12.72	11.84	10.13	10.74
Toluene	18.49	18.39	17.56	16.59	16.52	14.37
Ethyl-benzene	0.84	0.86	0.87	0.87	0.88	0.84
para-Xylene	1.60	1.60	1.61	1.59	1.67	1.42
meta-Xylene	3.49	3.47	3.44	3.39	3.51	2.84
ortho-Xylene	1.68	1.64	1.65	1.59	1.67	1.30
Total BTX	40.10	39.31	37.85	35.87	34.38	31.52
A9	0.60	0.61	0.66	0.66	0.74	0.50
A10	0.08	0.08	0.07	0.07	0.10	0.06
A11	0.28	0.27	0.26	0.24	0.27	0.27
A12	2.12	1.68	1.36	1.21	0.97	0.59
A13	1.72	1.41	1.17	1.14	0.97	0.53
A14+	0.60	0.50	0.44	0.48	0.50	0.33
Total Aromatics	45.51	43.84	41.81	39.67	37.93	33.81
Total Product	100.00	100.00	100.00	100.00	100.00	100.00
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
Carbon Bal. wt-%	100.00	100.00	100.00	100.00	100.00	100.00
Conversions, wt-%						
C3	87.34	83.55	79.22	75.83	71.67	65.13
C3=	---	---	---	---	---	---
C4	---	---	---	---	---	---
C4=	---	---	---	---	---	---
C5	---	---	---	---	---	---
C5=	---	---	---	---	---	---
Total C3-C5	86.03	81.84	77.07	73.48	68.88	61.74
Selectivity, wt-%						
H2	3.95	4.10	4.29	4.31	4.56	4.65
C1-C2	43.15	42.32	41.47	41.69	40.37	40.59
Benzene	16.27	16.33	16.50	16.12	14.70	17.40
Toluene	21.49	22.47	22.78	22.58	23.98	23.28
Xylenes + EB	8.85	9.24	9.82	10.13	11.24	10.38
A9+ Aromatics	6.29	5.53	5.15	5.16	5.15	3.70
Total Aromatics	52.90	53.57	54.25	53.99	55.07	54.76

Run		9	9	9	9
Period		3	4	5	6
Temperature, °C		539	538	538	538
Pressure		P1	P1	P1	P1
LHSV, hr-1		LHSV 1	LHSV 1	LHSV 1	LHSV 1
Feed, wt-%	Blend				
C2	0.00	0.00	0.00	0.00	0.00
C2=	0.00	0.00	0.00	0.00	0.00
C3	0.00	0.00	0.00	0.00	0.00
C3=	0.00	0.00	0.00	0.00	0.00
iC4	15.00	15.00	15.00	15.00	15.00
nC4	85.00	85.00	85.00	85.00	85.00
C4=	0.00	0.00	0.00	0.00	0.00
iC5	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00
Product, wt-%					
H2		3.81	3.88	3.81	3.70
C1		14.10	13.59	12.18	11.42
C2		10.51	10.34	9.87	9.97
C2=		1.21	1.32	1.70	1.78
C3		15.42	15.81	16.67	17.26
C3=		1.06	1.07	1.50	1.78
iC4		0.28	0.27	0.46	0.67
nC4		1.11	1.63	3.88	5.60
C4=		0.00	0.26	0.22	0.43
iC5		0.00	0.00	0.00	0.00
nC5		0.00	0.00	0.00	0.00
C5=		0.00	0.00	0.00	0.00
Benzene		14.91	14.40	13.20	11.77
Toluene		22.78	22.46	21.77	20.95
Ethyl-benzene		0.87	0.96	1.03	1.17
para-Xylene		2.20	2.32	2.37	2.48
meta-Xylene		4.84	4.98	5.02	5.01
ortho-Xylene		2.30	2.37	2.32	2.31
Total BTX		47.89	47.48	45.71	43.70
A9		0.78	0.92	1.02	1.20
A10		0.10	0.10	0.14	0.18
A11		0.34	0.44	0.42	0.40
A12		1.37	1.06	0.79	0.53
A13		1.37	1.16	0.93	0.71
A14+		0.63	0.68	0.70	0.66
Total Aromatics		52.49	51.83	49.71	47.38
Total Product		100.00	100.00	100.00	100.00
Feed, wt-% C		82.66	82.66	82.66	82.66
Product, wt-% C		82.66	82.59	82.57	82.50
Mass Balance, wt-%		101.08	97.92	94.44	94.22
Carbon Bal, wt-%		100.00	99.91	99.89	99.81

Run	9	9	9	9
Period	3	4	5	6
Adj. Products, wt-%				
H2	3.82	3.79	3.71	3.52
C1	14.10	13.60	12.20	11.45
C2	10.51	10.35	9.88	9.99
C2=	1.21	1.32	1.70	1.78
C3	15.42	15.82	16.69	17.29
C3=	1.06	1.07	1.50	1.78
iC4	0.28	0.27	0.46	0.67
nC4	1.11	1.63	3.89	5.62
C4=	0.00	0.26	0.22	0.43
iC5	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00
Benzene	14.91	14.41	13.21	11.80
Toluene	22.78	22.48	21.79	20.99
Ethyl-benzene	0.87	0.97	1.03	1.17
para-Xylene	2.20	2.32	2.37	2.49
meta-Xylene	4.84	4.98	5.02	5.02
ortho-Xylene	2.30	2.37	2.33	2.31
Total BTX	47.89	47.53	45.76	43.78
A9	0.78	0.92	1.02	1.20
A10	0.10	0.10	0.14	0.18
A11	0.34	0.44	0.42	0.40
A12	1.37	1.06	0.79	0.53
A13	1.37	1.16	0.93	0.71
A14+	0.63	0.68	0.70	0.67
Total Aromatics	52.48	51.88	49.76	47.47
Total Product	100.00	100.00	100.00	100.00
Mass Balance, wt-%	100.00	100.00	100.00	100.00
Carbon Bal. wt-%	100.00	100.00	100.00	100.00
Conversions, wt-%				
C3	---	---	---	---
C3=	---	---	---	---
C4	98.61	98.10	95.66	93.71
C4=	---	---	---	---
C5	---	---	---	---
C5=	---	---	---	---
Total C3-C5	82.13	80.95	77.24	74.20
Selectivity, wt-%				
H2	4.65	4.68	4.80	4.74
C1-C2	31.45	31.23	30.78	31.29
Benzene	18.15	17.80	17.11	15.90
Toluene	27.74	27.77	28.21	28.29
Xylenes + EB	12.43	13.14	13.92	14.82
A9+ Aromatics	5.58	5.38	5.18	4.96
Total Aromatics	63.90	64.09	64.42	63.97

Run Period	10 2	10 3	10 4	10 5	10 6	10 9
Temperature, °C	540	540	540	540	540	540
Pressure	P2	P2	P2	P2	P2	P2
LHSV, hr-1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1
Feed, wt-%	Blend					
C2	0.00	0.00	0.00	0.00	0.00	0.00
C2=	0.00	0.00	0.00	0.00	0.00	0.00
C3	0.00	0.00	0.00	0.00	0.00	0.00
C3=	0.00	0.00	0.00	0.00	0.00	0.00
iC4	15.00	15.00	15.00	15.00	15.00	15.00
nC4	85.00	85.00	85.00	85.00	85.00	85.00
C4=	0.00	0.00	0.00	0.00	0.00	0.00
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00
Product, wt-%						
H2	3.18	3.31	3.31	3.26	3.22	3.00
C1	19.60	17.48	16.07	14.81	13.89	9.90
C2	14.14	13.34	13.06	12.79	12.66	10.86
C2=	0.60	0.80	0.79	0.87	0.96	1.52
C3	8.80	12.05	14.06	16.31	17.66	19.17
C3=	0.45	0.60	0.74	0.87	1.01	1.75
iC4	0.00	0.32	0.33	0.22	0.21	1.12
nC4	0.50	0.63	0.66	0.88	1.03	7.47
C4=	0.00	0.00	0.00	0.00	0.20	0.54
iC5	0.00	0.00	0.00	0.00	0.00	0.23
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	15.13	14.31	13.56	12.48	14.26	11.53
Toluene	22.09	21.88	21.79	21.70	20.17	19.03
Ethyl-benzene	0.81	0.80	0.84	0.91	0.94	0.91
para-Xylene	2.07	2.14	2.27	2.38	2.31	2.25
meta-Xylene	4.49	4.76	4.96	5.16	4.97	4.75
ortho-Xylene	2.17	2.29	2.41	2.47	2.35	2.21
Total BTX	46.76	46.19	45.83	45.10	45.01	40.68
A9	0.77	0.86	0.95	1.05	1.07	1.11
A10	0.10	0.09	0.09	0.14	0.13	0.16
A11	0.29	0.29	0.33	0.32	0.31	0.29
A12	2.17	1.71	1.46	1.23	0.93	0.70
A13	1.98	1.67	1.56	1.37	1.07	0.90
A14+	0.67	0.67	0.76	0.78	0.67	0.61
Total Aromatics	52.74	51.47	50.98	49.99	49.18	44.44
Total Product	100.00	100.00	100.00	100.00	100.00	100.00
Feed, wt-% C	82.66	82.66	82.66	82.66	82.66	82.66
Product, wt-% C	82.75	82.67	82.71	82.73	82.78	82.92
Mass Balance, wt-%	96.91	97.30	96.92	97.51	96.44	94.15
Carbon Bal, wt-%	100.10	100.01	100.05	100.09	100.14	100.31

