Vapor Generation

CHEVRON RESEARCH GASOLINE ANALYSIS

Sample Name: 6015180 5785 API GAS (40% CHG) ST-~~300~~ 130 Customer: CARR
Acquisition Date: 2-Apr-1996 Acquisition Time: 08:10
Channel #: 13 Analysis: GASO124 Sample #: 6 Injection #: 1

*** DETAILED COMPOSITION, PERCENT ***

1. BY VOLUME

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	26.17	0.35	******	******	******	26.52	25.59	0.58	******	******	******
5	40.55	9.75	0.29	******	******	50.60	7.88	32.68	******	0.29	******
6	13.51	2.70	1.02	0.82	******	18.04	1.80	11.71	******	0.91	0.11
7	2.21	0.36	0.34	0.86	******	3.77	0.20	2.01	******	0.23	0.11
8	0.78	0.00	0.03	0.24	0.00	1.05	0.02	0.19	0.57	0.03	0.00
9	0.00	0.00	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	83.22	13.15	1.68	1.95	0.00	100.00	35.49	47.16	0.57	1.47	0.22

2. BY WEIGHT

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	24.08	0.34	******	******	******	24.42	23.57	0.51	******	******	******
5	40.00	10.19	0.34	******	******	50.53	7.84	32.17	******	0.34	******
6	14.09	2.94	1.21	1.14	******	19.39	1.88	12.21	******	1.08	0.13
7	2.40	0.41	0.41	1.18	******	4.40	0.22	2.18	******	0.28	0.13
8	0.86	0.00	0.04	0.33	0.00	1.23	0.02	0.21	0.63	0.04	0.00
9	0.00	0.00	0.00	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	81.43	13.87	2.01	2.69	0.00	100.00	33.53	47.28	0.63	1.74	0.27

3. BY MOLAR

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	29.40	0.43	******	******	******	29.83	28.78	0.62	******	******	******
5	39.35	10.32	0.35	******	******	50.02	7.71	31.64	******	0.35	******
6	11.60	2.48	1.02	1.04	******	16.15	1.55	10.06	******	0.91	0.11
7	1.70	0.30	0.30	0.91	******	3.20	0.15	1.54	******	0.20	0.10
8	0.53	0.00	0.02	0.22	0.00	0.78	0.01	0.13	0.39	0.02	0.00
9	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	82.58	13.53	1.69	2.19	0.00	100.00	38.20	43.99	0.39	1.49	0.21

GRP. TYPE, VOL %: P = 83.22, O = 13.15, N = 1.68, A = 1.95, Saturates = 84.90
DIENE CONTENT = 1041. vol ppm AVG MW = 71.0 API GR. = 91.5 SP. GR. =0.6344
OCTANE NUMBER: (from pure values) RON = 87.9 MON = 83.8
(from blending values) RON = 90.6 MON = 84.7
CARBON-HYDROGEN RATIO =5.172 STOICH. AIR-FUEL RATIO =15.17 lbs air/lbs fuel
BTU/lb = 18835. NET, 20348. GROSS; BTU/gal = 99719. NET, 107729. GROSS
REID VAPOR PRESSURE =26.0 BROMINE NO. = 30.9

2-Apr-1996 08:10
6015180 5785 API GAS (40% CHG) ST-300 13GASO124
Sample 6 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	11.	31.
5.	31.	31.
10.	31.	31.
15.	31.	39.
20.	31.	82.
25.	31.	82.
30.	82.	82.
35.	82.	82.
40.	82.	82.
45.	82.	82.
50.	82.	82.
55.	82.	82.
60.	86.	97.
65.	97.	97.
70.	97.	97.
75.	101.	101.
80.	136.	140.
85.	140.	140.
90.	152.	154.
95.	176.	194.
100.	337.	236.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

TOTAL UNCORRECTED AREA = 1930628.

NUMBER OF PEAKS READ IN = 87

2-Apr-1996 08:10
6015180 5785 API GAS (40% CHG) ST-300 13GASO124
Sample 6 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
4	28.78	25.59	23.57	N-BUTANE
6	7.71	7.88	7.84	N-PENTANE
9	1.55	1.80	1.88	N-HEXANE
14	0.15	0.20	0.22	N-HEPTANE
23	0.01	0.02	0.02	N-OCTANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.62	0.58	0.51	ISOBUTANE	
8	0.24	0.26	0.24	NEOPENTANE	
7	31.40	32.42	31.92	ISOPENTANE	
12	1.00	1.18	1.22	22-DIME BUTANE	
13	1.65	1.91	2.00	23-DIME BUTANE	
10	4.89	5.73	5.94	2-ME PENTANE	
11	2.51	2.89	3.04	3-ME PENTANE	
18	0.03	0.04	0.05	22-DIME PENTANE	
20	0.40	0.53	0.57	24-DIME PENTANE	
19	0.47	0.60	0.66	23-DIME PENTANE	
15	0.32	0.42	0.45	2-ME HEXANE	
16	0.30	0.39	0.42	3-ME HEXANE	
17	0.02	0.03	0.03	3-ET PENTANE	
37	0.33	0.48	0.53	224-TRIME PENTANE	*
31	0.02	0.03	0.04	25-DIME HEXANE	
30	0.03	0.05	0.05	24-DIME HEXANE	
39	0.05	0.06	0.07	234-TRIME PENTANE	*
29	0.02	0.02	0.03	23-DIME HEXANE	*
24	0.04	0.05	0.06	2-ME HEPTANE	
26	0.01	0.02	0.02	4-ME HEPTANE	
25	0.03	0.04	0.05	3-ME HEPTANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.35	0.29	0.34	CYCLOPENTANE
801	0.91	0.91	1.08	ME CYCLOPENTANE
806	0.07	0.08	0.10	1C3-DIME CYCPENTANE
807	0.07	0.08	0.09	1T3-DIME CYCPENTANE
805	0.04	0.05	0.06	1T2-DIME CYCPENTANE
802	0.02	0.02	0.03	ET CYCLOPENTANE
817	0.01	0.01	0.01	1T2C4TRIME CPENTANE
861	0.02	0.02	0.02	1ME-1ET CYCPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME

825	0.11	0.11	0.13	CYCLOHEXANE
826	0.10	0.11	0.13	ME CYCLOHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.02	0.02	0.02	1-BUTENE
305	0.03	0.02	0.02	ISO-BUTENE
304	0.16	0.13	0.13	TRANS-2-BUTENE
303	0.22	0.17	0.17	C1S-2-BUTENE
310	0.23	0.22	0.23	3-METHYL-1-BUTENE
306	0.88	0.85	0.87	1-PENTENE
309	1.72	1.64	1.70	2-METHYL-1-BUTENE
509	0.05	0.04	0.04	ISOPRENE
308	2.38	2.29	2.36	TRANS-2-PENTENE
327	0.02	0.03	0.03	3,3-DIME BUTENE
307	1.31	1.25	1.30	CIS-2-PENTENE
311	3.30	3.10	3.26	2-METHYL-2-BUTENE
505	0.04	0.04	0.04	T-13-PENTADIENE
530	0.01	0.01	0.01	CYCLOPENTADIENE
504	0.02	0.02	0.02	C-13-PENTADIENE
450	0.38	0.30	0.37	CYCLOPENTENE
318	0.17	0.19	0.21	3-METHYL-1-PENTENE
323	0.11	0.12	0.13	C-4ME-2-PENTENE
324	0.18	0.20	0.21	T-4ME-2-PENTENE
317	0.26	0.29	0.31	2-ME-1-PENTENE
312	0.13	0.15	0.16	1-HEXENE
315	0.32	0.35	0.38	CIS-3-HEXENE
314	0.36	0.39	0.42	TRANS-2-HEXENE
320	0.34	0.37	0.40	2-METHYL-2-PENTENE
321	0.20	0.21	0.24	C-3ME-2-PENTENE
313	0.16	0.18	0.20	CIS-2-HEXENE
451	0.22	0.21	0.26	1-ME CYLCOPENTENE
2004	0.01	0.01	0.01	24-DIME-1-PENTENE
2003	0.01	0.01	0.01	23-DIME-1-PENTENE
2009	0.01	0.02	0.02	24-DIME-CIS2-PENTENE
2033	0.02	0.03	0.03	2-ME-T3-HEXENE
2031	0.01	0.02	0.02	5-ME-T2-HEXENE
2038	0.02	0.03	0.03	1-HEPTENE
2035	0.01	0.01	0.02	3-ME-T3-HEXENE
5370	0.02	0.03	0.03	C-7 CYCLOPENTENE A
5371	0.02	0.02	0.03	C-7 CYCLOPENTENE B
2042	0.02	0.03	0.03	T3-HEPTENE
2025	0.03	0.03	0.04	2-ME-2-HEXENE
2034	0.02	0.02	0.03	3-ME-C3-HEXENE
2018	0.02	0.02	0.02	3-ET-2-PENTENE
2040	0.03	0.03	0.04	TRANS-2-HEPTENE
2008	0.02	0.02	0.03	23-DIME-C2-PENTENE
2039	0.01	0.01	0.02	CIS-2-HEPTENE

CHEVRON RESEARCH GASOLINE ANALYSIS
2-Apr-1996 08:10
6015180 5785 API GAS (40% CHG) ST-300 13GASO124
Sample 6 Injection 1

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.04	0.82	1.14	BENZENE	
601	0.91	0.86	1.18	TOLUENE	
602	0.06	0.06	0.09	ETHYLBENZENE	
604	0.09	0.10	0.13	M-XYLENE	
605	0.04	0.04	0.06	P-XYLENE	
603	0.04	0.04	0.06	O-XYLENE	*
609	0.01	0.01	0.02	1-ME-3-ET BENZENE	
612	0.01	0.01	0.02	124-TRIME BENZENE	*

Vapor Generation

CHEVRON RESEARCH GASOLINE ANALYSIS

Sample Name: 6015182 5785 API GAS (40% CHG) 130-15% Customer: CARR
Acquisition Date: 2-Apr-1996 Acquisition Time: 10:14
Channel #: 13 Analysis: GASO124 Sample #: 7 Injection #: 1

*** DETAILED COMPOSITION, PERCENT ***

1. BY VOLUME

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	13.62	0.19	******	******	******	13.82	13.43	0.20	******	******	******
5	40.38	10.80	0.37	******	******	51.55	8.68	31.70	******	0.37	******
6	19.09	3.96	1.55	1.22	******	25.83	2.70	16.39	******	1.38	0.17
7	3.71	0.73	0.58	1.51	******	6.52	0.36	3.35	******	0.39	0.19
8	1.45	0.03	0.14	0.51	0.02	2.15	0.04	0.39	1.03	0.10	0.03
9	0.02	0.00	0.00	0.10	0.01	0.14	0.00	0.02	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	78.28	15.70	2.64	3.34	0.03	100.00	25.21	52.05	1.03	2.25	0.39

