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## APPENDICES

TABLE A  
RUN DATA NO. 1-1

PRESSURE , ATG	30
TEMPERATURE , °C	260
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	44.98
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	173.99

COMPONENT	OUTLET GAS COMPOSITION	
	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	2.30 E-07	-
PRODUCTS :		
METHANE	4.54 E-10	0.94
ETHANE	7.23 E-10	1.49
PROPANE	3.88 E-09	8.00
I-BUTANE	7.13 E-10	1.47
N-BUTANE	5.30 E-10	1.09
I-PENTANE	4.27 E-10	0.88
N-PENTANE	2.39 E-10	0.49
2,2-DMB	4.23 E-09	8.72
2,3-DMB	1.99 E-11	0.04
2-MP	3.09 E-08	55.94
3-MP	1.49 E-08	20.94
CONVERSION (BASED ON N-HEXANE) , %		16.40
SELECTIVITY OF LPG , %		6.12
SELECTIVITY OF GASOLINE , %		93.18
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		0.87
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		13.29

TABLE A  
RUN DATA NO. 1-2

PRESSURE , ATG	30
TEMPERATURE , °C	280
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	44.98
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	173.99

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	6.79 E-08	-
PRODUCTS :		
METHANE	2.95 E-09	0.95
ETHANE	4.83 E-09	1.56
PROPANE	1.36 E-07	43.96
I-BUTANE	4.99 E-08	16.11
N-BUTANE	1.96 E-08	6.32
I-PENTANE	2.35 E-08	7.60
N-PENTANE	7.27 E-09	2.35
2,2-DMB	1.35 E-08	4.35
2,3-DMB	4.63 E-10	0.15
2-MP	3.90 E-08	11.35
3-MP	2.12 E-08	5.30
CONVERSION (BASED ON N-HEXANE) , %		75.36
SELECTIVITY OF LPG , %		55.08
SELECTIVITY OF GASOLINE , %		43.91
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		36.11
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		28.78

TABLE A  
RUN DATA NO. 1-3

PRESSURE , ATG	30
TEMPERATURE , °C	300
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	44.98
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	173.99

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	1.87 E-08	-
PRODUCTS :		
METHANE	5.71 E-09	1.30
ETHANE	9.29 E-09	2.11
PROPANE	2.64 E-07	60.00
I-BUTANE	6.92 E-08	15.74
N-BUTANE	3.33 E-08	7.57
I-PENTANE	2.46 E-08	5.59
N-PENTANE	9.14 E-09	2.08
2,2-DMB	7.26 E-09	1.65
2,3-DMB	2.84 E-10	0.06
2-MP	1.63 E-08	2.86
3-MP	9.27 E-09	1.03
CONVERSION (BASED ON N-HEXANE) , %		93.22
SELECTIVITY OF LPG , %		77.90
SELECTIVITY OF GASOLINE , %		20.53
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		63.18
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		16.65



TABLE A  
RUN DATA NO. 1-4

PRESSURE , ATG	30
TEMPERATURE , °C	320
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	44.98
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	173.99

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	6.97 E-09	-
PRODUCTS :		
METHANE	8.77 E-09	1.79
ETHANE	1.31 E-08	2.67
PROPANE	3.37 E-07	68.73
I-BUTANE	6.31 E-08	12.86
N-BUTANE	3.53 E-08	7.20
I-PENTANE	1.91 E-08	3.89
N-PENTANE	7.58 E-09	1.55
2,2-DMB	3.57 E-09	0.73
2,3-DMB	1.26 E-10	0.03
2-MP	7.19 E-09	0.69
3-MP	4.12 E-09	-0.12
CONVERSION (BASED ON N-HEXANE) , %		97.47
SELECTIVITY OF LPG , %		87.15
SELECTIVITY OF GASOLINE , %		10.68
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		73.90
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		9.06

TABLE A  
RUN DATA NO. 1-5

PRESSURE , ATG	30
TEMPERATURE , °C	340
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	44.98
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	173.99

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	4.90 E-09	-
PRODUCTS :		
METHANE	1.22 E-08	2.36
ETHANE	1.80 E-08	3.47
PROPANE	3.87 E-07	74.87
I-BUTANE	5.09 E-08	9.84
N-BUTANE	3.24 E-08	6.26
I-PENTANE	1.27 E-08	2.45
N-PENTANE	5.15 E-09	1.00
2,2-DMB	1.70 E-09	0.33
2,3-DMB	9.23 E-11	0.02
2-MP	3.37 E-09	-0.08
3-MP	2.08 E-07	-0.51
CONVERSION (BASED ON N-HEXANE) , %		98.22
SELECTIVITY OF LPG , %		92.02
SELECTIVITY OF GASOLINE , %		5.02
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		78.63
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		4.29

TABLE A  
RUN DATA NO. 2-1

PRESSURE , ATG	50
TEMPERATURE , °C	260
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	37.54
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	207.58

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	3.12 E-07	-
PRODUCTS :		
METHANE	2.83 E-10	1.41
ETHANE	3.66 E-10	1.83
PROPANE	1.60 E-09	7.98
I-BUTANE	2.65 E-10	1.32
N-BUTANE	2.66 E-10	1.33
I-PENTANE	1.57 E-10	0.78
N-PENTANE	9.64 E-11	0.48
2,2-DMB	1.51 E-09	7.55
2,3-DMB	1.57 E-11	0.08
2-MP	1.67 E-08	61.30
3-MP	8.71 E-09	15.93
CONVERSION (BASED ON N-HEXANE) , %		5.61
SELECTIVITY OF LPG , %		6.22
SELECTIVITY OF GASOLINE , %		92.86
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		0.36
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		5.40

TABLE A  
RUN DATA NO. 2-2

PRESSURE , ATG	50
TEMPERATURE , °C	280
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	37.54
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	207.58

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	2.39 E-08	-
PRODUCTS :		
METHANE	2.01 E-09	1.93
ETHANE	2.66 E-09	2.56
PROPANE	1.56 E-08	15.00
I-BUTANE	2.04 E-09	1.96
N-BUTANE	2.10 E-09	2.01
I-PENTANE	1.37 E-09	1.32
N-PENTANE	1.07 E-09	1.03
2,2-DMB	8.13 E-09	7.81
2,3-DMB	0.00 E+00	0.00
2-MP	5.27 E-08	46.40
3-MP	2.63 E-08	19.99
CONVERSION (BASED ON N-HEXANE) , %		27.56
SELECTIVITY OF LPG , %		11.60
SELECTIVITY OF GASOLINE , %		87.06
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		3.32
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		24.91

TABLE A  
RUN DATA NO. 2-3

PRESSURE , ATG	50
TEMPERATURE , °C	300
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	37.54
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	207.58

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	6.70 E-08	-
PRODUCTS :		
METHANE	6.85 E-09	1.50
ETHANE	1.13 E-08	2.48
PROPANE	2.25 E-07	49.28
I-BUTANE	6.94 E-08	15.22
N-BUTANE	2.79 E-08	6.12
I-PENTANE	3.05 E-08	6.69
N-PENTANE	1.15 E-08	2.51
2,2-DMB	1.54 E-08	3.37
2,3-DMB	4.80 E-10	0.11
2-MP	4.42 E-08	0.74
3-MP	2.36 E-08	3.97
CONVERSION (BASED ON N-HEXANE) , %		79.68
SELECTIVITY OF LPG , %		67.35
SELECTIVITY OF GASOLINE , %		41.26
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		55.70
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		34.12

TABLE A  
RUN DATA NO. 2-4

PRESSURE , ATG	50
TEMPERATURE , °C	320
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	37.54
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	207.58

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	9.82 E-09	-
PRODUCTS :		
METHANE	1.33 E-08	2.31
ETHANE	2.11 E-08	3.67
PROPANE	3.74 E-07	64.89
I-BUTANE	7.23 E-08	12.55
N-BUTANE	3.92 E-08	6.81
I-PENTANE	2.63 E-08	4.56
N-PENTANE	1.09 E-08	1.89
2,2-DMB	6.18 E-09	1.07
2,3-DMB	1.69 E-10	0.03
2-MP	1.46 E-08	1.77
3-MP	8.07 E-09	0.44
CONVERSION (BASED ON N-HEXANE) , %		97.03
SELECTIVITY OF LPG , %		81.48
SELECTIVITY OF GASOLINE , %		15.63
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		82.06
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		15.74

TABLE A  
RUN DATA NO. 2-5

PRESSURE , ATG	50
TEMPERATURE , °C	340
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	37.54
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	207.58