Run	10	10	10	10	10	10
Period	2	3	4	5	6	9
Adj. Products, wt-%						
H2	3.28	3.32	3.36	3.34	3.35	3.30
C1	19.58	17.48	16.06	14.79	13.87	9.86
C2	14.12	13.34	13.06	12.78	12.64	10.83
C2=	0.60	0.80	0.79	0.87	0.96	1.52
C3	8.79	12.05	14.05	16.30	17.63	19.11
C3=	0.45	0.60	0.74	0.87	1.01	1.74
iC4	0.00	0.32	0.33	0.22	0.21	1.12
nC4	0.50	0.63	0.66	0.88	1.03	7.44
C4=	0.00	0.00	0.00	0.00	0.20	0.54
iC5	0.00	0.00	0.00	0.00	0.00	0.23
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	15.11	14.31	13.56	12.47	14.24	11.49
Toluene	22.07	21.88	21.78	21.68	20.14	18.97
Ethyl-benzene	0.81	0.80	0.84	0.91	0.94	0.91
para-Xylene	2.07	2.14	2.27	2.37	2.30	2.24
meta-Xylene	4.48	4.76	4.96	5.16	4.97	4.73
ortho-Xylene	2.17	2.29	2.41	2.47	2.35	2.20
Total BTX	46.72	46.18	45.81	45.06	44.94	40.55
A9	0.77	0.86	0.94	1.05	1.06	1.10
A10	0.10	0.09	0.09	0.14	0.13	0.16
A11	0.29	0.29	0.33	0.32	0.31	0.29
A12	2.17	1.71	1.46	1.23	0.93	0.69
A13	1.98	1.67	1.56	1.37	1.06	0.90
A14+	0.67	0.67	0.76	0.78	0.66	0.61
Total Aromatics	52.69	51.47	50.95	49.95	49.11	44.30
Total Product	100.00	100.00	100.00	100.00	100.00	100.00
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
Carbon Bal, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
Conversions, wt-%						
C3	---	---	---	---	---	---
C3=	---	---	---	---	---	---
C4	99.50	99.05	99.01	98.90	98.77	91.44
C4=	---	---	---	---	---	---
C5	---	---	---	---	---	---
C5=	---	---	---	---	---	---
Total C3-C5	90.27	86.40	84.22	81.73	79.93	69.82
Selectivity, wt-%						
H2	3.63	3.84	4.00	4.09	4.20	4.73
C1-C2	37.99	36.59	35.51	34.80	34.36	31.82
Benzene	16.74	16.56	16.09	15.26	17.82	16.46
Toluene	24.45	25.33	25.86	26.52	25.20	27.17
Xylenes + EB	10.56	11.57	12.44	13.35	13.21	14.45
A9+ Aromatics	6.62	6.11	6.11	5.98	5.21	5.38
Total Aromatics	58.37	59.57	60.50	61.11	61.44	63.46

Run Period	11 3	11 4	11 5	11 6	11 7	11 8
Temperature, °C	540	540	540	540	540	540
Pressure	P2	P2	P2	P2	P2	P2
LHSV, hr-1	LHSV 1A	LHSV 1A	LHSV 1A	LHSV 1A	LHSV 1A	LHSV 1A
Feed, wt-%	Blend	With N2	==>	==>	==>	==>
C2	0.00	0.00	0.00	0.00	0.00	0.00
C2=	0.00	0.00	0.00	0.00	0.00	0.00
C3	0.00	0.00	0.00	0.00	0.00	0.00
C3=	100.00	100.00	100.00	100.00	100.00	100.00
iC4	0.00	0.00	0.00	0.00	0.00	0.00
nC4	0.00	0.00	0.00	0.00	0.00	0.00
C4=	0.00	0.00	0.00	0.00	0.00	0.00
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00
Product, wt-%						
H2	3.82	3.53	3.68	3.29	3.44	3.20
C1	12.49	11.41	10.91	9.14	8.82	7.24
C2	9.48	10.42	10.68	9.79	10.39	9.15
C2=	0.52	0.68	0.84	0.98	1.15	1.42
C3	4.36	5.89	8.76	11.79	13.96	16.68
C3=	0.26	0.51	0.76	0.72	0.99	1.19
iC4	0.00	0.00	0.17	0.84	0.39	1.25
nC4	0.00	0.00	0.00	0.00	0.00	0.00
C4=	0.00	0.00	0.00	0.00	0.00	0.00
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	18.89	17.26	16.16	14.45	13.53	12.46
Toluene	29.21	28.41	27.23	27.53	26.40	26.03
Ethyl-benzene	0.31	0.30	0.40	0.40	0.38	0.44
para-Xylene	2.72	2.93	3.04	3.12	3.14	3.32
meta-Xylene	6.09	6.46	6.49	6.94	6.93	7.37
ortho-Xylene	2.98	3.17	3.16	3.36	3.36	3.55
Total BTX	60.20	58.53	56.48	55.81	53.74	53.17
A9	1.48	1.80	1.89	2.03	1.98	2.11
A10	0.12	0.18	0.17	0.23	0.27	0.28
A11	0.37	0.36	0.40	0.46	0.50	0.55
A12	2.92	2.87	1.95	1.68	1.38	1.05
A13	2.86	2.69	2.18	2.03	1.76	1.49
A14+	1.11	1.14	1.09	1.21	1.21	1.22
Total Aromatics	69.07	67.56	64.17	63.44	60.84	59.87
Total Product	100.00	100.00	99.97	99.99	99.98	100.00
Feed, wt-% C	85.63	85.63	85.63	85.63	85.63	85.63
Product, wt-% C	84.38	84.52	84.05	84.43	84.05	84.30
Mass Balance, wt-%	108.64	89.01	124.54	101.66	114.63	110.52
Carbon Bal, wt-%	98.54	98.71	98.15	98.60	98.16	98.44

Run	11	11	11	11	11	11
Period	3	4	5	6	7	8
Adj. Products, wt-%						
H2	2.40	2.26	1.87	1.91	1.63	1.67
C1	12.67	11.56	11.11	9.27	8.99	7.35
C2	9.62	10.56	10.88	9.93	10.58	9.30
C2=	0.53	0.69	0.86	0.99	1.17	1.44
C3	4.42	5.97	8.92	11.96	14.22	16.94
C3=	0.26	0.52	0.77	0.73	1.01	1.21
iC4	0.00	0.00	0.17	0.85	0.40	1.27
nC4	0.00	0.00	0.00	0.00	0.00	0.00
C4=	0.00	0.00	0.00	0.00	0.00	0.00
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	19.17	17.49	16.46	14.66	13.78	12.66
Toluene	29.64	28.78	27.74	27.92	26.90	26.44
Ethyl-benzene	0.31	0.30	0.41	0.41	0.39	0.45
para-Xylene	2.76	2.97	3.10	3.17	3.20	3.38
meta-Xylene	6.18	6.55	6.61	7.04	7.06	7.48
ortho-Xylene	3.02	3.21	3.22	3.40	3.42	3.60
Total BTX	61.09	59.30	57.54	56.60	54.75	54.01
A9	1.51	1.82	1.93	2.05	2.02	2.14
A10	0.13	0.18	0.18	0.23	0.28	0.28
A11	0.38	0.36	0.41	0.47	0.50	0.56
A12	2.96	2.91	1.99	1.70	1.40	1.07
A13	2.90	2.72	2.22	2.05	1.79	1.52
A14+	1.13	1.15	1.11	1.23	1.23	1.24
Total Aromatics	70.09	68.45	65.38	64.34	61.98	60.82
Total Product	100.00	100.00	99.97	99.99	99.98	100.00
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
Carbon Bal, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
Conversions, wt-%						
C3	---	---	---	---	---	---
C3=	99.74	99.48	99.23	99.27	98.99	98.79
C4	---	---	---	---	---	---
C4=	---	---	---	---	---	---
C5	---	---	---	---	---	---
C5=	---	---	---	---	---	---
Total C3-C5	99.31	99.52	90.12	86.46	84.37	80.58
Selectivity, wt-%						
H2	2.52	2.42	2.07	2.21	1.93	2.07
C1-C2	23.94	24.39	25.36	23.36	24.59	22.45
Benzene	20.11	18.70	18.27	16.95	16.34	15.71
Toluene	31.10	30.78	30.79	32.30	31.88	32.82
Xylenes + EB	12.89	13.93	14.80	16.22	16.68	18.50
A9- Aromatics	9.44	9.78	8.70	8.96	8.58	8.45
Total Aromatics	73.54	73.19	72.56	74.43	73.48	75.48