2. BY WEIGHT

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	12.24	0.18	******	******	******	12.43	12.07	0.17	******	******	******
5	38.90	11.02	0.43	******	******	50.35	8.43	30.46	******	0.43	******
6	19.45	4.22	1.81	1.66	******	27.14	2.76	16.69	******	1.60	0.21
7	3.93	0.80	0.68	2.03	******	7.43	0.38	3.55	******	0.45	0.23
8	1.57	0.03	0.16	0.68	0.03	2.47	0.04	0.42	1.11	0.12	0.04
9	0.03	0.00	0.00	0.14	0.01	0.18	0.00	0.03	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	76.11	16.26	3.08	4.51	0.04	100.00	23.69	51.32	1.11	2.61	0.47

3. BY MOLAR

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	15.78	0.24	******	******	******	16.02	15.56	0.22	******	******	******
5	40.38	11.79	0.46	******	******	52.63	8.75	31.62	******	0.46	******
6	16.90	3.77	1.61	1.59	******	23.87	2.40	14.50	******	1.43	0.18
7	2.94	0.61	0.52	1.65	******	5.71	0.28	2.65	******	0.34	0.17
8	1.03	0.02	0.11	0.48	0.02	1.66	0.03	0.28	0.72	0.08	0.02
9	0.02	0.00	0.00	0.09	0.01	0.11	0.00	0.02	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	77.04	16.43	2.69	3.81	0.02	100.00	27.02	49.29	0.72	2.31	0.38

GRP. TYPE, VOL %: P = 78.31, O = 15.71, N = 2.64, A = 3.34, Saturates = 80.95
DIENE CONTENT = 1132. vol ppm AVG MW = 74.9 API GR. = 86.3 SP. GR. =0.6498
OCTANE NUMBER: (from pure values) RON = 86.0 MON = 81.7
(from blending values) RON = 89.2 MON = 83.0
CARBON-HYDROGEN RATIO =5.305 STOICH. AIR-FUEL RATIO =15.10 lbs air/lbs fuel
BTU/lb = 18434. NET, 19895. GROSS; BTU/gal = 99961. NET, 107888. GROSS
REID VAPOR PRESSURE =19.7 BROMINE NO. = 35.5

2-Apr-1996 10:14
6015182 5785 API GAS (40% CHG) 130-15%13GASO124
Sample 7 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	11.	31.
5.	31.	82.
10.	31.	82.
15.	82.	82.
20.	82.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	82.
45.	82.	97.
50.	97.	97.
55.	97.	97.
60.	99.	101.
65.	112.	122.
70.	138.	140.
75.	140.	140.
80.	146.	146.
85.	154.	156.
90.	176.	176.
95.	197.	210.
100.	337.	275.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

TOTAL UNCORRECTED AREA = 2455627.

NUMBER OF PEAKS READ IN = 115

2-Apr-1996 10:14
6015182 5785 API GAS (40% CHG) 130-15%13GASO124
Sample 7 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
4	15.56	13.43	12.07	N-BUTANE
6	8.75	8.68	8.43	N-PENTANE
9	2.40	2.70	2.76	N-HEXANE
14	0.28	0.36	0.38	N-HEPTANE
23	0.03	0.04	0.04	N-OCTANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.22	0.20	0.17	ISOBUTANE	
8	0.16	0.16	0.15	NEOPENTANE	
7	31.47	31.53	30.31	ISOPENTANE	
12	1.32	1.51	1.52	22-DIME BUTANE	
13	2.34	2.63	2.69	23-DIME BUTANE	
10	7.12	8.09	8.19	2-ME PENTANE	
11	3.73	4.17	4.29	3-ME PENTANE	
18	0.05	0.07	0.07	22-DIME PENTANE	
20	0.66	0.85	0.89	24-DIME PENTANE	
19	0.81	1.00	1.08	23-DIME PENTANE	
15	0.56	0.71	0.74	2-ME HEXANE	
16	0.53	0.67	0.71	3-ME HEXANE	
17	0.04	0.05	0.05	3-ET PENTANE	
37	0.59	0.84	0.90	224-TRIME PENTANE	*
36	0.01	0.01	0.01	223-TRIME PENTANE	*
31	0.04	0.06	0.07	25-DIME HEXANE	
30	0.06	0.09	0.10	24-DIME HEXANE	
39	0.09	0.12	0.13	234-TRIME PENTANE	*
34	0.01	0.02	0.02	2-ME-3-ET PENTANE	
29	0.04	0.05	0.06	23-DIME HEXANE	*
24	0.07	0.10	0.11	2-ME HEPTANE	
26	0.02	0.03	0.03	4-ME HEPTANE	
25	0.06	0.09	0.10	3-ME HEPTANE	
55	0.01	0.01	0.02	35-DIME HEPTANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.46	0.37	0.43	CYCLOPENTANE
801	1.43	1.38	1.60	ME CYCLOPENTANE
806	0.12	0.14	0.16	1C3-DIME CYCPENTANE
807	0.11	0.12	0.14	1T3-DIME CYCPENTANE
805	0.07	0.08	0.09	1T2-DIME CYCPENTANE
811	0.01	0.01	0.02	113-TRIME CPENTANE
802	0.04	0.04	0.05	ET CYCLOPENTANE
817	0.02	0.02	0.02	1T2C4TRIME CPENTANE
814	0.01	0.01	0.01	1T2C3TRIME CPENTANE
864	0.01	0.01	0.01	1MEC3ET CYCPENTANE