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	3.65 E-09	-
PRODUCTS :		
METHANE	2.00 E-08	3.19
ETHANE	2.98 E-08	4.74
PROPANE	4.56 E-07	72.62
I-BUTANE	5.89 E-08	9.30
N-BUTANE	3.91 E-08	6.22
I-PENTANE	1.73 E-08	2.75
N-PENTANE	7.43 E-09	1.18
2,2-DMB	2.33 E-09	0.37
2,3-DMB	5.91 E-11	0.01
2-MP	4.40 E-09	0.00
3-MP	2.62 E-09	-0.46
CONVERSION (BASED ON N-HEXANE) , %		98.90
SELECTIVITY OF LPG , %		89.79
SELECTIVITY OF GASOLINE , %		6.15
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		92.10
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		6.31

TABLE A  
RUN DATA NO. 3-1

PRESSURE , ATG	50
TEMPERATURE , °C	260
TOTAL SV. , HR <sup>-1</sup>	2000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	33.24
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	116.82

COMPONENT	OUTLET GAS COMPOSITION	
	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	3.59 E-07	-
PRODUCTS :		
METHANE	4.11 E-10	1.84
ETHANE	6.89 E-10	3.09
PROPANE	1.05 E-08	47.15
I-BUTANE	3.93 E-09	17.61
N-BUTANE	1.46 E-09	6.54
I-PENTANE	1.59 E-09	7.12
N-PENTANE	3.16 E-10	1.41
2,2-DMB	7.02 E-10	3.15
2,3-DMB	7.59 E-11	0.34
2-MP	8.17 E-09	10.13
3-MP	7.42 E-09	1.62
CONVERSION (BASED ON N-HEXANE) , %		3.79
SELECTIVITY OF LPG , %		62.62
SELECTIVITY OF GASOLINE , %		35.28
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		1.39
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		0.70



TABLE A  
RUN DATA NO. 3-2

PRESSURE , ATG	50
TEMPERATURE , °C	280
TOTAL SV. , HR <sup>-1</sup>	2000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	33.24
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	116.82

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	1.69 E-07	-
PRODUCTS :		
METHANE	3.30 E-09	1.09
ETHANE	4.89 E-09	1.62
PROPANE	1.21 E-07	40.08
I-BUTANE	5.79 E-08	19.15
N-BUTANE	1.93 E-08	6.39
I-PENTANE	2.65 E-08	8.77
N-PENTANE	7.74 E-09	2.56
2,2-DMB	1.58 E-08	5.22
2,3-DMB	3.16 E-10	0.10
2-MP	3.07 E-08	10.84
3-MP	1.97 E-08	4.19
CONVERSION (BASED ON N-HEXANE) , %		54.82
SELECTIVITY OF LPG , %		54.85
SELECTIVITY OF GASOLINE , %		44.08
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		17.56
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		14.11

TABLE A  
RUN DATA NO. 3-3

PRESSURE , ATG	50
TEMPERATURE , °C	300
TOTAL SV. , HR <sup>-1</sup>	2000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	33.24
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	116.82

COMPONENT	OUTLET GAS COMPOSITION	
	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	4.46 E-08	-
PRODUCTS :		
METHANE	7.16 E-09	1.54
ETHANE	1.06 E-08	2.28
PROPANE	2.25 E-07	48.42
I-BUTANE	6.79 E-08	14.59
N-BUTANE	3.52 E-08	7.57
I-PENTANE	3.28 E-08	7.05
N-PENTANE	1.55 E-08	3.34
2,2-DMB	1.62 E-08	3.48
2,3-DMB	4.01 E-10	0.09
2-MP	4.26 E-08	7.88
3-MP	2.46 E-08	3.76
CONVERSION (BASED ON N-HEXANE) , %		88.04
SELECTIVITY OF LPG , %		55.20
SELECTIVITY OF GASOLINE , %		33.84
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		28.39
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		17.40

TABLE A  
RUN DATA NO. 3-4

PRESSURE , ATG	50
TEMPERATURE , °C	320
TOTAL SV. , HR <sup>-1</sup>	2000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	33.24
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	116.82

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	1.10 E-08	-
PRODUCTS :		
METHANE	1.92 E-08	2.83
ETHANE	2.89 E-07	4.26
PROPANE	4.60 E-07	67.86
I-BUTANE	8.19 E-08	12.08
N-BUTANE	5.24 E-08	7.72
I-PENTANE	2.52 E-08	3.72
N-PENTANE	1.20 E-08	1.77
2,2-DMB	2.80 E-09	0.37
2,3-DMB	4.17 E-11	0.01
2-MP	5.55 E-09	-0.05
3-MP	3.22 E-09	-0.57
CONVERSION (BASED ON N-HEXANE) , %		97.04
SELECTIVITY OF LPG , %		88.32
SELECTIVITY OF GASOLINE , %		8.13
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		50.06
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		4.61

TABLE A  
RUN DATA NO. 3-5

PRESSURE , ATG	50
TEMPERATURE , °C	340
TOTAL SV. , HR <sup>-1</sup>	2000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	33.24
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	116.82

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
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## REACTANTS (REMAINING) :

H <sub>2</sub>	1.24 E-05	-
N-HEXANE	2.67 E-09	-

## PRODUCTS :

METHANE	3.15 E-08	4.27
ETHANE	4.23 E-08	5.74
PROPANE	5.46 E-07	73.99
I-BUTANE	6.04 E-08	8.19
N-BUTANE	4.94 E-08	6.70
I-PENTANE	1.31 E-08	1.77
N-PENTANE	6.60 E-09	0.90
2,2-DMB	3.38 E-10	0.05
2,3-DMB	0.00 E+00	0.00
2-MP	6.56 E-10	-0.71
3-MP	4.21 E-10	-0.90

CONVERSION (BASED ON N-HEXANE) , %	99.28
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SELECTIVITY OF LPG , %	93.46
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SELECTIVITY OF GASOLINE , %	1.31
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STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR	54.20
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STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR	0.76
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TABLE A  
RUN DATA NO. 4-1

PRESSURE , ATG	50
TEMPERATURE , °C	260
TOTAL SV. , HR <sup>-1</sup>	8000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	31.75
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	488.55

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	3.75 E-07	-
PRODUCTS :		
METHANE	1.24 E-10	0.74
ETHANE	1.89 E-10	1.14
PROPANE	1.25 E-10	7.54
I-BUTANE	2.84 E-10	1.71
N-BUTANE	1.96 E-10	1.18
I-PENTANE	1.78 E-10	1.07
N-PENTANE	1.09 E-10	0.65
2,2-DMB	1.54 E-09	9.26
2,3-DMB	1.75 E-11	0.11
2-MP	1.66 E-08	64.09
3-MP	9.34 E-09	12.48
CONVERSION (BASED ON N-HEXANE) , %		3.98
SELECTIVITY OF LPG , %		6.09
SELECTIVITY OF GASOLINE , %		93.37
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		0.59
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		9.07

TABLE A  
RUN DATA NO. 4-2

PRESSURE , ATG	50
TEMPERATURE , °C	280
TOTAL SV. , HR <sup>-1</sup>	8000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	31.75
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	488.55

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	3.21 E-07	-
PRODUCTS :		
METHANE	7.35 E-10	0.98
ETHANE	1.10 E-09	1.47
PROPANE	6.10 E-09	8.02
I-BUTANE	8.96 E-10	1.20
N-BUTANE	9.02 E-10	1.20
I-PENTANE	6.25 E-10	0.83
N-PENTANE	4.62 E-10	0.62
2,2-DMB	6.68 E-09	8.91
2,3-DMB	1.64 E-11	0.02
2-MP	4.72 E-08	54.98
3-MP	2.36 E-07	21.77
CONVERSION (BASED ON N-HEXANE) , %		17.89
SELECTIVITY OF LPG , %		6.02
SELECTIVITY OF GASOLINE , %		93.28
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		2.63
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		40.75

TABLE A  
RUN DATA NO. 4-3

PRESSURE , ATG	50
TEMPERATURE , °C	300
TOTAL SV. , HR <sup>-1</sup>	8000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	31.75
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	488.55

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	1.84 E-07	-
PRODUCTS :		
METHANE	2.74 E-09	0.98
ETHANE	4.43 E-09	1.59
PROPANE	9.56 E-08	34.10
I-BUTANE	3.31 E-08	11.89
N-BUTANE	1.39 E-08	4.98
I-PENTANE	1.83 E-08	6.58
N-PENTANE	5.20 E-09	1.87
2,2-DMB	1.59 E-08	5.72
2,3-DMB	4.54 E-10	0.16
2-MP	6.63 E-08	21.66
3-MP	3.64 E-08	10.47
CONVERSION (BASED ON N-HEXANE) , %		52.82
SELECTIVITY OF LPG , %		38.22
SELECTIVITY OF GASOLINE , %		60.84
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		49.31
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		78.49