Run	12	12	12	12	12
Period	4	5	6	7	8
Temperature, °C	540	540	540	540	540
Pressure	P2	P2	P2	P2	P2
LHSV, hr-1	LHSV 1B	LHSV 1B	LHSV 1B	LHSV 1B	LHSV 1B
Feed, wt-%	Blend	With N2	==>	==>	==>
C2	0.00	0.00	0.00	0.00	0.00
C2=	0.00	0.00	0.00	0.00	0.00
C3	0.00	0.00	0.00	0.00	0.00
C3=	0.00	0.00	0.00	0.00	0.00
iC4	0.00	0.00	0.00	0.00	0.00
nC4	0.00	0.00	0.00	0.00	0.00
C4=	100.00	100.00	100.00	100.00	100.00
iC5	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00
Product, wt-%					
H2	3.21	3.19	3.09	2.92	1.61
C1	9.96	9.32	8.49	7.72	4.07
C2	10.69	10.44	9.55	8.96	4.47
C2=	1.03	1.02	1.37	1.72	5.90
C3	13.69	13.32	15.26	16.37	11.03
C3=	0.85	0.94	1.37	1.53	9.92
iC4	0.00	0.00	0.00	0.00	0.00
nC4	0.98	1.38	2.25	4.15	15.44
C4=	0.00	0.00	0.00	0.23	4.68
iC5	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	2.09
C5=	0.00	0.00	0.00	0.00	0.00
Benzene	12.67	12.20	11.42	10.78	5.88
Toluene	25.32	25.94	25.12	23.84	17.51
Ethyl-benzene	0.39	0.46	0.56	0.74	1.00
para-Xylene	3.16	3.39	3.46	3.56	3.22
meta-Xylene	7.06	7.47	7.59	7.59	5.77
ortho-Xylene	3.44	3.62	3.63	3.56	2.67
Total BTX	52.05	53.08	51.77	50.07	36.04
A9	2.20	2.30	2.34	2.55	2.31
A10	0.28	0.29	0.39	0.43	0.44
A11	0.51	0.46	0.50	0.48	0.32
A12	1.41	1.21	0.95	0.58	0.24
A13	1.86	1.72	1.39	1.01	0.52
A14+	1.24	1.32	1.28	1.27	0.91
Total Aromatics	59.56	60.38	58.63	56.39	40.76
Total Product	99.97	99.99	100.00	99.99	99.99
Feed, wt-% C	85.63	85.63	85.63	85.63	85.63
Product, wt-% C	84.01	84.16	84.18	84.17	84.85
Mass Balance, wt-%	116.91	117.40	115.96	117.21	133.17
Carbon Bal, wt-%	98.11	98.28	98.30	98.30	99.09

Run	12	12	12	12	12
Period	4	5	6	7	8
Adj. Products, wt-%					
H2	1.34	1.50	1.41	1.24	0.70
C1	10.15	9.48	8.64	7.85	4.11
C2	10.90	10.62	9.72	9.11	4.51
C2=	1.05	1.04	1.39	1.75	5.95
C3	13.95	13.55	15.52	16.65	11.13
C3=	0.87	0.96	1.39	1.56	10.01
iC4	0.00	0.00	0.00	0.00	0.00
nC4	1.00	1.40	2.29	4.22	15.58
C4=	0.00	0.00	0.00	0.23	4.72
iC5	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	2.11
C5=	0.00	0.00	0.00	0.00	0.00
Benzene	12.91	12.41	11.62	10.97	5.93
Toluene	25.81	26.39	25.55	24.25	17.67
Ethyl-benzene	0.40	0.47	0.57	0.76	1.00
para-Xylene	3.22	3.45	3.52	3.62	3.25
meta-Xylene	7.19	7.60	7.72	7.72	5.82
ortho-Xylene	3.51	3.68	3.69	3.62	2.69
Total BTX	53.05	54.01	52.66	50.94	36.38
A9	2.24	2.34	2.38	2.59	2.33
A10	0.29	0.29	0.40	0.43	0.44
A11	0.52	0.47	0.51	0.49	0.32
A12	1.44	1.23	0.96	0.59	0.24
A13	1.90	1.75	1.42	1.03	0.52
A14+	1.27	1.35	1.31	1.30	0.92
Total Aromatics	60.71	61.43	59.64	57.37	41.15
Total Product	99.97	99.99	100.00	99.99	99.99
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00
Carbon Bal, wt-%	100.00	100.00	100.00	100.00	100.00
Conversions, wt-%					
C3	---	---	---	---	---
C3=	---	---	---	---	---
C4	---	---	---	---	---
C4=	100.00	100.00	100.00	99.77	95.28
C5	---	---	---	---	---
C5=	---	---	---	---	---
Total C3-C5	84.18	84.09	80.79	77.33	56.44
Selectivity, wt-%					
H2	1.60	1.78	1.74	1.60	1.25
C1-C2	26.26	25.15	24.44	24.21	25.82
Benzene	15.35	14.76	14.38	14.18	10.52
Toluene	30.67	31.39	31.63	31.36	31.31
Xylenes + EB	17.02	18.08	19.18	20.33	22.63
A9+ Aromatics	9.10	8.84	8.63	8.32	8.47
Total Aromatics	72.14	73.07	73.82	74.19	72.93

Run		13	13	13	13	13	13
Period		2	5	6	7	8	9
Temperature, °C		539	539	539	540	539	540
Pressure		P1	P1	P1	P1	P1	P1
LHSV, hr-1		LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1
Feed, wt-%	Blend	With C2	==>	==>	==>	==>	==>
C2	0.00	23.16	21.29	21.46	21.46	21.82	21.64
C2=	1.10	0.85	0.87	0.86	0.86	0.86	0.86
C3	52.10	40.00	40.97	40.88	40.88	40.70	40.79
C3=	2.60	2.00	2.05	2.04	2.04	2.03	2.04
iC4	7.70	5.92	6.07	6.05	6.05	6.03	6.04
nC4	29.20	22.46	23.01	22.96	22.96	22.85	22.90
C4=	1.00	0.77	0.79	0.79	0.79	0.78	0.78
iC5	0.80	0.62	0.63	0.63	0.63	0.63	0.63
nC5	5.50	4.23	4.33	4.32	4.32	4.30	4.31
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Product, wt%							
H2		3.49	3.08	2.92	2.84	2.63	2.51
C1		12.81	8.60	7.60	6.98	6.23	5.85
C2		29.70	27.06	27.54	26.69	26.75	26.83
C2=		0.97	1.31	1.39	1.48	1.53	1.61
C3		10.38	21.59	24.17	27.08	28.71	30.26
C3=		0.65	1.21	1.34	1.48	1.58	1.71
iC4		0.00	0.26	0.26	0.24	0.47	0.46
nC4		0.45	0.78	0.78	1.18	1.64	2.08
C4=		0.00	0.25	0.25	0.23	0.23	0.22
iC5		0.00	0.00	0.00	0.00	0.00	0.00
nC5		0.00	0.00	0.00	0.00	0.00	0.00
C5=		0.00	0.00	0.00	0.00	0.00	0.00
Benzene		13.29	10.47	9.54	8.68	8.20	7.61
Toluene		17.19	15.32	14.68	14.09	13.34	12.47
Ethyl-benzene		0.38	0.76	0.76	0.76	0.73	0.73
para-Xylene		1.43	1.47	1.45	1.42	1.42	1.38
meta-Xylene		3.01	3.12	3.04	2.95	2.91	2.78
ortho-Xylene		1.43	1.47	1.42	1.37	1.34	1.28
Total BTX		36.73	32.60	30.89	29.28	27.94	26.24
A9		0.49	0.61	0.62	0.61	0.63	0.64
A10		0.08	0.10	0.09	0.08	0.08	0.10
A11		0.34	0.32	0.30	0.28	0.26	0.25
A12		1.88	0.86	0.68	0.53	0.42	0.37
A13		1.51	0.89	0.74	0.61	0.50	0.47
A14+		0.53	0.48	0.44	0.42	0.39	0.39
Total Aromatics		41.55	35.86	33.76	31.81	30.22	28.46
Total Product		100.00	100.00	100.00	100.00	100.00	100.00
Feed, wt-% C		81.77	81.82	81.82	81.82	81.81	81.81
Product, wt-% C		81.62	81.73	81.72	81.65	81.73	81.68
Mass Balance, wt-%		103.24	95.40	95.80	94.85	95.98	94.70
Carbon Bal, wt-%		99.81	99.89	99.88	99.79	99.90	99.84