861	0.03	0.04	0.05	1ME-1ET CYCPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.18	0.17	0.21	CYCLOHEXANE
826	0.17	0.19	0.23	ME CYCLOHEXANE
832	0.01	0.01	0.02	1T3-DIME CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
305	0.01	0.01	0.01	ISO-BUTENE
304	0.09	0.07	0.07	TRANS-2-BUTENE
303	0.14	0.11	0.10	C1S-2-BUTENE
310	0.21	0.19	0.19	3-METHYL-1-BUTENE
306	0.93	0.88	0.87	1-PENTENE
309	1.85	1.71	1.73	2-METHYL-1-BUTENE
509	0.05	0.04	0.04	ISOPRENE
308	2.75	2.56	2.57	TRANS-2-PENTENE
327	0.03	0.03	0.03	3,3-DIME BUTENE
307	1.52	1.40	1.42	CIS-2-PENTENE
311	3.92	3.57	3.67	2-METHYL-2-BUTENE
505	0.05	0.04	0.04	T-13-PENTADIENE
530	0.01	0.01	0.01	CYCLOPENTADIENE
504	0.02	0.02	0.02	C-13-PENTADIENE
450	0.48	0.37	0.44	CYCLOPENTENE
318	0.24	0.26	0.27	3-METHYL-1-PENTENE
323	0.16	0.17	0.17	C-4ME-2-PENTENE
324	0.26	0.28	0.29	T-4ME-2-PENTENE
317	0.39	0.42	0.44	2-ME-1-PENTENE
312	0.20	0.21	0.22	1-HEXENE
315	0.49	0.52	0.55	CIS-3-HEXENE
314	0.55	0.59	0.62	TRANS-2-HEXENE
320	0.52	0.55	0.59	2-METHYL-2-PENTENE
321	0.31	0.32	0.34	C-3ME-2-PENTENE
313	0.26	0.27	0.29	CIS-2-HEXENE
2005	0.01	0.01	0.01	33-DIME-1-PENTENE
4500	0.01	0.01	0.01	HEPTENE A
2011	0.01	0.01	0.01	44-DIME-C2-PENTENE
451	0.36	0.33	0.40	1-ME CYLCOPENTENE
2004	0.02	0.02	0.02	24-DIME-1-PENTENE
403	0.01	0.01	0.01	HEPTENES
2003	0.02	0.02	0.02	23-DIME-1-PENTENE
2024	0.01	0.01	0.01	5-ME-1-HEXENE
2009	0.02	0.03	0.03	24-DIME-CIS2-PENTENE
403	0.01	0.01	0.01	HEPTENES
2033	0.04	0.05	0.05	2-ME-T3-HEXENE
2031	0.02	0.03	0.03	5-ME-T2-HEXENE
2030	0.01	0.02	0.02	5-ME-C2-HEXENE
2010	0.01	0.01	0.01	34-DIME-C2-PENTENE
2038	0.04	0.05	0.05	1-HEPTENE

2035	0.02	0.03	0.03	3-ME-T3-HEXENE
5370	0.04	0.04	0.06	C-7 CYCLOPENTENE A
5371	0.04	0.04	0.05	C-7 CYCLOPENTENE B
2042	0.05	0.06	0.06	T3-HEPTENE
2025	0.05	0.06	0.06	2-ME-2-HEXENE
2034	0.03	0.04	0.04	3-ME-C3-HEXENE
2018	0.03	0.04	0.04	3-ET-2-PENTENE
2040	0.05	0.06	0.07	TRANS-2-HEPTENE
2008	0.04	0.04	0.05	23-DIME-C2-PENTENE
2039	0.02	0.03	0.03	CIS-2-HEPTENE
4528	0.01	0.01	0.01	OCTENE D
2193	0.01	0.01	0.01	1-OCTENE
2198	0.01	0.01	0.01	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.59	1.22	1.66	BENZENE	
601	1.65	1.51	2.03	TOLUENE	
602	0.12	0.13	0.17	ETHYLBENZENE	
604	0.19	0.20	0.27	M-XYLENE	
605	0.08	0.09	0.12	P-XYLENE	
603	0.09	0.09	0.12	O-XYLENE	*
609	0.02	0.03	0.04	1-ME-3-ET BENZENE	
610	0.01	0.01	0.02	1-ME-4-ET BENZENE	
613	0.01	0.01	0.02	135-TRIME BENZENE	
612	0.03	0.03	0.04	124-TRIME BENZENE	*

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
188	0.01	0.01	0.02	UNCLASS. H.C. C- 8

Vapor Generation

CHEVRON RESEARCH GASOLINE ANALYSIS

Sample Name: 6017145 FSL5794/ST-130/80%CHARGE Customer: CARR
Acquisition Date: 11-Apr-1996 Acquisition Time: 09:30
Channel #: 13 Analysis: GASO129 Sample #: 1 Injection #: 1