TABLE A  
RUN DATA NO. 4-4

PRESSURE , ATG	50
TEMPERATURE , °C	320
TOTAL SV. , HR <sup>-1</sup>	8000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	31.75
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	488.55

COMPONENT	OUTLET GAS COMPOSITION	
	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	1.79 E-07	-
PRODUCTS :		
METHANE	3.12 E-09	1.01
ETHANE	7.47 E-09	2.42
PROPANE	1.32 E-07	42.68
I-BUTANE	4.08 E-08	13.19
N-BUTANE	1.78 E-08	5.77
I-PENTANE	2.19 E-08	7.10
N-PENTANE	6.63 E-09	2.14
2,2-DMB	1.12 E-08	3.62
2,3-DMB	5.70 E-10	0.18
2-MP	5.19 E-08	14.85
3-MP	2.90 E-08	7.04
CONVERSION (BASED ON N-HEXANE) , %		54.10
SELECTIVITY OF LPG , %		49.71
SELECTIVITY OF GASOLINE , %		48.86
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		65.69
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		64.57



TABLE A  
RUN DATA NO. 4-5

PRESSURE , ATG	50
TEMPERATURE , °C	340
TOTAL SV. , HR <sup>-1</sup>	8000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	31.75
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	488.55

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	1.67 E-07	-
PRODUCTS :		
METHANE	4.26 E-09	1.25
ETHANE	7.34 E-09	2.16
PROPANE	1.65 E-07	48.51
I-BUTANE	4.37 E-08	12.85
N-BUTANE	2.01 E-08	5.90
I-PENTANE	2.27 E-08	6.67
N-PENTANE	7.85 E-09	2.31
2,2-DMB	9.48 E-09	2.78
2,3-DMB	1.43 E-09	0.42
2-MP	4.46 E-08	11.34
3-MP	2.70 E-08	5.81
CONVERSION (BASED ON N-HEXANE) , %		57.11
SELECTIVITY OF LPG , %		56.10
SELECTIVITY OF GASOLINE , %		42.48
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		78.26
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		59.26

TABLE A  
RUN DATA NO. 5-1

PRESSURE , ATG	95
TEMPERATURE , °C	260
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	31.09
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	249.30

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	3.74 E-07	-
PRODUCTS :		
METHANE	3.71 E-10	1.33
ETHANE	6.05 E-10	2.17
PROPANE	3.83 E-09	13.74
I-BUTANE	6.62 E-10	2.38
N-BUTANE	5.74 E-10	2.06
I-PENTANE	4.69 E-10	1.69
N-PENTANE	1.85 E-10	0.67
2,2-DMB	2.16 E-09	7.76
2,3-DMB	5.22 E-11	0.19
2-MP	2.06 E-08	53.39
3-MP	1.11 E-08	14.62
CONVERSION (BASED ON N-HEXANE) , %		6.19
SELECTIVITY OF LPG , %		11.08
SELECTIVITY OF GASOLINE , %		87.85
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		0.86
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		6.78

TABLE A  
RUN DATA NO. 5-2

PRESSURE , ATG	95
TEMPERATURE , °C	280
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	31.09
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	249.30

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	3.22 E-07	-
PRODUCTS :		
METHANE	2.50 E-09	2.83
ETHANE	3.43 E-09	3.88
PROPANE	1.21 E-08	13.66
I-BUTANE	1.08 E-09	1.22
N-BUTANE	2.11 E-09	2.38
I-PENTANE	9.53 E-10	1.08
N-PENTANE	8.56 E-10	0.97
2,2-DMB	7.12 E-09	8.05
2,3-DMB	0.00 E+00	0.00
2-MP	4.77 E-08	47.56
3-MP	2.33 E-08	18.44
CONVERSION (BASED ON N-HEXANE) , %		19.22
SELECTIVITY OF LPG , %		10.65
SELECTIVITY OF GASOLINE , %		87.31
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		2.55
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		20.92

TABLE A  
RUN DATA NO. 5-3

PRESSURE , ATG	95
TEMPERATURE , °C	300
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	31.09
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	249.30

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	2.16 E-07	-
PRODUCTS :		
METHANE	8.12 E-09	3.61
ETHANE	1.12 E-08	4.98
PROPANE	4.66 E-08	20.73
I-BUTANE	3.83 E-09	1.70
N-BUTANE	6.67 E-09	2.97
I-PENTANE	3.91 E-09	1.74
N-PENTANE	2.67 E-09	1.19
2,2-DMB	1.78 E-08	7.91
2,3-DMB	3.02 E-11	0.01
2-MP	9.06 E-08	37.76
3-MP	4.61 E-08	17.40
CONVERSION (BASED ON N-HEXANE) , %		45.80
SELECTIVITY OF LPG , %		16.59
SELECTIVITY OF GASOLINE , %		80.63
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		9.47
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		46.03

TABLE A  
RUN DATA NO. 5-4

PRESSURE , ATG	95
TEMPERATURE , °C	320
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	31.09
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	249.30

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	7.27 E-08	-
PRODUCTS :		
METHANE	2.16 E-08	4.21
ETHANE	3.32 E-08	6.46
PROPANE	2.52 E-07	49.06
I-BUTANE	2.64 E-08	5.13
N-BUTANE	2.39 E-08	4.64
I-PENTANE	2.03 E-08	3.95
N-PENTANE	8.31 E-09	1.62
2,2-DMB	2.30 E-08	4.47
2,3-DMB	1.60 E-11	0.00
2-MP	7.55 E-08	13.58
3-MP	4.23 E-08	6.87
CONVERSION (BASED ON N-HEXANE) , %		81.78
SELECTIVITY OF LPG , %		48.91
SELECTIVITY OF GASOLINE , %		46.59
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		49.86
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		47.50

TABLE A  
RUN DATA NO. 5-5

PRESSURE , ATG	95
TEMPERATURE , °C	340
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	31.09
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	249.30

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	7.10 E-09	-
PRODUCTS :		
METHANE	1.77 E-08	2.36
ETHANE	2.60 E-08	3.48
PROPANE	5.61 E-07	74.90
I-BUTANE	7.37 E-08	9.84
N-BUTANE	4.69 E-08	6.26
I-PENTANE	1.84 E-08	2.45
N-PENTANE	7.46 E-09	1.00
2,2-DMB	2.47 E-09	0.33
2,3-DMB	1.34 E-10	0.02
2-MP	4.89 E-09	-0.11
3-MP	3.01 E-09	-0.53
CONVERSION (BASED ON N-HEXANE) , %		98.22
SELECTIVITY OF LPG , %		92.10
SELECTIVITY OF GASOLINE , %		4.93
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		112.78
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		6.04

TABLE A  
 RUN DATA NO. 6-1 (CATALYST CHECKED)

PRESSURE , ATG	30
TEMPERATURE , °C	260
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	21.74
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	351.80

OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	5.50 E-07	-
PRODUCTS :		
METHANE	1.75 E-10	0.74
ETHANE	2.16 E-10	0.92
PROPANE	3.33 E-09	14.15
I-BUTANE	1.15 E-09	4.89
N-BUTANE	5.29 E-10	2.25
I-PENTANE	6.75 E-10	2.87
N-PENTANE	2.97 E-10	1.26
2,2-DMB	1.51 E-09	6.41
2,3-DMB	4.87 E-11	0.21
2-MP	2.09 E-08	54.92
3-MP	1.26 E-08	11.37
CONVERSION (BASED ON N-HEXANE) , %		3.65
SELECTIVITY OF LPG , %		13.36
SELECTIVITY OF GASOLINE , %		86.16
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		0.86
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		5.54

TABLE A  
 RUN DATA NO. 6-2 (CATALYST CHECKED)

PRESSURE , ATG	30
TEMPERATURE , °C	280
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	21.74
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	351.80

OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	4.83 E-07	-
PRODUCTS :		
METHANE	8.43 E-10	0.76
ETHANE	1.35 E-09	1.23
PROPANE	2.97 E-08	26.94
I-BUTANE	9.69 E-09	8.79
N-BUTANE	4.37 E-09	3.96
I-PENTANE	5.52 E-09	5.01
N-PENTANE	1.96 E-09	1.78
2,2-DMB	5.65 E-09	5.12
2,3-DMB	3.45 E-10	0.31
2-MP	4.57 E-08	34.18
3-MP	2.31 E-08	11.92
CONVERSION (BASED ON N-HEXANE) , %		15.40
SELECTIVITY OF LPG , %		27.57
SELECTIVITY OF GASOLINE , %		71.76
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		7.47
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		19.44