Run	13	13	13	13	13	13
Period	2	5	6	7	8	9
Adj. Products, wt-%						
H2	3.31	2.98	2.80	2.64	2.53	2.36
C1	12.83	8.61	7.61	6.99	6.24	5.86
C2	29.76	27.09	27.57	26.75	26.78	26.87
C2=	0.98	1.31	1.39	1.48	1.53	1.62
C3	10.40	21.61	24.20	27.13	28.74	30.31
C3=	0.65	1.21	1.34	1.48	1.58	1.71
iC4	0.00	0.26	0.26	0.24	0.47	0.46
nC4	0.45	0.78	0.78	1.18	1.65	2.09
C4=	0.00	0.25	0.25	0.23	0.23	0.22
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	13.31	10.48	9.56	8.70	8.21	7.62
Toluene	17.23	15.33	14.70	14.12	13.35	12.49
Ethylbenzene	0.38	0.77	0.76	0.76	0.73	0.73
Paraxylene	1.43	1.47	1.45	1.42	1.42	1.38
Metaxylene	3.02	3.13	3.05	2.96	2.92	2.78
Orthoxylene	1.43	1.47	1.42	1.37	1.34	1.28
Total BTX	36.80	32.64	30.93	29.34	27.97	26.28
A9	0.49	0.61	0.62	0.61	0.63	0.64
A10	0.08	0.10	0.09	0.08	0.08	0.10
A11	0.34	0.32	0.30	0.28	0.26	0.25
A12	1.89	0.86	0.68	0.53	0.42	0.37
A13	1.51	0.89	0.74	0.61	0.50	0.47
A14+	0.53	0.48	0.44	0.42	0.39	0.39
Total Aromatics	41.63	35.89	33.80	31.88	30.25	28.50
Total Product	100.00	100.00	100.00	100.00	100.00	100.00
Mass Balance, wt-%						
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
Carbon Bal, wt-%						
Carbon Bal, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
Conversions, wt-%						
C3	74.00	47.26	40.80	33.63	29.37	25.70
C3=	67.49	40.77	34.41	27.64	22.37	16.17
C4	98.41	96.41	96.42	95.11	92.67	91.19
C4=	100.00	67.98	68.16	70.94	70.97	71.53
C5	100.00	100.00	100.00	100.00	100.00	100.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Total C3-C5	84.87	69.02	65.46	61.04	57.75	55.11
Selectivity, wt-%						
H2	5.13	5.54	5.51	5.58	5.67	5.53
C1-C2	30.33	27.65	28.02	27.19	26.59	27.74
Benzene	20.64	19.50	18.79	18.35	18.38	17.85
Toluene	26.71	28.54	28.91	29.79	29.89	29.25
Xylenes + EB	7.38	9.89	10.20	10.67	11.10	11.19
A9+ Aromatics	9.81	8.88	8.57	8.43	8.38	8.44
Total Aromatics	64.54	66.81	66.47	67.24	67.75	66.73

Run Period	14 2	14 3	14 4	14 5	14 6	14 7	14 8	14	
Temperature, °C	540	540	540	540	540	540	540	540	
Pressure	P1	P1	P1	P1	P1	P1	P1	P1	
LHSV, hr-1	LHSV 2	LHSV 2	LHSV 2	LHSV 2	LHSV 2	LHSV 2	LHSV 2	LHSV 2	
Feed, wt-%	Blend With C2	==>	==>	==>	==>	==>	==>	==>	
C2	0.00	19.74	19.74	19.23	19.35	19.61	21.90	20.00	20.27
C2=	1.10	0.88	0.88	0.89	0.89	0.89	0.86	0.88	0.88
C3	52.10	41.78	41.78	42.04	41.98	41.85	40.65	41.64	41.50
C3=	2.60	2.09	2.09	2.10	2.10	2.09	2.03	2.08	2.08
iC4	7.70	6.19	6.19	6.23	6.22	6.20	6.02	6.17	6.15
nC4	29.20	23.46	23.46	23.61	23.57	23.50	22.83	23.38	23.30
C4=	1.00	0.80	0.80	0.81	0.81	0.80	0.78	0.80	0.80
iC5	0.80	0.64	0.64	0.65	0.65	0.64	0.63	0.64	0.64
nC5	5.50	4.42	4.42	4.45	4.44	4.43	4.30	4.40	4.39
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Product, wt%									
H2		3.37	3.20	3.05	2.98	2.67	2.53	2.44	2.32
C1		11.93	10.13	8.80	8.29	6.80	6.09	5.77	5.34
C2		25.73	25.46	25.24	21.64	25.18	24.67	24.85	24.98
C2=		1.15	1.23	1.41	1.47	1.53	1.70	1.68	1.76
C3		15.16	19.80	23.73	27.42	29.09	31.43	32.18	33.44
C3=		0.94	1.08	1.21	1.47	1.58	1.70	1.82	1.9
iC4		0.00	0.35	0.30	0.29	0.50	0.46	0.45	0.6
nC4		0.55	0.70	0.91	1.15	1.73	2.31	2.72	3.28
C4=		0.00	0.00	0.29	0.28	0.24	0.22	0.44	0.42
iC5		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nC5		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C5=		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzene		12.72	11.52	10.08	9.61	8.20	7.63	6.93	6.38
Toluene		17.59	16.72	15.34	15.28	13.49	12.80	12.38	11.64
Ethyl-benzene		0.80	0.45	0.79	0.81	0.77	0.74	0.74	0.73
para-Xylene		1.48	1.50	1.47	1.60	1.44	1.39	1.39	1.33
meta-Xylene		3.19	3.18	3.09	3.29	2.98	2.81	2.80	2.64
ortho-Xylene		1.52	1.50	1.44	1.54	1.38	1.32	1.29	1.22
Total BTX		37.31	34.88	32.21	32.14	28.26	26.69	25.52	23.93
A9		0.52	0.55	0.56	0.66	0.62	0.61	0.64	0.64
A10		0.07	0.07	0.09	0.09	0.08	0.08	0.09	0.09
A11		0.33	0.34	0.31	0.31	0.27	0.25	0.24	0.22
A12		1.08	0.82	0.72	0.63	0.46	0.40	0.33	0.27
A13		1.34	0.96	0.75	0.72	0.57	0.48	0.43	0.36
A14+		0.52	0.44	0.41	0.47	0.41	0.38	0.38	0.38
Total Aromatics		41.17	38.06	35.06	35.02	30.68	28.89	27.65	25.86
Total Product		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Feed, wt-% C		81.86	81.86	81.87	81.87	81.86	81.80	81.85	81.84
Product, wt-% C		81.80	81.76	81.70	81.85	81.73	81.73	81.72	81.68
Mass Balance, wt-%		95.58	94.24	94.97	90.11	94.34	93.61	93.46	92.70
Carbon Bal, wt-%		99.93	99.88	99.79	99.99	99.84	99.91	99.84	99.8