*** DETAILED COMPOSITION, PERCENT ***

1. BY VOLUME

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	19.22	0.21	******	******	******	19.43	18.74	0.48	******	******	******
5	38.20	8.65	0.30	******	******	47.16	7.40	30.81	******	0.30	******
6	17.44	3.63	1.46	1.05	******	23.57	2.51	14.92	******	1.29	0.17
7	3.95	0.87	0.64	1.73	******	7.18	0.40	3.55	******	0.43	0.21
8	1.65	0.01	0.13	0.59	0.02	2.39	0.05	0.44	1.15	0.11	0.02
9	0.04	0.00	0.05	0.11	0.07	0.27	0.02	0.02	0.00	0.00	0.05
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	80.49	13.37	2.58	3.47	0.09	100.00	29.12	50.22	1.15	2.12	0.46

2. BY WEIGHT

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	17.35	0.20	******	******	******	17.56	16.93	0.42	******	******	******
5	36.98	8.87	0.35	******	******	46.20	7.22	29.76	******	0.35	******
6	17.85	3.89	1.71	1.44	******	24.90	2.58	15.27	******	1.50	0.21
7	4.21	0.96	0.76	2.33	******	8.25	0.43	3.78	******	0.50	0.25
8	1.79	0.01	0.16	0.79	0.02	2.77	0.05	0.48	1.25	0.13	0.03
9	0.04	0.00	0.07	0.14	0.08	0.33	0.02	0.02	0.00	0.00	0.07
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	78.22	13.94	3.03	4.70	0.10	100.00	27.24	49.73	1.25	2.48	0.56

3. BY MOLAR

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	22.10	0.27	******	******	******	22.37	21.57	0.53	******	******	******
5	37.94	9.38	0.37	******	******	47.69	7.41	30.53	******	0.37	******
6	15.34	3.43	1.50	1.37	******	21.64	2.22	13.12	******	1.32	0.18
7	3.11	0.73	0.57	1.87	******	6.27	0.32	2.79	******	0.38	0.19
8	1.16	0.01	0.10	0.55	0.01	1.83	0.03	0.31	0.81	0.08	0.02
9	0.02	0.00	0.04	0.09	0.05	0.20	0.01	0.01	0.00	0.00	0.04
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	79.67	13.82	2.58	3.87	0.06	100.00	31.56	47.30	0.81	2.15	0.43

GRP. TYPE, VOL %: P = 80.56, O = 13.38, N = 2.59, A = 3.47, Saturates = 83.14
DIENE CONTENT = 1146. vol ppm AVG MW = 74.0 API GR. = 87.4 SP. GR. =0.6465
OCTANE NUMBER: (from pure values) RON = 86.5 MON = 82.4
(from blending values) RON = 89.3 MON = 83.5
CARBON-HYDROGEN RATIO =5.274 STOICH. AIR-FUEL RATIO =15.11 lbs air/lbs fuel
BTU/lb = 18413. NET, 19880. GROSS; BTU/gal = 99335. NET, 107249. GROSS
REID VAPOR PRESSURE =22.1 BROMINE NO. = 30.3

11-Apr-1996 09:30
6017145 FSL5794/ST-130/80%CHARGE 13GASO129
Sample 1 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	11.	31.
5.	31.	31.
10.	31.	82.
15.	31.	82.
20.	82.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	82.
45.	82.	82.
50.	82.	97.
55.	97.	97.
60.	97.	97.
65.	101.	121.
70.	136.	138.
75.	140.	140.
80.	146.	146.
85.	156.	156.
90.	176.	177.
95.	209.	210.
100.	337.	280.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

TOTAL UNCORRECTED AREA = 1681213.

NUMBER OF PEAKS READ IN = 116

11-Apr-1996 09:30
6017145 FSL5794/ST-130/80%CHARGE 13GASO129
Sample 1 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
4	21.57	18.74	16.93	N-BUTANE
6	7.41	7.40	7.22	N-PENTANE
9	2.22	2.51	2.58	N-HEXANE
14	0.32	0.40	0.43	N-HEPTANE
23	0.03	0.05	0.05	N-OCTANE
41	0.01	0.02	0.02	N-NONANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.53	0.48	0.42	ISOBUTANE	
8	0.24	0.26	0.24	NEOPENTANE	
7	30.29	30.55	29.52	ISOPENTANE	
12	1.22	1.40	1.42	22-DIME BUTANE	
13	2.12	2.39	2.46	23-DIME BUTANE	
10	6.40	7.32	7.45	2-ME PENTANE	
11	3.38	3.81	3.94	3-ME PENTANE	
18	0.05	0.07	0.07	22-DIME PENTANE	
20	0.67	0.87	0.91	24-DIME PENTANE	
19	0.86	1.07	1.16	23-DIME PENTANE	
15	0.59	0.76	0.80	2-ME HEXANE	
16	0.57	0.72	0.78	3-ME HEXANE	
17	0.04	0.05	0.05	3-ET PENTANE	
37	0.66	0.94	1.02	224-TRIME PENTANE	*
36	0.01	0.01	0.01	223-TRIME PENTANE	*
31	0.05	0.07	0.08	25-DIME HEXANE	
30	0.07	0.10	0.11	24-DIME HEXANE	
39	0.10	0.14	0.16	234-TRIME PENTANE	*
34	0.01	0.02	0.02	2-ME-3-ET PENTANE	
29	0.04	0.06	0.07	23-DIME HEXANE	*
24	0.08	0.12	0.13	2-ME HEPTANE	
26	0.03	0.04	0.04	4-ME HEPTANE	
25	0.07	0.10	0.11	3-ME HEPTANE	
55	0.01	0.02	0.02	35-DIME HEPTANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.37	0.30	0.35	CYCLOPENTANE
801	1.32	1.29	1.50	ME CYCLOPENTANE
806	0.13	0.15	0.18	1C3-DIME CYCPENTANE
807	0.13	0.14	0.17	1T3-DIME CYCPENTANE
805	0.08	0.09	0.10	1T2-DIME CYCPENTANE
811	0.01	0.01	0.02	113-TRIME CPENTANE
802	0.04	0.05	0.06	ET CYCLOPENTANE
817	0.02	0.02	0.03	1T2C4TRIME CPENTANE
814	0.01	0.01	0.01	1T2C3TRIME CPENTANE