TABLE A  
 RUN DATA NO. 6-3 (CATALYST CHECKED)

PRESSURE , ATG	30
TEMPERATURE , °C	300
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	21.74
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	351.80

OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	4.08 E-07	-
PRODUCTS :		
METHANE	1.79 E-09	0.80
ETHANE	2.99 E-09	1.34
PROPANE	8.30 E-08	37.20
I-BUTANE	2.60 E-08	11.67
N-BUTANE	1.17 E-08	5.24
I-PENTANE	1.52 E-08	6.83
N-PENTANE	4.94 E-09	2.21
2,2-DMB	8.33 E-09	3.73
2,3-DMB	5.63 E-10	0.25
2-MP	5.64 E-08	21.67
3-MP	3.01 E-08	9.04
CONVERSION (BASED ON N-HEXANE) , %		28.44
SELECTIVITY OF LPG , %		41.10
SELECTIVITY OF GASOLINE , %		58.10
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		20.56
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		29.07

TABLE A  
 RUN DATA NO. 6-4 (CATALYST CHECKED)

PRESSURE , ATG	30
TEMPERATURE , °C	320
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	21.74
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	351.80

OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	3.87 E-07	-
PRODUCTS :		
METHANE	2.85 E-09	1.06
ETHANE	4.74 E-09	1.77
PROPANE	1.20 E-07	44.72
I-BUTANE	3.09 E-08	11.54
N-BUTANE	1.48 E-08	5.51
I-PENTANE	1.77 E-08	6.62
N-PENTANE	6.07 E-09	2.27
2,2-DMB	6.77 E-09	2.53
2,3-DMB	6.66 E-10	0.25
2-MP	5.26 E-08	16.67
3-MP	2.89 E-08	7.06
CONVERSION (BASED ON N-HEXANE) , %		32.10
SELECTIVITY OF LPG , %		49.30
SELECTIVITY OF GASOLINE , %		49.58
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		27.84
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		28.00

TABLE A

## RUN DATA NO. 6-5 (CATALYST CHECKED)

PRESSURE , ATG	30
TEMPERATURE , °C	340
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	MORDENITE (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1538
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	21.74
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	351.80

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	3.45 E-07	-
PRODUCTS :		
METHANE	5.67 E-09	1.60
ETHANE	8.83 E-09	2.50
PROPANE	1.84 E-07	52.06
I-BUTANE	4.06 E-08	11.48
N-BUTANE	2.00 E-08	5.65
I-PENTANE	2.20 E-08	6.22
N-PENTANE	7.37 E-09	2.08
2,2-DMB	5.99 E-09	1.69
2,3-DMB	7.70 E-10	0.22
2-MP	4.89 E-09	11.57
3-MP	2.73 E-08	4.91
CONVERSION (BASED ON N-HEXANE) , %		39.58
SELECTIVITY OF LPG , %		58.64
SELECTIVITY OF GASOLINE , %		39.64
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		40.83
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		27.61

TABLE A  
RUN DATA NO. 7-1

PRESSURE , ATG	50
TEMPERATURE , °C	260
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	25.02
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	307.46

OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	4.89 E-07	-
PRODUCTS :		
METHANE	0.00 E+00	0.00
ETHANE	0.00 E+00	0.00
PROPANE	1.51 E-10	2.39
I-BUTANE	2.84 E-10	4.48
N-BUTANE	2.41 E-11	0.38
I-PENTANE	1.56 E-10	2.47
N-PENTANE	0.00 E+00	0.00
2,2-DMB	1.42 E-10	2.24
2,3-DMB	0.00 E+00	0.00
2-MP	1.21 E-08	81.47
3-MP	8.57 E-09	6.58
CONVERSION (BASED ON N-HEXANE) , %		1.24
SELECTIVITY OF LPG , %		4.58
SELECTIVITY OF GASOLINE , %		95.42
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		0.09
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		1.81

TABLE A  
RUN DATA NO. 7-2

PRESSURE , ATG	50
TEMPERATURE , °C	280
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	25.02
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	307.46

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	4.78 E-07	-
PRODUCTS :		
METHANE	1.40 E-10	0.74
ETHANE	2.04 E-10	1.08
PROPANE	1.57 E-09	8.32
I-BUTANE	6.32 E-10	3.34
N-BUTANE	2.30 E-10	1.21
I-PENTANE	4.18 E-10	2.21
N-PENTANE	3.13 E-11	0.17
2,2-DMB	2.78 E-10	1.47
2,3-DMB	0.00 E+00	0.00
2-MP	1.93 E-08	65.50
3-MP	1.12 E-08	15.97
CONVERSION (BASED ON N-HEXANE) , %		3.54
SELECTIVITY OF LPG , %		7.77
SELECTIVITY OF GASOLINE , %		91.71
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		0.42
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		4.99

TABLE A  
RUN DATA NO. 7-3

PRESSURE , ATG	50
TEMPERATURE , °C	300
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	25.02
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	307.46

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	4.22 E-07	-
PRODUCTS :		
METHANE	2.62 E-10	0.32
ETHANE	7.51 E-10	0.93
PROPANE	9.18 E-09	11.35
I-BUTANE	3.09 E-09	3.82
N-BUTANE	1.09 E-09	1.34
I-PENTANE	2.20 E-09	2.72
N-PENTANE	2.46 E-10	0.30
2,2-DMB	1.42 E-09	1.76
2,3-DMB	3.42 E-11	0.04
2-MP	5.13 E-08	54.90
3-MP	2.64 E-08	22.51
CONVERSION (BASED ON N-HEXANE) , %		14.89
SELECTIVITY OF LPG , %		10.00
SELECTIVITY OF GASOLINE , %		89.60
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		2.29
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		20.51

TABLE A  
RUN DATA NO. 7-4

PRESSURE , ATG	50
TEMPERATURE , °C	320
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	25.02
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	307.46

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	3.41 E-07	-
PRODUCTS :		
METHANE	7.07 E-10	0.37
ETHANE	2.42 E-09	1.25
PROPANE	5.36 E-08	27.72
I-BUTANE	1.81 E-08	9.36
N-BUTANE	5.54 E-09	2.87
I-PENTANE	1.12 E-08	5.81
N-PENTANE	1.54 E-09	0.80
2,2-DMB	3.65 E-09	1.89
2,3-DMB	5.88 E-11	0.03
2-MP	7.36 E-08	34.49
3-MP	3.80 E-08	15.43
CONVERSION (BASED ON N-HEXANE) , %		31.17
SELECTIVITY OF LPG , %		27.57
SELECTIVITY OF GASOLINE , %		71.83
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		13.21
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		34.41

TABLE A  
RUN DATA NO. 7-5

PRESSURE , ATG	50
TEMPERATURE , °C	340
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	25.02
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	307.46

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
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## REACTANTS (REMAINING) :

H <sub>2</sub>	1.24 E-05	-
N-HEXANE	2.13 E-07	-

## PRODUCTS :

METHANE	1.64 E-09	0.42
ETHANE	5.60 E-09	1.43
PROPANE	1.51 E-07	38.58
I-BUTANE	4.97 E-08	12.69
N-BUTANE	1.68 E-08	4.30
I-PENTANE	3.04 E-08	7.78
N-PENTANE	5.78 E-09	1.48
2,2-DMB	6.93 E-09	1.77
2,3-DMB	1.01 E-10	0.03
2-MP	8.98 E-08	21.19
3-MP	4.86 E-08	10.34

CONVERSION (BASED ON N-HEXANE) , %	57.01
SELECTIVITY OF LPG , %	42.41
SELECTIVITY OF GASOLINE , %	56.83
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR	37.17
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR	49.80



TABLE A  
RUN DATA NO. 8-1

PRESSURE , ATG	50
TEMPERATURE , °C	260
TOTAL SV. , HR <sup>-1</sup>	2000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	26.01
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	148.09

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	3.85 E-07	-
PRODUCTS :		
METHANE	9.76 E-11	0.09
ETHANE	1.42 E-10	0.14
PROPANE	1.18 E-08	11.27
I-BUTANE	1.54 E-08	14.78
N-BUTANE	1.59 E-09	1.52
I-PENTANE	6.98 E-09	6.69
N-PENTANE	4.81 E-10	0.46
2,2-DMB	3.14 E-09	3.01
2,3-DMB	8.71 E-11	0.08
2-MP	5.53 E-08	45.45
3-MP	2.65 E-08	16.49
CONVERSION (BASED ON N-HEXANE) , %		19.16
SELECTIVITY OF LPG , %		18.84
SELECTIVITY OF GASOLINE , %		81.09
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		2.67
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		11.50