Run	14	14	14	14	14	14	14	14
Period	2	3	4	5	6	7	8	9
Adj. Products, wt-%								
H2	3.30	3.09	2.85	2.96	2.51	2.45	2.28	2.13
C1	11.93	10.14	8.82	8.29	6.81	6.10	5.78	5.35
C2	25.75	25.49	25.29	21.64	25.22	24.69	24.89	25.03
C2=	1.15	1.23	1.41	1.47	1.54	1.70	1.68	1.76
C3	15.17	19.82	23.78	27.42	29.14	31.46	32.23	33.51
C3=	0.94	1.08	1.21	1.47	1.59	1.70	1.83	1.95
iC4	0.00	0.35	0.30	0.29	0.50	0.46	0.45	0.66
nC4	0.55	0.70	0.91	1.15	1.74	2.31	2.72	3.28
C4=	0.00	0.00	0.29	0.28	0.24	0.22	0.44	0.42
iC5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	12.73	11.54	10.11	9.62	8.22	7.63	6.94	6.39
Toluene	17.60	16.74	15.37	15.28	13.52	12.81	12.40	11.66
Ethylbenzene	0.81	0.45	0.79	0.81	0.77	0.74	0.74	0.73
Paraxylene	1.48	1.51	1.47	1.60	1.44	1.39	1.39	1.33
Metaxylene	3.19	3.18	3.10	3.29	2.99	2.82	2.80	2.64
Orthoxylene	1.52	1.51	1.44	1.54	1.38	1.32	1.29	1.22
Total BTX	37.34	34.92	32.28	32.14	28.31	26.71	25.56	23.98
A9	0.52	0.55	0.56	0.66	0.62	0.61	0.65	0.64
A10	0.07	0.07	0.09	0.09	0.08	0.08	0.09	0.09
A11	0.33	0.34	0.31	0.31	0.27	0.25	0.24	0.22
A12	1.08	0.82	0.72	0.63	0.46	0.40	0.34	0.27
A13	1.34	0.96	0.75	0.72	0.57	0.48	0.43	0.36
A14+	0.52	0.44	0.41	0.47	0.41	0.38	0.38	0.36
Total Aromatics	41.20	38.11	35.13	35.03	30.72	28.92	27.69	25.91
Total Product	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Carbon Bal, wt-%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Conversions, wt-%								
C3	63.69	52.55	43.44	34.67	30.36	22.62	22.60	19.26
C3=	54.82	48.48	42.41	29.95	24.27	16.39	12.30	6.23
C4	98.14	96.46	95.93	95.18	92.48	90.40	89.24	86.63
C4=	100.00	100.00	63.81	65.68	70.25	71.45	45.22	47.02
C5	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total C3-C5	79.01	72.35	66.83	61.63	59.25	53.20	52.38	49.51
Selectivity, wt-%								
H2	5.27	5.37	5.33	6.03	5.42	5.97	5.51	5.45
C1-C2	29.04	28.28	28.86	22.71	28.23	23.67	27.68	28.17
Benzene	20.29	20.09	18.93	19.55	17.74	18.57	16.75	16.38
Toluene	28.07	29.15	28.80	31.10	29.18	31.18	29.92	29.87
Xylenes + EB	8.87	9.18	10.18	11.75	11.29	11.78	11.87	11.97
A9+ Aromatics	8.46	7.93	7.90	8.85	8.13	8.84	8.27	8.16
Total Aromatics	65.69	66.35	65.81	71.26	66.34	70.37	65.81	66.39

Run Period	15 2	15 3	15 4	15 5	15 6	15 7	15 8	15 9
Temperature, °C	538	539	539	539	540	539	540	540
Pressure	P3	P3	P3	P3	P3	P3	P3	P3
LHSV, hr-1	LHSV 2	LHSV 2	LHSV 2	LHSV 2	LHSV 2	LHSV 2	LHSV 2	LHSV 2
Feed, wt-%	Blend With C2	==>	==>	==>	==>	==>	==>	==>
C2	0.00	20.13	19.87	20.00	19.74	20.00	19.35	19.74
C2=	1.10	0.88	0.88	0.88	0.88	0.88	0.89	0.88
C3	52.10	41.57	41.71	41.64	41.78	41.64	41.98	41.78
C3=	2.60	2.08	2.09	2.08	2.09	2.08	2.10	2.09
iC4	7.70	6.16	6.18	6.17	6.19	6.17	6.22	6.19
nC4	29.20	23.34	23.42	23.38	23.46	23.38	23.57	23.46
C4=	1.00	0.80	0.80	0.80	0.80	0.80	0.81	0.80
iC5	0.80	0.64	0.64	0.64	0.64	0.64	0.65	0.64
nC5	5.50	4.40	4.41	4.40	4.42	4.40	4.44	4.42
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Product, wt%								
H2	2.10	2.04	2.05	1.98	2.04	2.10	2.09	2.11
C1	20.76	19.10	18.75	16.11	16.04	15.30	14.44	13.95
C2	30.42	30.86	30.71	30.20	29.67	29.72	29.43	28.89
C2=	0.40	0.39	0.49	0.48	0.58	0.58	0.57	0.57
C3	6.15	8.19	9.13	13.02	13.55	14.98	16.48	17.61
C3=	0.30	0.30	0.44	0.57	0.58	0.58	0.57	0.57
iC4	0.00	0.00	0.00	0.26	0.27	0.27	0.26	0.26
nC4	0.28	0.34	0.37	0.52	0.54	0.54	0.77	0.82
C4=	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
iC5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	10.58	9.92	9.54	9.90	9.10	8.58	8.46	8.32
Toluene	15.77	16.05	15.89	14.82	15.45	15.31	15.15	15.01
Ethyl-benzene	0.69	0.71	0.73	0.73	0.74	0.77	0.76	0.79
para-Xylene	1.44	1.51	1.58	1.56	1.61	1.64	1.64	1.67
meta-Xylene	3.12	3.32	3.41	3.39	3.49	3.52	3.53	3.61
ortho-Xylene	1.51	1.61	1.64	1.65	1.70	1.70	1.70	1.73
Total BTX	33.11	33.12	32.80	32.04	32.08	31.51	31.24	31.12
A9	0.65	0.74	0.79	0.81	0.85	0.90	0.88	0.94
A10	0.07	0.10	0.10	0.12	0.13	0.12	0.12	0.12
A11	0.17	0.20	0.20	0.19	0.22	0.19	0.18	0.18
A12	2.47	2.08	1.81	1.56	1.42	1.30	1.16	1.09
A13	2.13	1.88	1.71	1.52	1.45	1.33	1.22	1.18
A14+	0.72	0.67	0.66	0.62	0.60	0.59	0.58	0.59
Total Aromatics	39.33	38.79	38.05	36.86	36.74	35.92	35.38	35.22
Total Product	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Feed, wt-% C	81.85	81.85	81.85	81.86	81.85	81.87	81.86	81.85
Product, wt-% C	81.96	82.02	81.97	82.11	82.05	81.96	81.98	81.99
Mass Balance, wt-%	93.29	93.56	94.21	97.15	95.13	91.30	93.22	91.79
Carbon Bal, wt-%	100.14	100.21	100.14	100.30	100.24	100.11	100.14	100.14