864	0.01	0.01	0.01	1MEC3ET CYCPENTANE
861	0.04	0.05	0.06	1ME-1ET CYCPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.18	0.17	0.21	CYCLOHEXANE
826	0.19	0.21	0.25	ME CYCLOHEXANE
831	0.01	0.01	0.01	1C3-DIME CYCHEXANE
832	0.01	0.01	0.01	1T3-DIME CYCHEXANE
940	0.01	0.02	0.02	1ME-1-ET CYCHEXANE
949	0.01	0.01	0.02	1C2T3-TRIME CYCHEX
943	0.01	0.01	0.01	1M-C4-ET CYCHEXANE
948	0.01	0.01	0.02	1C2C3-TRIME CYCHEX

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.02	0.01	0.01	1-BUTENE
305	0.02	0.01	0.01	ISO-BUTENE
304	0.10	0.08	0.08	TRANS-2-BUTENE
303	0.14	0.11	0.10	C1S-2-BUTENE
310	0.21	0.19	0.19	3-METHYL-1-BUTENE
306	0.76	0.72	0.72	1-PENTENE
309	1.54	1.43	1.46	2-METHYL-1-BUTENE
509	0.03	0.03	0.03	ISOPRENE
308	2.16	2.02	2.04	TRANS-2-PENTENE
327	0.03	0.03	0.03	3,3-DIME BUTENE
307	1.19	1.10	1.12	CIS-2-PENTENE
311	3.10	2.84	2.93	2-METHYL-2-BUTENE
505	0.04	0.03	0.04	T-13-PENTADIENE
504	0.02	0.01	0.01	C-13-PENTADIENE
450	0.35	0.27	0.32	CYCLOPENTENE
318	0.21	0.23	0.24	3-METHYL-1-PENTENE
323	0.13	0.15	0.15	C-4ME-2-PENTENE
324	0.23	0.25	0.26	T-4ME-2-PENTENE
317	0.34	0.37	0.39	2-ME-1-PENTENE
312	0.17	0.19	0.20	1-HEXENE
315	0.43	0.47	0.49	CIS-3-HEXENE
314	0.50	0.53	0.56	TRANS-2-HEXENE
320	0.47	0.50	0.54	2-METHYL-2-PENTENE
321	0.28	0.29	0.32	C-3ME-2-PENTENE
313	0.26	0.27	0.29	CIS-2-HEXENE
2005	0.01	0.01	0.01	33-DIME-1-PENTENE
403	0.03	0.04	0.05	HEPTENES
4500	0.03	0.04	0.04	HEPTENE A
532	0.04	0.04	0.05	2-ME CYCLOPENTADIENE
2011	0.03	0.04	0.04	44-DIME-C2-PENTENE
4501	0.02	0.02	0.02	HEPTENE B
451	0.34	0.31	0.38	1-ME CYLCOPENTENE
2004	0.02	0.02	0.03	24-DIME-1-PENTENE
2003	0.02	0.02	0.02	23-DIME-1-PENTENE

2009	0.02	0.03	0.03	24-DIME-CIS2-PENTENE
403	0.01	0.01	0.01	HEPTENES
2033	0.04	0.05	0.06	2-ME-T3-HEXENE
2031	0.03	0.03	0.04	5-ME-T2-HEXENE
2010	0.01	0.01	0.02	34-DIME-C2-PENTENE
2038	0.04	0.05	0.06	1-HEPTENE
2035	0.02	0.03	0.03	3-ME-T3-HEXENE
5370	0.05	0.05	0.06	C-7 CYCLOPENTENE A
5371	0.04	0.05	0.06	C-7 CYCLOPENTENE B
2042	0.05	0.06	0.07	T3-HEPTENE
2025	0.05	0.06	0.07	2-ME-2-HEXENE
2034	0.04	0.04	0.05	3-ME-C3-HEXENE
2018	0.03	0.04	0.05	3-ET-2-PENTENE
2040	0.06	0.07	0.08	TRANS-2-HEPTENE
2008	0.04	0.05	0.06	23-DIME-C2-PENTENE
2039	0.03	0.03	0.04	CIS-2-HEPTENE
4528	0.01	0.01	0.01	OCTENE D

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.37	1.05	1.44	BENZENE	
601	1.87	1.73	2.33	TOLUENE	
602	0.14	0.15	0.20	ETHYLBENZENE	
604	0.22	0.23	0.31	M-XYLENE	
605	0.10	0.10	0.14	P-XYLENE	
603	0.10	0.10	0.14	O-XYLENE	*
644	0.01	0.01	0.01	N-PROPYL BENZENE	
609	0.03	0.03	0.04	1-ME-3-ET BENZENE	
610	0.01	0.01	0.02	1-ME-4-ET BENZENE	
613	0.01	0.01	0.02	135-TRIME BENZENE	
612	0.03	0.04	0.05	124-TRIME BENZENE	*