TABLE A  
RUN DATA NO. 8-2

PRESSURE , ATG	50
TEMPERATURE , °C	280
TOTAL SV. , HR <sup>-1</sup>	2000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	26.01
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	148.09

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	2.69 E-07	-
PRODUCTS :		
METHANE	2.13 E-10	0.09
ETHANE	7.94 E-10	0.34
PROPANE	2.98 E-08	12.69
I-BUTANE	2.31 E-08	9.83
N-BUTANE	4.21 E-09	1.79
I-PENTANE	1.52 E-08	6.46
N-PENTANE	1.77 E-09	0.75
2,2-DMB	7.31 E-09	3.11
2,3-DMB	1.82 E-10	0.08
2-MP	1.11 E-07	43.94
3-MP	5.84 E-08	20.91
CONVERSION (BASED ON N-HEXANE) , %		43.52
SELECTIVITY OF LPG , %		15.97
SELECTIVITY OF GASOLINE , %		83.89
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		5.15
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		27.03

TABLE A  
RUN DATA NO. B-3

PRESSURE , ATG	50
TEMPERATURE , °C	300
TOTAL SV. , HR <sup>-1</sup>	2000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707 0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.15311
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	26.01
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	148.00

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
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## REACTANTS (REMAINING) :

H <sub>2</sub>	1.24 E-05	-
N-HEXANE	2.63 E-07	-

## PRODUCTS :

METHANE	3.07 E-10	0.13
ETHANE	1.31 E-09	0.53
PROPANE	3.76 E-08	15.31
I-BUTANE	2.19 E-08	8.93
N-BUTANE	5.01 E-09	2.04
I-PENTANE	1.52 E-08	6.18
N-PENTANE	1.97 E-09	0.80
2,2-DMB	6.96 E-09	2.84
2,3-DMB	1.59 E-10	0.06
2-MP	1.12 E-07	42.57
3-MP	5.99 E-08	20.61

CONVERSION (BASED ON N-HEXANE) , %	44.86
SELECTIVITY OF LPG , %	17.20
SELECTIVITY OF GASOLINE , %	62.58
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR	5.71
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR	27.43

TABLE A  
RUN DATA NO. 8-4

PRESSURE , ATG	50
TEMPERATURE , °C	320
TOTAL SV. , HR <sup>-1</sup>	2000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	26.01
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	148.09

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	2.28 E-07	-
PRODUCTS :		
METHANE	7.38 E-10	0.24
ETHANE	2.52 E-09	0.83
PROPANE	7.17 E-08	23.58
I-BUTANE	3.14 E-08	10.32
N-BUTANE	8.79 E-09	2.89
I-PENTANE	2.21 E-08	7.28
N-PENTANE	3.39 E-09	1.11
2,2-DMB	7.68 E-09	2.52
2,3-DMB	1.37 E-10	0.05
2-MP	1.12 E-07	34.17
3-MP	6.10 E-08	17.01
CONVERSION (BASED ON N-HEXANE) , %		52.13
SELECTIVITY OF LPG , %		25.22
SELECTIVITY OF GASOLINE , %		74.39
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		9.73
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		28.71

TABLE A  
RUN DATA NO. 8-5

PRESSURE , ATG	50
TEMPERATURE , °C	340
TOTAL SV. , HR <sup>-1</sup>	2000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	26.01
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	148.09

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	2.05 E-09	-
PRODUCTS :		
METHANE	1.82 E-09	0.51
ETHANE	4.12 E-09	1.14
PROPANE	1.20 E-07	33.28
I-BUTANE	4.10 E-08	11.39
N-BUTANE	1.34 E-08	3.72
I-PENTANE	2.86 E-08	7.95
N-PENTANE	5.14 E-09	1.43
2,2-DMB	7.31 E-09	2.03
2,3-DMB	1.37 E-10	0.04
2-MP	9.94 E-08	25.44
3-MP	5.63 E-08	13.08
CONVERSION (BASED ON N-HEXANE) , %		57.07
SELECTIVITY OF LPG , %		35.35
SELECTIVITY OF GASOLINE , %		64.04
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		14.93
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		27.06

TABLE A  
RUN DATA NO. 9-1

PRESSURE , ATG	70
TEMPERATURE , °C	260
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	25.03
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	307.34

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) ;		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	4.90 E-07	-
PRODUCTS :		
METHANE	0.00 E+00	0.00
ETHANE	0.00 E+00	0.00
PROPANE	2.22 E-10	3.94
I-BUTANE	1.11 E-10	2.10
N-BUTANE	3.72 E-11	0.66
I-PENTANE	7.50 E-11	1.33
N-PENTANE	0.00 E+00	0.00
2,2-DMB	6.51 E-11	1.16
2,3-DMB	0.00 E+00	0.00
2-MP	1.14 E-08	76.59
3-MP	9.01 E-09	14.22
CONVERSION (BASED ON N-HEXANE) , %		1.10
SELECTIVITY OF LPG , %		3.93
SELECTIVITY OF GASOLINE , %		96.07
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		0.07
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		1.62

TABLE A  
RUN DATA NO. 9-2

PRESSURE , ATG	70
TEMPERATURE , °C	280
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	25.03
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	307.34

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	4.80 E-07	-
PRODUCTS :		
METHANE	9.22 E-11	0.58
ETHANE	1.47 E-10	0.92
PROPANE	1.07 E-09	6.71
I-BUTANE	4.19 E-10	2.62
N-BUTANE	1.65 E-10	1.03
I-PENTANE	2.89 E-10	1.81
N-PENTANE	2.48 E-11	0.16
2,2-DMB	2.03 E-10	1.27
2,3-DMB	0.00 E+00	0.00
2-MP	1.80 E-08	68.30
3-MP	1.09 E-08	16.59
CONVERSION (BASED ON N-HEXANE) , %		3.03
SELECTIVITY OF LPG , %		6.17
SELECTIVITY OF GASOLINE , %		93.41
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		0.29
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		4.35

TABLE A  
RUN DATA NO. 9-3

PRESSURE , ATG	70
TEMPERATURE , °C	300
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	25.03
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	307.34

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	4.61 E-07	-
PRODUCTS :		
METHANE	1.34 E-10	0.36
ETHANE	3.68 E-10	0.98
PROPANE	3.49 E-09	9.31
I-BUTANE	1.13 E-09	3.02
N-BUTANE	4.62 E-10	1.23
I-PENTANE	8.15 E-10	2.18
N-PENTANE	8.82 E-10	0.24
2,2-DMB	5.28 E-10	1.41
2,3-DMB	7.04 E-12	0.02
2-MP	2.98 E-08	60.73
3-MP	1.59 E-08	20.52
CONVERSION (BASED ON N-HEXANE) , %		6.99
SELECTIVITY OF LPG , %		8.10
SELECTIVITY OF GASOLINE , %		91.49
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		0.87
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		9.83



TABLE A  
 RUN DATA NO. 9-4

PRESSURE , ATG	70
TEMPERATURE , °C	320
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	25.03
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	307.34

OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	3.63 E-07	-
PRODUCTS :		
METHANE	4.63 E-10	0.30
ETHANE	1.93 E-09	1.25
PROPANE	2.97 E-08	19.25
I-BUTANE	8.96 E-09	5.80
N-BUTANE	3.12 E-09	2.02
I-PENTANE	6.67 E-09	4.32
N-PENTANE	8.59 E-10	0.56
2,2-DMB	2.84 E-09	1.84
2,3-DMB	6.35 E-11	0.04
2-MP	7.55 E-08	44.30
3-MP	3.96 E-08	20.32
CONVERSION (BASED ON N-HEXANE) , %		26.77
SELECTIVITY OF LPG , %		17.28
SELECTIVITY OF GASOLINE , %		82.10
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		7.11
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		33.80

TABLE A  
RUN DATA NO. 9-5

PRESSURE , ATG	70
TEMPERATURE , °C	340
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	25.03
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	307.34

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	2.48 E-07	-
PRODUCTS :		
METHANE	1.47 E-09	0.46
ETHANE	4.75 E-09	1.47
PROPANE	1.05 E-07	32.52
I-BUTANE	3.20 E-08	9.90
N-BUTANE	1.08 E-08	3.35
I-PENTANE	2.20 E-08	6.83
N-PENTANE	3.64 E-09	1.13
2,2-DMB	6.08 E-09	1.88
2,3-DMB	9.20 E-11	0.03
2-MP	9.85 E-08	28.34
3-MP	5.37 E-08	14.09
CONVERSION (BASED ON N-HEXANE) , %		49.94
SELECTIVITY OF LPG , %		32.75
SELECTIVITY OF GASOLINE , %		66.52
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		25.13
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		51.84