Run Period	15 2	15 3	15 4	15 5	15 6	15 7	15 8	15 9
Adj. Products, wt-%								
H2	2.23	2.24	2.19	2.27	2.28	2.21	2.23	2.26
C1	20.73	19.06	18.72	16.06	16.00	15.29	14.42	13.93
C2	30.38	30.79	30.67	30.11	29.59	29.69	29.38	28.85
C2=	0.40	0.39	0.49	0.48	0.57	0.58	0.57	0.57
C3	6.14	8.17	9.12	12.98	13.52	14.97	16.46	17.58
C3=	0.30	0.29	0.44	0.57	0.57	0.58	0.57	0.57
iC4	0.00	0.00	0.00	0.26	0.27	0.27	0.26	0.27
nC4	0.28	0.34	0.37	0.52	0.54	0.54	0.77	0.82
C4=	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
iC5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	10.57	9.90	9.53	9.87	9.08	8.57	8.45	8.30
Toluene	15.75	16.02	15.87	14.77	15.41	15.29	15.13	14.99
Ethylbenzene	0.69	0.71	0.73	0.73	0.74	0.76	0.75	0.78
Paraxylene	1.44	1.51	1.57	1.55	1.60	1.63	1.64	1.67
Metaxylene	3.12	3.32	3.41	3.38	3.49	3.52	3.52	3.61
Orthoxylene	1.51	1.61	1.64	1.64	1.69	1.70	1.70	1.73
Total BTX	33.07	33.05	32.75	31.95	32.01	31.47	31.20	31.08
A9	0.65	0.74	0.79	0.81	0.85	0.89	0.88	0.94
A10	0.07	0.10	0.10	0.12	0.13	0.12	0.12	0.12
A11	0.17	0.20	0.20	0.19	0.22	0.19	0.18	0.18
A12	2.47	2.08	1.80	1.55	1.41	1.30	1.15	1.09
A13	2.13	1.88	1.71	1.52	1.44	1.33	1.21	1.18
A14+	0.72	0.67	0.66	0.62	0.60	0.59	0.58	0.58
Total Aromatics	39.27	38.71	38.00	36.75	36.65	35.88	35.33	35.16
Total Product	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Carbon Bal, wt-%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Conversions, wt-%								
C3	85.23	80.41	78.10	68.93	67.54	64.35	60.60	57.92
C3=	85.54	85.88	78.75	72.75	72.45	72.49	72.66	72.80
C4	99.06	98.86	98.76	97.38	97.25	97.27	96.52	96.33
C4=	66.52	100.00	100.00	100.00	100.00	100.00	100.00	100.00
C5	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total C3-C5	91.16	88.89	87.45	81.95	81.16	79.49	77.25	75.77
Selectivity, wt-%								
H2	3.10	3.19	3.17	3.50	3.54	3.49	3.64	3.75
C1-C2	42.35	41.87	41.92	40.01	39.38	39.91	38.74	37.78
Benzene	14.68	14.05	13.77	15.17	14.14	13.52	13.78	13.81
Toluene	21.87	22.74	22.93	22.70	24.00	24.11	24.67	24.93
Xylenes + EB	7.41	8.03	8.41	8.92	9.26	9.58	9.87	10.27
A9+ Aromatics	10.58	10.12	9.81	9.71	9.68	9.39	9.30	9.46
Total Aromatics	54.54	54.94	54.92	56.50	57.08	56.60	57.62	58.47

Run Period	16 2	16 3	16 4	16 5	16 6	16 7	16 8	16 9	
Temperature, °C	537	538	537	538	537	537	538	538	
Pressure	P3	P3	P3	P3	P3	P3	P3	P3	
LHSV, hr-1	LHSV 3	LHSV 3	LHSV 3	LHSV 3	LHSV 3	LHSV 3	LHSV 3	LHSV 3	
Feed, wt-%	Blend With C2	==>	==>	==>	==>	==>	==>	==>	
C2	0.00	22.11	21.00	22.04	20.73	20.52	20.46	20.39	20.32
C2=	1.10	0.86	0.87	0.86	0.87	0.88	0.88	0.88	0.88
C3	52.10	40.54	41.12	40.58	41.26	41.37	41.40	41.44	41.47
C3=	2.60	2.03	2.06	2.03	2.06	2.07	2.07	2.07	2.07
iC4	7.70	6.00	6.09	6.01	6.11	6.13	6.13	6.14	6.14
nC4	29.20	22.77	23.09	22.79	23.17	23.23	23.25	23.27	23.29
C4=	1.00	0.78	0.79	0.78	0.79	0.80	0.80	0.80	0.80
iC5	0.80	0.62	0.63	0.62	0.63	0.64	0.64	0.64	0.64
nC5	5.50	4.29	4.35	4.29	4.36	4.38	4.38	4.38	4.39
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Product, wt%									
H2		2.06	2.05	2.02	1.92	1.93	1.87	1.68	1.70
C1		15.02	12.66	11.82	10.26	9.55	8.63	7.15	7.17
C2		28.87	26.92	26.22	25.61	24.20	24.13	23.70	24.03
C2=		0.67	0.74	0.74	0.81	0.80	0.88	0.85	0.95
C3		16.16	21.78	24.38	28.06	29.62	32.19	35.02	34.97
C3=		0.57	0.70	0.83	0.95	0.93	1.06	1.15	1.11
iC4		0.26	0.48	0.47	0.67	0.67	0.65	0.78	0.80
nC4		0.78	0.96	1.16	1.56	1.79	2.18	2.93	3.21
C4=		0.00	0.23	0.22	0.22	0.22	0.21	0.38	0.34
iC5		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nC5		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C5=		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzene		8.60	7.63	6.97	6.23	6.18	5.43	5.01	4.99
Toluene		15.18	14.51	13.79	13.17	12.96	12.25	11.48	11.14
Ethyl-benzene		0.79	0.82	1.17	0.81	1.17	1.13	1.12	1.09
para-Xylene		1.58	1.61	1.63	1.60	1.67	1.60	1.55	1.46
meta-Xylene		3.40	3.48	3.45	3.38	3.49	3.35	3.20	3.03
ortho-Xylene		1.64	1.67	1.65	1.60	1.64	1.58	1.49	1.42
Total BTX		31.19	29.71	28.66	26.79	27.11	25.34	23.84	23.13
A9		0.77	0.85	0.88	0.89	0.99	0.97	0.97	0.89
A10		0.12	0.15	0.17	0.16	0.16	0.17	0.16	0.15
A11		0.19	0.21	0.22	0.24	0.24	0.19	0.18	0.18
A12		1.39	0.97	0.77	0.63	0.55	0.44	0.31	0.35
A13		1.36	1.05	0.91	0.76	0.73	0.61	0.47	0.50
A14+		0.59	0.56	0.52	0.50	0.52	0.49	0.43	0.41
Total Aromatics		35.61	33.49	32.13	29.96	30.29	28.20	26.37	25.61
Total Product		100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.95
Feed, wt-% C		81.80	81.83	81.80	81.83	81.84	81.84	81.84	81.84
Product, wt-% C		82.01	82.00	81.96	81.95	82.04	81.97	82.06	81.93
Mass Balance, wt-%		93.14	93.66	99.09	93.42	91.22	91.13	93.29	92.11
Carbon Bal, wt-%		100.26	100.21	100.20	100.15	100.25	100.15	100.26	100.11

Run Period	16 2	16 3	16 4	16 5	16 6	16 7	16 8	16 9
Adj. Products, wt-%								
H2	2.31	2.26	2.21	2.06	2.17	2.01	1.94	1.81
C1	14.98	12.63	11.80	10.24	9.53	8.62	7.13	7.16
C2	28.80	26.86	26.17	25.57	24.14	24.09	23.63	24.01
C2=	0.66	0.74	0.74	0.81	0.80	0.88	0.85	0.94
C3	16.12	21.74	24.33	28.02	29.55	32.14	34.93	34.94
C3=	0.57	0.70	0.83	0.95	0.93	1.06	1.14	1.16
iC4	0.26	0.48	0.46	0.67	0.67	0.65	0.78	0.80
nC4	0.77	0.95	1.16	1.56	1.78	2.17	2.93	3.21
C4=	0.00	0.23	0.22	0.22	0.22	0.21	0.38	0.34
iC5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	8.58	7.61	6.95	6.23	6.16	5.43	5.00	4.98
Toluene	15.14	14.48	13.76	13.15	12.93	12.23	11.45	11.13
Ethylbenzene	0.79	0.82	1.17	0.81	1.16	1.13	1.11	1.09
Paraxylene	1.57	1.61	1.63	1.60	1.66	1.60	1.55	1.46
Metaxylene	3.39	3.47	3.44	3.37	3.48	3.34	3.19	3.03
Orthoxylene	1.63	1.66	1.65	1.60	1.64	1.58	1.48	1.42
Total BTX	31.11	29.65	28.60	26.75	27.04	25.30	23.78	23.10
A9	0.77	0.85	0.88	0.89	0.99	0.97	0.97	0.89
A10	0.12	0.15	0.17	0.16	0.16	0.17	0.16	0.15
A11	0.19	0.21	0.22	0.24	0.23	0.19	0.18	0.18
A12	1.39	0.96	0.77	0.63	0.55	0.44	0.31	0.35
A13	1.36	1.05	0.91	0.76	0.73	0.61	0.47	0.50
A14+	0.59	0.55	0.52	0.50	0.52	0.48	0.43	0.41
Total Aromatics	35.52	33.41	32.07	29.91	30.22	28.16	26.30	25.58
Total Product	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.95
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Carbon Bal, wt-%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Conversions, wt-%								
C3	60.24	47.14	40.04	32.10	28.58	22.37	15.71	15.72
C3=	71.90	66.12	59.13	54.17	55.01	48.93	44.74	44.09
C4	96.41	95.10	94.35	92.41	91.65	90.38	87.40	86.36
C4=	100.00	70.85	71.23	72.95	72.92	73.67	52.69	57.64
C5	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total C3-C5	76.99	69.16	64.97	59.95	57.83	53.94	49.00	49.65
Selectivity, wt-%								
H2	3.89	4.19	4.41	4.39	4.78	4.75	5.03	4.72
C1-C2	36.21	33.97	31.57	31.97	28.75	28.89	26.81	28.51
Benzene	14.47	14.09	13.86	13.24	13.55	12.79	12.96	13.01
Toluene	25.52	26.79	27.48	27.99	28.45	28.82	29.68	29.04
Xylenes + EB	9.60	10.93	12.13	12.30	13.75	14.18	14.97	14.37
A9+ Aromatics	10.30	10.03	10.53	10.11	10.72	10.57	10.55	10.35
Total Aromatics	59.89	61.84	64.02	63.64	66.47	66.36	68.16	66.77