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
188	0.01	0.02	0.02	UNCLASS. H.C. C- 8
189	0.01	0.01	0.01	UNCLASS. H.C. C- 9
189	0.01	0.02	0.02	UNCLASS. H.C. C- 9
189	0.02	0.02	0.03	UNCLASS. H.C. C- 9
189	0.01	0.01	0.02	UNCLASS. H.C. C- 9

Vapor Generation

CHEVRON RESEARCH GASOLINE ANALYSIS

Sample Name: 6017146 FSL 5794/130-15%LV/80%CHARGE Customer: CARR
Acquisition Date: 11-Apr-1996 Acquisition Time: 11:57
Channel #: 13 Analysis: GASO129 Sample #: 2 Injection #: 1

*** DETAILED COMPOSITION, PERCENT ***

1. BY VOLUME

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	15.19	0.20	******	******	******	15.38	14.94	0.25	******	******	******
5	38.17	10.09	0.36	******	******	48.62	8.10	30.08	******	0.36	******
6	18.67	3.93	1.61	1.26	******	25.47	2.74	15.93	******	1.42	0.19
7	4.22	0.77	0.70	1.90	******	7.59	0.43	3.79	******	0.47	0.23
8	1.81	0.02	0.16	0.71	0.02	2.72	0.06	0.51	1.25	0.11	0.04
9	0.03	0.00	0.00	0.15	0.02	0.20	0.00	0.03	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	78.10	15.01	2.82	4.03	0.04	100.00	26.27	50.58	1.25	2.36	0.46

2. BY WEIGHT

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	13.61	0.19	******	******	******	13.80	13.40	0.21	******	******	******
5	36.68	10.28	0.41	******	******	47.37	7.85	28.84	******	0.41	******
6	18.97	4.19	1.87	1.71	******	26.74	2.79	16.18	******	1.65	0.22
7	4.46	0.85	0.82	2.55	******	8.68	0.46	4.01	******	0.54	0.28
8	1.95	0.03	0.19	0.95	0.02	3.14	0.06	0.55	1.34	0.13	0.05
9	0.04	0.00	0.00	0.21	0.02	0.26	0.00	0.04	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	75.73	15.53	3.29	5.42	0.04	100.00	24.56	49.82	1.34	2.74	0.55

3. BY MOLAR

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	17.58	0.25	******	******	******	17.83	17.31	0.27	******	******	******
5	38.16	11.02	0.44	******	******	49.62	8.16	30.00	******	0.44	******
6	16.52	3.74	1.67	1.65	******	23.58	2.43	14.09	******	1.47	0.20
7	3.34	0.65	0.63	2.08	******	6.69	0.34	3.00	******	0.41	0.21
8	1.28	0.02	0.12	0.67	0.01	2.11	0.04	0.36	0.88	0.09	0.03
9	0.02	0.00	0.00	0.13	0.01	0.16	0.00	0.02	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	76.91	15.68	2.86	4.52	0.03	100.00	28.29	47.75	0.88	2.41	0.44

0.6514

GRP. TYPE, VOL %: P = 78.12, O = 15.02, N = 2.83, A = 4.03, Saturates = 80.95
DIENE CONTENT = 1220. vol ppm AVG MW = 75.1 API GR. = 85.7 SP. GR. =0.6514
OCTANE NUMBER: (from pure values) RON = 86.0 MON = 81.8
(from blending values) RON = 89.2 MON = 83.0
CARBON-HYDROGEN RATIO =5.327 STOICH. AIR-FUEL RATIO =15.08 lbs air/lbs fuel
BTU/lb = 18260. NET, 19708. GROSS; BTU/gal = 99258. NET, 107127. GROSS
REID VAPOR PRESSURE =20.1 BROMINE NO. = 33.8

11-Apr-1996 11:57
6017146 FSL 5794/130-15%LV/80%CHARGE 13GASO129
Sample 2 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	11.	31.
5.	31.	82.
10.	31.	82.
15.	31.	82.
20.	82.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	82.
45.	82.	97.
50.	97.	97.
55.	97.	97.
60.	101.	101.
65.	122.	136.
70.	140.	140.
75.	140.	140.
80.	146.	146.
85.	156.	160.
90.	177.	194.
95.	211.	213.
100.	337.	280.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

TOTAL UNCORRECTED AREA = 1648676.