TABLE A

## RUN DATA NO. 10-1 (CATALYST CHECKED)

PRESSURE , ATG	50
TEMPERATURE , °C	300
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	18.06
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	419.73

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	6.49 E-07	-
PRODUCTS :		
METHANE	1.86 E-10	0.46
ETHANE	4.76 E-10	1.17
PROPANE	3.39 E-09	8.35
I-BUTANE	9.84 E-10	2.43
N-BUTANE	4.51 E-10	1.11
I-PENTANE	7.95 E-10	1.96
N-PENTANE	8.99 E-11	0.22
2,2-DMB	5.10 E-10	1.26
2,3-DMB	0.00 E+00	0.00
2-MP	3.53 E-08	62.66
3-MP	2.00 E-08	20.38
CONVERSION (BASED ON N-HEXANE) , %		5.50
SELECTIVITY OF LPG , %		7.02
SELECTIVITY OF GASOLINE , %		92.48
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		0.81
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		10.67

TABLE A

## RUN DATA NO. 10-2 (CATALYST CHECKED)

PRESSURE , ATG	50
TEMPERATURE , °C	340
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Na-Y (H-Y)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.0380
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	18.06
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	419.73

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	1.24 E-05	-
N-HEXANE	4.80 E-07	-
PRODUCTS :		
METHANE	8.77 E-10	0.36
ETHANE	3.70 E-09	1.51
PROPANE	5.51 E-08	22.42
I-BUTANE	1.32 E-08	5.39
N-BUTANE	5.18 E-09	2.11
I-PENTANE	1.07 E-08	4.35
N-PENTANE	1.55 E-09	0.63
2,2-DMB	3.68 E-09	1.50
2,3-DMB	9.40 E-11	0.04
2-MP	1.12 E-07	41.46
3-MP	6.15 E-08	20.24
CONVERSION (BASED ON N-HEXANE) , %		30.12
SELECTIVITY OF LPG , %		19.26
SELECTIVITY OF GASOLINE , %		80.08
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		12.17
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		50.62

TABLE A  
RUN DATA NO. 11-1

PRESSURE , ATG	60
TEMPERATURE , ° C	260
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Mordenite-2 (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1014
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	38.04
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	204.92

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	8.71 E-06	-
N-HEXANE	2.28 E-07	-
PRODUCTS :		
METHANE	3.53 E-10	3.01
ETHANE	3.78 E-10	3.23
PROPANE	1.69 E-09	14.45
I-BUTANE	3.64 E-10	3.10
N-BUTANE	3.17 E-10	2.70
I-PENTANE	1.94 E-10	1.66
N-PENTANE	2.43 E-10	2.07
2,2-DMB	5.28 E-10	4.51
2,3-DMB	0.00 E+00	0.00
2-MP	7.37 E-09	51.11
3-MP	4.17 E-09	14.16
CONVERSION (BASED ON N-HEXANE) , %		4.12
SELECTIVITY OF LPG , %		13.28
SELECTIVITY OF GASOLINE , %		84.83
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		0.37
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		2.37

TABLE A  
RUN DATA NO. 11-2

PRESSURE , ATG	60
TEMPERATURE , ° C	280
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Mordenite-2 (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1014
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	38.04
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	204.92

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	8.71 E-06	-
N-HEXANE	2.11 E-07	-
PRODUCTS :		
METHANE	1.54 E-09	4.73
ETHANE	1.52 E-09	4.67
PROPANE	5.89 E-09	18.08
I-BUTANE	5.19 E-10	1.59
N-BUTANE	1.09 E-09	3.34
I-PENTANE	3.15 E-10	0.97
N-PENTANE	7.97 E-10	2.45
2,2-DMB	1.53 E-09	4.69
2,3-DMB	0.00 E+00	0.00
2-MP	1.55 E-08	4.40
3-MP	7.28 E-09	15.09
CONVERSION (BASED ON N-HEXANE) , %		11.28
SELECTIVITY OF LPG , %		17.86
SELECTIVITY OF GASOLINE , %		78.94
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		1.37
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		6.05

TABLE A  
RUN DATA NO. 11-3

PRESSURE , ATG	60
TEMPERATURE , ° C	300
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Mordenite-2 (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1014
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	38.04
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	204.92

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	8.71 E-06	-
N-HEXANE	1.35 E-07	-
PRODUCTS :		
METHANE	4.52 E-09	3.44
ETHANE	6.01 E-09	4.59
PROPANE	3.57 E-08	27.23
I-BUTANE	2.55 E-09	1.94
N-BUTANE	4.47 E-09	3.41
I-PENTANE	1.97 E-09	1.50
N-PENTANE	2.26 E-09	1.72
2,2-DMB	6.59 E-09	5.02
2,3-DMB	0.00 E+00	0.00
2-MP	4.72 E-08	34.95
3-MP	2.38 E-08	16.20
CONVERSION (BASED ON N-HEXANE) , %		43.02
SELECTIVITY OF LPG , %		22.04
SELECTIVITY OF GASOLINE , %		75.27
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		6.43
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		21.98

TABLE A

RUN DATA NO. 11-4

PRESSURE , ATG	60
TEMPERATURE , ° C	320
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Mordenite-2 (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1014
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	38.04
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	204.92

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	8.71 E-06	-
N-HEXANE	1.54 E-08	-
PRODUCTS :		
METHANE	1.12 E-08	2.91
ETHANE	1.88 E-08	4.88
PROPANE	2.45 E-07	63.46
I-BUTANE	2.67 E-08	6.91
N-BUTANE	2.06 E-08	5.35
I-PENTANE	1.45 E-08	3.77
N-PENTANE	5.19 E-09	1.35
2,2-DMB	7.55 E-09	1.96
2,3-DMB	1.79 E-10	0.05
2-MP	2.58 E-08	6.32
3-MP	1.43 E-08	3.06
CONVERSION (BASED ON N-HEXANE) , %		93.53
SELECTIVITY OF LPG , %		69.28
SELECTIVITY OF GASOLINE , %		27.05
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		43.98
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		17.17



TABLE A  
RUN DATA NO. 11-5

PRESSURE , ATG	60
TEMPERATURE , ° C	340
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Mordenite-2 (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1014
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	38.04
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	204.92

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	8.71 E-06	-
N-HEXANE	3.12 E-09	-
PRODUCTS :		
METHANE	1.75 E-08	3.82
ETHANE	2.59 E-08	5.68
PROPANE	3.41 E-07	74.60
I-BUTANE	2.84 E-08	6.20
N-BUTANE	2.41 E-08	5.28
I-PENTANE	1.13 E-08	2.47
N-PENTANE	3.71 E-09	0.81
2,2-DMB	2.17 E-09	0.47
2,3-DMB	2.37 E-11	0.01
2-MP	4.25 E-09	0.63
3-MP	2.68 E-09	0.04
CONVERSION (BASED ON N-HEXANE) , %		98.69
SELECTIVITY OF LPG , %		87.62
SELECTIVITY OF GASOLINE , %		7.45
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		58.68
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		4.99

TABLE A  
RUN DATA NO. 12-1

PRESSURE , ATG	60
TEMPERATURE , ° C	260
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Mordenite-2 (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1014
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	57.94
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	135.73

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	8.49 E-06	-
N-HEXANE	1.46 E-07	-
PRODUCTS :		
METHANE	2.74 E-10	4.51
ETHANE	2.67 E-10	4.40
PROPANE	8.13 E-10	13.38
I-BUTANE	7.20 E-11	1.19
N-BUTANE	1.32 E-10	2.17
I-PENTANE	4.25 E-11	0.07
N-PENTANE	4.88 E-11	0.80
2,2-DMB	2.54 E-10	4.18
2,3-DMB	0.00 E+00	0.00
2-MP	4.25 E-09	55.46
3-MP	2.40 E-09	13.22
CONVERSION (BASED ON N-HEXANE) , %		3.42
SELECTIVITY OF LPG , %		10.50
SELECTIVITY OF GASOLINE , %		86.89
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		0.37
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		3.04

TABLE A  
RUN DATA NO. 12-2

PRESSURE , ATG	60
TEMPERATURE , ° C	280
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Mordenite-2 (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1014
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	57.94
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	135.73

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS- DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	8.49 E-06	-
N-HEXANE	1.29 E-07	-
PRODUCTS :		
METHANE	1.31 E-09	4.77
ETHANE	1.50 E-09	5.43
PROPANE	5.80 E-09	21.07
I-BUTANE	3.81 E-10	1.38
N-BUTANE	8.79 E-10	3.19
I-PENTANE	2.76 E-10	1.00
N-PENTANE	5.42 E-10	1.97
2,2-DMB	1.20 E-09	4.35
2,3-DMB	0.00 E+00	0.00
2-MP	1.25 E-08	42.07
3-MP	5.66 E-09	14.76
CONVERSION (BASED ON N-HEXANE) , %		14.56
SELECTIVITY OF LPG , %		17.02
SELECTIVITY OF GASOLINE , %		79.71
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		2.54
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		11.89

TABLE A  
RUN DATA NO. 12-3.