Run Period	17 2	17 3	17 4	17 5	17 6	17 7	17 8	17 9
Temperature, °C	541	541	541	541	541	540	540	540
Pressure	P2	P2	P2	P2	P2	P2	P2	P2
LHSV, hr-1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1
Feed, wt-%	Blend							
C2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C2=	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C3	31.96	31.96	31.96	31.96	31.96	31.96	31.96	31.96
C3=	22.34	22.34	22.34	22.34	22.34	22.34	22.34	22.34
iC4	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41
nC4	12.93	12.93	12.93	12.93	12.93	12.93	12.93	12.93
C4=	22.34	22.34	22.34	22.34	22.34	22.34	22.34	22.34
iC5	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
nC5	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71
C5=	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Product, wt-%								
H2	3.01	2.95	2.93	2.81	2.71	2.54	2.36	2.23
C1	18.73	14.32	12.40	10.60	9.56	7.98	7.39	5.85
C2	12.69	10.78	10.12	9.27	8.92	7.94	7.70	6.62
C2=	0.57	0.69	0.76	0.91	0.97	1.17	1.21	1.58
C3	8.19	11.72	15.77	19.43	22.36	26.22	27.56	32.07
C3=	0.43	0.65	0.76	0.87	1.09	1.29	1.36	1.92
iC4	0.00	0.29	0.28	0.49	0.49	0.85	0.85	1.17
nC4	0.30	0.57	0.84	1.23	1.72	2.77	3.60	6.09
C4=	0.00	0.00	0.00	0.24	0.24	0.41	0.41	0.95
iC5	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.58
nC5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	15.61	14.13	12.96	11.79	11.00	9.70	9.14	7.35
Toluene	22.53	23.93	23.60	22.96	21.94	20.73	20.10	17.40
Ethyl-benzene	0.81	0.81	0.84	0.86	0.89	0.95	1.01	0.99
para-Xylene	2.11	2.51	2.65	2.75	2.78	2.79	2.85	2.59
meta-Xylene	4.68	5.55	5.76	5.95	6.00	5.90	5.87	5.19
ortho-Xylene	2.26	2.67	2.80	2.85	2.83	2.79	2.76	2.40
Total BTX	48.00	49.60	48.61	47.16	45.45	42.85	41.72	35.91
A9	0.96	1.49	1.66	1.80	1.85	1.90	1.99	1.81
A10	0.10	0.21	0.21	0.25	0.24	0.28	0.32	0.31
A11	0.10	0.16	0.16	0.15	0.15	0.14	0.14	0.12
A12	3.07	2.61	2.03	1.60	1.32	1.07	0.81	0.55
A13	2.72	2.61	2.18	1.90	1.66	1.39	1.17	0.83
A14+	1.16	1.33	1.30	1.30	1.27	1.21	1.22	1.02
Total Aromatics	56.09	58.03	56.14	54.15	51.93	48.84	47.37	40.55
Total Product	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Feed, wt-% C	83.78	83.78	83.78	83.78	83.78	83.78	83.78	83.78
Product, wt-% C	83.33	83.87	83.83	83.86	83.80	83.79	83.84	83.49
Mass Balance, wt-%	95.30	96.74	95.37	94.83	94.44	94.70	93.98	89.39
Carbon Bal, wt-%	99.46	100.11	100.06	100.10	100.03	100.02	100.07	99.55

Run Period	17 2	17 3	17 4	17 5	17 6	17 7	17 8	17 9
Adj. Products, wt-%								
H2	2.49	3.06	2.99	2.91	2.74	2.55	2.43	1.90
C1	18.83	14.31	12.39	10.59	9.56	7.98	7.38	5.87
C2	12.75	10.76	10.11	9.26	8.92	7.94	7.69	6.64
C2=	0.57	0.69	0.76	0.90	0.97	1.17	1.21	1.59
C3	8.23	11.70	15.76	19.41	22.35	26.22	27.54	32.18
C3=	0.43	0.65	0.76	0.86	1.09	1.29	1.36	1.93
iC4	0.00	0.29	0.28	0.49	0.49	0.85	0.85	1.58
nC4	0.30	0.57	0.84	1.23	1.72	2.77	3.60	6.11
C4=	0.00	0.00	0.00	0.24	0.24	0.41	0.41	0.95
iC5	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.58
nC5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	15.69	14.11	12.95	11.78	11.00	9.69	9.13	7.37
Toluene	22.65	23.90	23.59	22.93	21.93	20.72	20.09	17.46
Ethyl-benzene	0.82	0.81	0.84	0.86	0.89	0.95	1.01	1.00
para-Xylene	2.12	2.51	2.65	2.75	2.78	2.79	2.84	2.60
meta-Xylene	4.70	5.55	5.76	5.94	6.00	5.90	5.87	5.20
ortho-Xylene	2.27	2.67	2.80	2.85	2.83	2.79	2.75	2.41
Total BTX	48.25	49.54	48.58	47.11	45.43	42.84	41.69	36.03
A9	0.96	1.49	1.66	1.80	1.85	1.90	1.99	1.81
A10	0.10	0.21	0.21	0.25	0.24	0.28	0.32	0.31
A11	0.10	0.16	0.16	0.15	0.15	0.14	0.14	0.12
A12	3.08	2.61	2.02	1.60	1.32	1.07	0.81	0.55
A13	2.73	2.61	2.18	1.90	1.66	1.39	1.17	0.83
A14+	1.16	1.33	1.30	1.30	1.27	1.21	1.22	1.03
Total Aromatics	56.39	57.96	56.11	54.10	51.92	48.83	47.34	40.69
Total Product	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Carbon Bal. wt-%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Conversions, wt-% (*)								
C3	74.25	63.38	50.69	39.28	30.08	17.98	13.83	-0.67
C3=	98.08	97.09	96.58	96.13	95.12	94.25	93.92	91.38
C4	98.17	94.75	93.15	89.47	86.46	77.83	72.79	52.96
C4=	100.00	100.00	100.00	98.94	98.94	98.16	98.17	95.75
C5	100.00	100.00	100.00	100.00	100.00	100.00	95.97	87.88
C5=	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total C3-C5	91.04	86.79	82.35	77.77	74.11	68.46	66.05	56.68
Selectivity, wt-%								
H2	2.73	3.53	3.62	3.74	3.70	3.73	3.68	3.35
C1-C2	35.32	29.68	28.25	26.69	26.24	24.95	24.65	24.87
Benzene	17.23	16.26	15.72	15.15	14.84	14.16	13.82	13.01
Toluene	24.88	27.54	28.64	29.49	29.59	30.27	30.41	30.80
Xylenes + EB	10.89	13.28	14.63	15.94	16.87	18.14	18.89	19.77
A9+ Aromatics	8.94	9.71	9.14	8.98	8.75	8.75	8.55	8.20
Total Aromatics	61.94	66.79	68.13	69.56	70.05	71.32	71.67	71.78

* Negative conversion indicates species accumulation

Run Period	18 2	18 3	18 4	18 6	18 7	18 8
Temperature, °C	540	540	540	540	540	540
Pressure	P2	P2	P2	P2	P2	P2
LHSV, hr-1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1	LHSV 1
Feed, wt-%	Blend					
C2	0.00	0.00	0.00	0.00	0.00	0.00
C2=	0.00	0.00	0.00	0.00	0.00	0.00
C3	18.52	18.52	18.52	18.52	18.52	18.52
C3=	37.54	37.54	37.54	37.54	37.54	37.54
iC4	1.90	1.90	1.90	1.90	1.90	1.90
nC4	6.81	6.81	6.81	6.81	6.81	6.81
C4=	35.24	35.24	35.24	35.24	35.24	35.24
iC5	0.00	0.00	0.00	0.00	0.00	0.00
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00
Product, wt-%						
H2	2.70	2.63	2.55	2.31	1.79	1.14
C1	13.97	12.66	10.64	6.93	4.24	2.66
C2	9.87	9.81	8.98	6.98	4.84	3.03
C2=	0.64	0.62	0.74	1.11	1.92	3.50
C3	9.44	9.79	13.64	22.09	24.99	24.51
C3=	0.48	0.46	0.67	1.14	2.51	6.33
iC4	0.00	0.24	0.25	0.62	2.52	4.56
nC4	0.34	0.48	0.76	2.68	6.94	10.75
C4=	0.00	0.00	0.00	0.20	1.07	3.98
iC5	0.00	0.00	0.00	0.00	0.64	1.43
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	16.28	15.13	13.47	10.26	7.80	4.72
Toluene	25.76	26.49	26.54	24.10	20.85	16.04
Ethyl-benzene	0.71	0.76	0.80	1.21	1.36	1.80
para-Xylene	2.53	2.82	3.10	3.39	3.37	3.68
meta-Xylene	5.51	6.28	6.83	7.25	6.61	4.98
ortho-Xylene	2.70	3.05	3.33	3.39	3.00	2.25
Total BTX	53.48	54.52	54.07	49.60	42.98	33.47
A9	1.43	1.88	2.01	2.33	2.44	2.57
A10	0.17	0.24	0.23	0.37	0.42	0.51
A11	0.29	0.35	0.40	0.42	0.42	0.28
A12	3.16	2.52	1.84	0.85	0.47	0.16
A13	2.93	2.64	2.13	1.27	0.80	0.36
A14+	1.09	1.17	1.09	1.11	1.03	0.75
Total Aromatics	62.55	63.33	61.77	55.94	48.56	38.10
Total Product	100.00	100.00	100.00	100.00	100.00	100.00
Feed, wt-% C	84.65	84.65	84.65	84.65	84.65	84.65
Product, wt-% C	84.57	84.75	84.78	84.68	84.78	84.81
Mass Balance, wt-%	96.82	95.49	97.27	94.02	100.35	100.80
Carbon Bal, wt-%	99.91	100.12	100.16	100.05	100.16	100.20

Run	18	18	18	18	18	18
Period	2	3	4	6	7	8
Adj. Products, wt-%						
H2	2.62	2.75	2.70	2.36	1.94	1.34
C1	13.98	12.65	10.63	6.93	4.24	2.66
C2	9.88	9.79	8.97	6.97	4.83	3.03
C2=	0.64	0.61	0.74	1.11	1.91	3.49
C3	9.45	9.78	13.62	22.08	24.95	24.47
C3=	0.48	0.46	0.67	1.14	2.50	6.31
iC4	0.00	0.24	0.25	0.62	2.52	4.56
nC4	0.34	0.47	0.76	2.68	6.93	10.73
C4=	0.00	0.00	0.00	0.20	1.06	3.97
iC5	0.00	0.00	0.00	0.00	0.63	1.42
nC5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	16.29	15.11	13.45	10.25	7.78	4.71
Toluene	25.78	26.46	26.50	24.09	20.82	16.01
Ethyl-benzene	0.71	0.76	0.80	1.21	1.36	1.80
para-Xylene	2.53	2.81	3.10	3.39	3.37	3.67
meta-Xylene	5.52	6.27	6.82	7.25	6.60	4.97
ortho-Xylene	2.70	3.05	3.33	3.39	2.99	2.25
Total BTX	53.53	54.46	53.98	49.57	42.91	33.41
A9	1.44	1.88	2.01	2.33	2.43	2.56
A10	0.17	0.24	0.23	0.37	0.42	0.51
A11	0.29	0.35	0.40	0.42	0.42	0.28
A12	3.16	2.52	1.84	0.85	0.47	0.16
A13	2.93	2.64	2.12	1.27	0.79	0.36
A14+	1.09	1.17	1.09	1.11	1.03	0.75
Total Aromatics	62.61	63.25	61.67	55.92	48.48	38.03
Total Product	100.00	100.00	100.00	100.00	100.00	100.00
Mass Balance, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
Carbon Bal, wt-%	100.00	100.00	100.00	100.00	100.00	100.00
Conversions, wt-% (*)						
C3	48.96	47.20	26.47	-19.25	-34.74	-32.11
C3=	98.72	98.77	98.23	96.96	93.34	83.18
C4	96.12	91.82	88.35	62.19	-8.43	-75.51
C4=	100.00	100.00	100.00	99.44	96.98	88.73
C5	0.00	0.00	0.00	0.00	0.00	0.00
C5=	0.00	0.00	0.00	0.00	0.00	0.00
Total C3-C5	89.73	89.05	84.70	73.28	61.41	48.54
Selectivity, wt-%						
H2	2.92	3.08	3.19	3.22	3.16	2.76
C1-C2	27.31	25.89	24.00	20.48	17.89	18.91
Benzene	18.16	16.97	15.88	13.99	12.68	9.71
Toluene	28.74	29.71	31.28	32.87	33.90	32.98
Xylenes + EB	12.76	14.48	16.58	20.78	23.31	26.14
A9+ Aromatics	10.12	9.87	9.07	8.67	9.05	9.51
Total Aromatics	69.78	71.03	72.81	76.31	78.95	78.34

* Negative conversion indicates species accumulation

APPENDIX C.

Definition of Estimated Erected Cost Basis

ESTIMATED ERECTED COST BASIS

The estimated erected cost presented in this proposal reflects a current US Gulf Coast battery limits price. It is comprised of a materials and labor (M & L) estimate and a design, engineering and contractor's fees, overheads and expenses (DE & CE) allowance.

The material and labor estimates have been derived by scaling detailed estimates prepared for similar units on the basis of US Gulf Coast erection to UOP Standards and specifications. The material and labor estimates are intended to include all direct material and labor, indirect field costs and labor benefits which are associated with the erection of the battery limits process equipment, including the following specific equipment, categories and services as and when required.

Heaters	Compressor Shelter
Vessels and internals	Control house
Heat exchange equipment	Catalyst handling equipment
Pumps	Sundry construction equipment
Drivers	Temporary field office,
Compressors	warehouse, change house,
Piping	etc.
Instruments	Field testing
Electrical	Expendable Tools
Insulation	Clerical costs associated with
Structural steelwork	construction
Fireproofing	Final cleaning
Paving and concrete work	Miscellaneous field costs
	Fringe benefits

An allowance for design, engineering and contractor's fees, overheads and expenses, primarily based on past UOP experience, has been added to the total material and labor estimate in order to reach an overall erected cost estimate for the battery limits plant. The figure shown for this DE & CE allowance is for orientation economic purposes only and is intended to cover the following charges:

UOP:	Basic process and engineering design specifications and drawings (Schedule A package), including review of contractor's detailed design of specified equipment items.
CONTRACTOR:	Detailed engineering Purchasing, expediting and inspection Construction tools and equipment rental Contractor's field and home office expenses Erection supervision Contractor's fees

Items not included in the estimated UOP investment cost (battery limits) are as follows, unless otherwise specified as included:

- Cost of land, site preparation, and soil investigation.
- Piling or any unusual foundation requirements.
- Docks, marine terminals, or jetties.
- Access roads to site.
- Home office administration building.
- Employees housing, worker's barracks, canteens, recreation facilities, etc.
- Overtime pay during construction.
- Know-how fees and royalties on licensed processes.
- Owner's expenses in developing the project.
- Local permits, taxes and fees, or specific costs of doing business in the area.
- Items concerned with export shipment, such as ocean freight, marine insurance, import taxes, customs, etc.
- Operating capital and investment in goods in progress.
- Escalation on materials and labor due to price fluctuation or economic conditions.
- Contingencies.
- Cost of start-up including testing, manpower, utilities, operating manuals and training programs.
- Spare parts, special tools or maintenance equipment.
- Catalysts, chemicals and raw materials including initial fill.
- Customer or national standards, codes.
- Special pollution or noise control facilities.
- Electrical main substations.
- Power generation.
- Water or hydrocarbon pipelines.
- Additions or extensions to utilities systems or offsites.
- Laboratory supplies.
- Special communications or computer systems.

The following assumptions are normally made regarding economic conditions at the time the job is bid:

- There will be an adequate supply of skilled labor available for construction.
- There will be competitive bidding by contractors.
- The plant will be constructed in the US Gulf Coast.
- There is no lost time due to climatic conditions.
- Material and labor prices are based on the date of the estimate.