PRESSURE , ATG	60
TEMPERATURE , ° C	300
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Mordenite-2 (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1014
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	57.94
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	135.73

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	8.49 E-06	-
N-HEXANE	7.69 E-08	-
PRODUCTS :		
METHANE	4.42 E-09	4.28
ETHANE	5.98 E-09	5.80
PROPANE	3.76 E-08	36.41
I-BUTANE	2.00 E-09	1.94
N-BUTANE	4.03 E-09	3.91
I-PENTANE	1.68 E-09	1.63
N-PENTANE	1.88 E-09	1.83
2,2-DMB	3.72 E-09	3.61
2,3-DMB	0.00 E+00	0.00
2-MP	2.95 E-08	27.77
3-MP	1.48 E-08	12.82
CONVERSION (BASED ON N-HEXANE) , %		49.06
SELECTIVITY OF LPG , %		30.78
SELECTIVITY OF GASOLINE , %		65.53
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		15.47
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		32.94

TABLE A  
RUN DATA NO. 12-4

PRESSURE , ATG	60
TEMPERATURE , ° C	320
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Mordenite-2 (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1014
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	57.94
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	135.73

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	8.49 E-06	-
N-HEXANE	7.60 E-09	-
PRODUCTS :		
METHANE	7.89 E-09	3.04
ETHANE	1.39 E-08	5.36
PROPANE	1.80 E-07	69.45
I-BUTANE	1.36 E-08	5.25
N-BUTANE	1.23 E-08	4.72
I-PENTANE	8.16 E-09	3.14
N-PENTANE	2.33 E-09	0.90
2,2-DMB	3.09 E-09	1.19
2,3-DMB	9.62 E-11	0.04
2-MP	1.29 E-08	4.65
3-MP	7.50 E-09	2.27
CONVERSION (BASED ON N-HEXANE) , %		94.97
SELECTIVITY OF LPG , %		74.99
SELECTIVITY OF GASOLINE , %		20.85
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		72.96
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		20.29

TABLE A  
RUN DATA NO. 12-5

PRESSURE , ATG	60
TEMPERATURE , ° C	340
TOTAL SV. , HR <sup>-1</sup>	4000
CATALYST TYPE	Mordenite-2 (H-FORM)
SIZE RANGE OF CATALYST , MM	0.707-0.841 (Mesh No.20-24)
AMOUNT OF CATALYST , GM	1.1014
VOLUME OF CATALYST , CM <sup>3</sup>	2.00
FEED MOLE RATIO , MOLES OF H <sub>2</sub> /MOLES OF N-C <sub>6</sub> H <sub>12</sub>	57.94
N-C <sub>6</sub> H <sub>12</sub> FEED RATE , CM <sup>3</sup> /HR	135.73

## OUTLET GAS COMPOSITION

COMPONENT	MOLES OF PRODUCTS IN 0.5 CM <sup>3</sup> GAS SAMPLE	% PRODUCTS DISTRIBUTION
REACTANTS (REMAINING) :		
H <sub>2</sub>	8.49 E-06	-
N-HEXANE	1.96 E-09	-
PRODUCTS :		
METHANE	1.08 E-08	3.69
ETHANE	1.69 E-08	5.77
PROPANE	2.25 E-07	76.85
I-BUTANE	1.54 E-08	5.26
N-BUTANE	1.32 E-08	4.50
I-PENTANE	6.59 E-09	2.25
N-PENTANE	1.63 E-09	0.56
2,2-DMB	1.03 E-09	0.35
2,3-DMB	3.20 E-11	0.01
2-MP	2.74 E-09	0.64
3-MP	1.95 E-09	0.12
CONVERSION (BASED ON N-HEXANE) , %		98.70
SELECTIVITY OF LPG , %		88.23
SELECTIVITY OF GASOLINE , %		6.79
STY OF LPG , CM <sup>3</sup> /CM <sup>3</sup> HR		89.21
STY OF GASOLINE , CM <sup>3</sup> /CM <sup>3</sup> HR		6.87

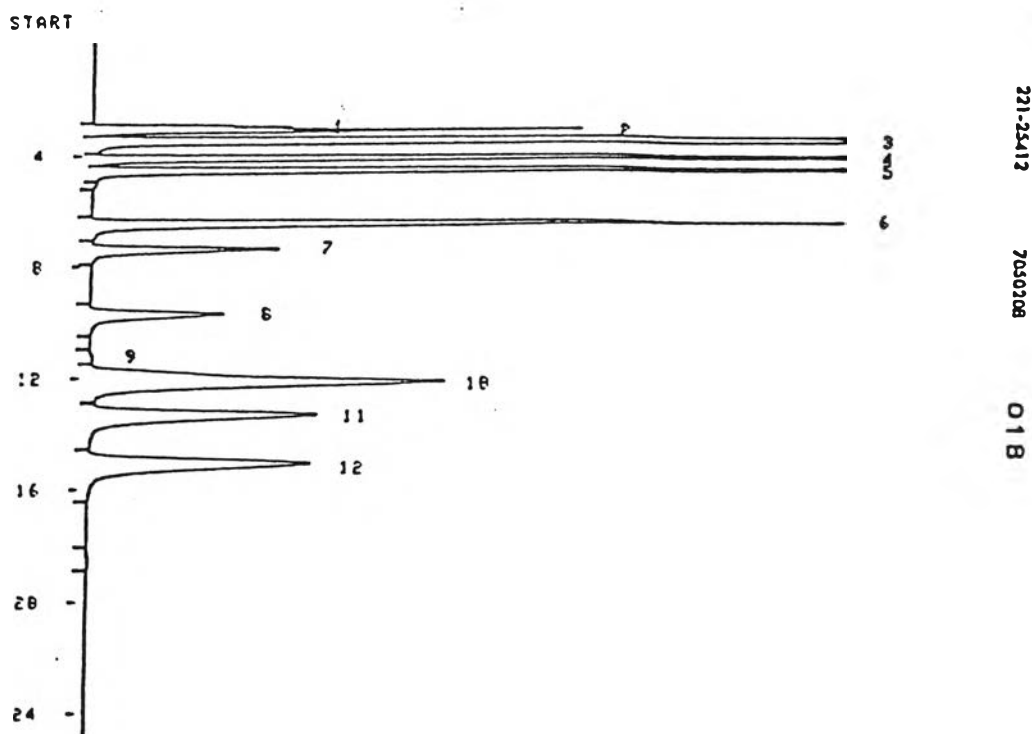
## APPENDIX B

## ANALYTICAL METHOD

## I. ANALYSIS OF REACTANTS AND PRODUCTS

A Shimudsu FID Gas Chromatograph, model 8APrF, was used to analyze gaseous carbon-containing components, and the packed column used was a VZ-7 column, 5 meter long. A recorder, model C-R3A, Shimudsu DATA PROCESSOR Chromatopac was connected to FID Gas Chromatograph to integrate the peak areas of each hydrocarbon gas sample. To detect the hydrogen gas, a Shimudsu TCD Gas Chromatograph (model 8AT) equipped with a recorder (model R-111) and a 5-meter long MS-5A column was used.

## II. SAMPLE PEAK



1. Methane
2. Ethane
3. Propane
4. i-Butane
5. n-Butane
6. i-Pentane
7. n-Pentane
8. 2,2-DMB (2,2-dimethyl butane)
9. 2,3-DMB (2,3-dimethyl butane)
10. 2-MP (2-methyl pentane)
11. 3-MP (3-methyl pentane).
12. n-Hexane



## III. CALIBRATION CONSTANT

COMPONENT (i)	CALIBRATION CONSTANT ( $C_i$ )
HYDROGEN	7.06 E-07
METHANE	3.84 E-12
ETHANE	2.40 E-12
PROPANE	2.00 E-12
I-BUTANE	6.96 E-13
N-BUTANE	6.67 E-13
I-PENTANE	5.50 E-13
N-PENTANE	5.55 E-13
2,2-DMB	7.86 E-13
2,3-DMB	8.50 E-13
2-MP	8.13 E-13
3-MP	8.00 E-13
N-HEXANE	7.50 E-13

The area  $A_i$  under peak  $i$  of component  $i$  may be used to calculate the mole of the component as follows

Peak No.	Component	$A_i$	$C_i$	mole ( $A_i \times C_i$ )
1	Methane	765	3.84 E-12	2.94 E-09
2	Ethane	2001	2.40 E-12	4.80 E-09
3	Propane	67728	2.00 E-12	1.35 E-07
4	i-Butane	71370	6.96 E-13	4.96 E-08
5	n-Butane	29210	6.67 E-13	1.95 E-08
6	i-Pentane	42556	5.50 E-13	2.34 E-08
7	n-Pentane	13034	5.55 E-13	7.23 E-09
8	2,2-DMB	17051	7.86 E-13	1.34 E-08
9	2,3-DMB	542	8.50 E-13	4.61 E-10
10	2-MP	47690	8.13 E-13	3.87 E-08
11	3-MP	26304	8.00 E-13	2.10 E-08
12	n-Hexane	90071	7.50 E-13	6.76 E-08

## APPENDIX C

## EXAMPLE OF CALCULATION

## RUN DATA NO. 1-2

PRESSURE	30	atg.
TEMPERATURE	280	°C
TOTAL SPACE VELOCITY	4000	hr <sup>-1</sup>
CATALYST TYPE	MORDENITE	(H-FORM)
SIZE RANGE OF CATALYST	0.707-0.841	(#20 - #24 mesh)
AMOUNT OF CATALYST	1.1538	g.
VOLUME OF CATALYST	2.00	cm <sup>3</sup>
MOLAR RATIO OF H <sub>2</sub> : n-C <sub>6</sub>	44.98 : 1	
N-C <sub>6</sub> H <sub>12</sub> FEED RATE	173.99	cm <sup>3</sup> /hr

## TYPICAL ANALYTICAL DATA (RUN DATA 1-2)

COMPONENT	PEAK AREA	
	FEED GAS	PRODUCT GAS
METHANE	-	765
ETHANE	-	2001
PROPANE	-	67728
i-BUTANE	-	71370
n-BUTANE	-	29210
i-PENTANE	-	42556
n-PENTANE	-	13034
2,2-DMB	-	17051
2,3-DMB	-	542
2-MP	4665	47690
3-MP	5924	26305
n-HEXANE	368323	90071

GRAM MOLES OF HYDROCARBON IN GAS OUT (0.5cm<sup>3</sup>.SAMPLE GAS)

COMPONENT	GRAM MOLES OF HYDROCARBON	
	FEED GAS	PRODUCT GAS
METHANE	-	2.94 E-09
ETHANE	-	4.80 E-09
PROPANE	-	1.35 E-07
i-BUTANE	-	4.96 E-08
n-BUTANE	-	1.95 E-08
i-PENTANE	-	2.34 E-08
n-PENTANE	-	7.23 E-09
2,2-DMB	-	1.34 E-08
2,3-DMB	-	4.61 E-10
2-MP	3.79 E-09	3.87 E-08
3-MP	4.74 E-09	2.01 E-08
n-HEXANE	2.76 E-07	6.76 E-08
Sum of carbon atom	1.71 E-06	1.70 E-06

Adjust gram moles of each component in the product gas by multiplying each gram moles with the constant of  $\frac{1.71 \text{ E-06}}{1.70 \text{ E-06}}$  to obtain the following.

COMPONENT	GRAM MOLES OF HYDROCARBON IN PRODUCT GAS
METHANE	2.95 E-09
ETHANE	4.83 E-09
PROPANE	1.36 E-07
i-BUTANE	4.99 E-08
N-BUTANE	1.96 E-08
i-PENTANE	2.35 E-08
n-PENTANE	7.27 E-09
2,2-DMB	1.35 E-08
2,3-DMB	4.63 E-10
2-MP	3.90 E-08
3-MP	2.12 E-08
n-HEXANE	6.79 E-08

## CONVERSION OF N-HEXANE

$$\begin{aligned}
 \% \text{ CONVERSION} &= \frac{\text{GRAM MOLES OF N-HEXANE CONVERTED}}{\text{GRAM MOLES OF N-HEXANE FED}} \times 100 \\
 &= \frac{(2.76 \text{ E-}07) - (6.79 \text{ E-}08)}{2.76 \text{ E-}07} \times 100 \\
 &= 75.36 \%
 \end{aligned}$$

## LPG SELECTIVITY

$$\begin{aligned}
 \% \text{ LPG SELECTIVITY} &= \frac{\text{GRAM ATOMS OF CARBON IN } (C_3+i-C_4+N-C_4) \text{ PRODUCTS}}{\text{GRAM ATOMS OF CARBON IN CONVERTED N-HEXANE}} \times 100 \\
 &= \left\{ \frac{(1.36 \text{ E-}07 \times 3) + (4.99 \text{ E-}08 \times 4) + (1.96 \text{ E-}08 \times 4)}{(2.08 \text{ E-}07 \times 6)} \right\} \times 100 \\
 &= 55.08 \%
 \end{aligned}$$

## GASOLINE SELECTIVITY

$$\begin{aligned}
 \% \text{ GASOLINE} &= \frac{\text{SUM OF GRAM ATOMS OF CARBON IN GASOLINE PRODUCTS}}{\text{GRAM ATOMS OF CARBON IN CONVERTED N-HEXANE}} \times 100 \\
 \text{SELECTIVITY} &= \left\{ \left\{ (2.35 \text{ E-}08 + 7.27 \text{ E-}09) \times 5 \right\} + \left\{ (1.35 \text{ E-}08 + 4.63 \text{ E-}10 \right. \right. \\
 &\quad \left. \left. + 3.90 \text{ E-}08 + 2.12 \text{ E-}08 - 3.79 \text{ E-}09 - 4.74 \text{ E-}09) \times 6 \right\} \right\} \times 100 \\
 &\quad \left( 2.08 \text{ E-}07 \times 6 \right) \\
 &= 43.91 \%
 \end{aligned}$$

## SPACE TIME YIELD (STY)

$$\text{STY} = \frac{\% \text{ CONVERSION} \times \% \text{ SELECTIVITY} \times \text{N-HEXANE FEED RATE } (\text{cm}^3 \text{hr}^{-1})}{100 \times 100 \times \text{CATALYST VOLUME } (\text{cm}^3)}$$

$$\text{N-HEXANE FEED RATE} = \frac{\text{SPACE VELOCITY } (\text{hr}^{-1}) \times \text{CATALYST VOLUME } (\text{cm}^3)}{\text{MOLAR RATIO OF HYDROGEN TO N-HEXANE IN FEED} + 1}$$

$$\begin{aligned}
 \text{STY OF LPG} &= \frac{75.36 \times 55.08 \times 173.99}{100 \times 100 \times 2} \\
 &= 36.11 \text{ cm}^3/\text{cm}^3\text{hr}
 \end{aligned}$$

$$\text{STY OF GASOLINE} = \frac{75.36 \times 43.91 \times 173.99}{100 \times 100 \times 2} = 28.78 \text{ cm}^3/\text{cm}^3\text{hr}$$

## PRODUCT DISTRIBUTION

COMPONENT	GRAM MOLES PRODUCT DISTRIBUTION (%) IN PRODUCT GAS	
METHANE	2.95 E-09	0.98
ETHANE	4.83 E-09	1.47
PROPANE	1.36 E-07	8.02
I-BUTANE	4.99 E-08	1.20
N-BUTANE	1.96 E-08	1.20
I-PENTANE	2.35 E-08	0.83
N-PENTANE	7.27 E-09	0.62
2,2-DMB	1.35 E-08	8.91
2,3-DMB	4.63 E-10	0.02
2-MP	3.52 E-08	54.98
3-MP	1.65 E-08	21.77
TOTAL	2.96 E-07	TOTAL 100.0

Note : % PRODUCT DISTRIBUTION OF EACH COMPONENT

$$= \frac{\text{GRAM MOLES OF EACH COMPONENT IN PRODUCT GAS}}{\text{TOTAL GRAM MOLES OF PRODUCT GAS}} \times 100$$



## BIOGRAPHY

Miss Ladawan Sirisaengtaksin was born on June 25, 1960, in Saraburi, Thailand. She was graduated from Chiangmai University, with a Bachelor of Science in Industrial Chemistry in 1984.