NUMBER OF PEAKS READ IN = 104

11-Apr-1996 11:57
6017146 FSL 5794/130-15%LV/80%CHARGE 13GASO129
Sample 2 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
4	17.31	14.94	13.40	N-BUTANE
6	8.16	8.10	7.85	N-PENTANE
9	2.43	2.74	2.79	N-HEXANE
14	0.34	0.43	0.46	N-HEPTANE
23	0.04	0.06	0.06	N-OCTANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.27	0.25	0.21	ISOBUTANE	
8	0.16	0.17	0.16	NEOPENTANE	
7	29.83	29.90	28.68	ISOPENTANE	
12	1.24	1.42	1.43	22-DIME BUTANE	
13	2.26	2.53	2.59	23-DIME BUTANE	
10	6.91	7.86	7.93	2-ME PENTANE	
11	3.68	4.11	4.22	3-ME PENTANE	
18	0.06	0.07	0.08	22-DIME PENTANE	
20	0.72	0.92	0.96	24-DIME PENTANE	
19	0.92	1.15	1.23	23-DIME PENTANE	
15	0.64	0.82	0.86	2-ME HEXANE	
16	0.62	0.78	0.83	3-ME HEXANE	
17	0.04	0.05	0.06	3-ET PENTANE	
37	0.71	1.01	1.08	224-TRIME PENTANE	*
36	0.01	0.01	0.02	223-TRIME PENTANE	*
31	0.06	0.08	0.09	25-DIME HEXANE	
30	0.08	0.11	0.12	24-DIME HEXANE	
39	0.11	0.15	0.17	234-TRIME PENTANE	*
34	0.02	0.02	0.02	2-ME-3-ET PENTANE	
29	0.05	0.07	0.07	23-DIME HEXANE	*
24	0.09	0.13	0.14	2-ME HEPTANE	
26	0.03	0.04	0.04	4-ME HEPTANE	
25	0.08	0.12	0.13	3-ME HEPTANE	
51	0.01	0.01	0.01	244-TRIME HEXANE	
55	0.01	0.02	0.02	35-DIME HEPTANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.44	0.36	0.41	CYCLOPENTANE
801	1.47	1.42	1.65	ME CYCLOPENTANE
806	0.14	0.16	0.19	1C3-DIME CYCPENTANE
807	0.14	0.16	0.18	1T3-DIME CYCPENTANE
805	0.08	0.09	0.11	1T2-DIME CYCPENTANE
811	0.01	0.02	0.02	113-TRIME CPENTANE
802	0.05	0.05	0.06	ET CYCLOPENTANE
817	0.02	0.03	0.03	1T2C4TRIME CPENTANE
864	0.01	0.01	0.01	1MEC3ET CYCPENTANE

861	0.05	0.06	0.07	1ME-1ET CYCPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.20	0.19	0.22	CYCLOHEXANE
826	0.21	0.23	0.28	ME CYCLOHEXANE
831	0.01	0.01	0.01	1C3-DIME CYCHEXANE
832	0.02	0.02	0.02	1T3-DIME CYCHEXANE
833	0.01	0.01	0.01	1C4-DIME CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
304	0.10	0.08	0.08	TRANS-2-BUTENE
303	0.15	0.12	0.11	C1S-2-BUTENE
310	0.20	0.19	0.19	3-METHYL-1-BUTENE
306	0.87	0.82	0.81	1-PENTENE
309	1.73	1.61	1.62	2-METHYL-1-BUTENE
509	0.05	0.04	0.04	ISOPRENE
308	2.56	2.38	2.39	TRANS-2-PENTENE
327	0.03	0.03	0.03	3,3-DIME BUTENE
307	1.42	1.31	1.33	CIS-2-PENTENE
311	3.65	3.33	3.41	2-METHYL-2-BUTENE
505	0.05	0.05	0.05	T-13-PENTADIENE
530	0.02	0.01	0.01	CYCLOPENTADIENE
504	0.03	0.02	0.02	C-13-PENTADIENE
450	0.45	0.34	0.41	CYCLOPENTENE
318	0.23	0.25	0.25	3-METHYL-1-PENTENE
323	0.15	0.16	0.17	C-4ME-2-PENTENE
324	0.25	0.27	0.28	T-4ME-2-PENTENE
317	0.38	0.41	0.43	2-ME-1-PENTENE
312	0.19	0.21	0.22	1-HEXENE
315	0.49	0.52	0.55	CIS-3-HEXENE
314	0.55	0.59	0.62	TRANS-2-HEXENE
320	0.52	0.55	0.58	2-METHYL-2-PENTENE
321	0.31	0.32	0.35	C-3ME-2-PENTENE
313	0.26	0.27	0.29	CIS-2-HEXENE
2011	0.01	0.01	0.01	44-DIME-C2-PENTENE
451	0.38	0.35	0.42	1-ME CYLCOPENTENE
2004	0.02	0.02	0.02	24-DIME-1-PENTENE
2003	0.02	0.02	0.02	23-DIME-1-PENTENE
2009	0.02	0.03	0.03	24-DIME-CIS2-PENTENE
2033	0.05	0.06	0.06	2-ME-T3-HEXENE
2031	0.03	0.03	0.04	5-ME-T2-HEXENE
2010	0.01	0.02	0.02	34-DIME-C2-PENTENE
2038	0.05	0.06	0.06	1-HEPTENE
2035	0.02	0.03	0.03	3-ME-T3-HEXENE
5370	0.05	0.05	0.06	C-7 CYCLOPENTENE A
5371	0.05	0.05	0.06	C-7 CYCLOPENTENE B
2042	0.05	0.07	0.07	T3-HEPTENE
2025	0.06	0.07	0.07	2-ME-2-HEXENE

2034	0.04	0.05	0.05	3-ME-C3-HEXENE
2018	0.04	0.04	0.05	3-ET-2-PENTENE
2040	0.06	0.08	0.08	TRANS-2-HEPTENE
2008	0.05	0.05	0.06	23-DIME-C2-PENTENE
2039	0.03	0.03	0.03	CIS-2-HEPTENE
2193	0.01	0.01	0.01	1-OCTENE
2198	0.01	0.01	0.01	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.65	1.26	1.71	BENZENE	
601	2.08	1.90	2.55	TOLUENE	
602	0.17	0.18	0.24	ETHYLBENZENE	
604	0.26	0.28	0.37	M-XYLENE	
605	0.12	0.13	0.17	P-XYLENE	
603	0.12	0.13	0.17	O-XYLENE	*
644	0.01	0.01	0.02	N-PROPYL BENZENE	
609	0.04	0.04	0.06	1-ME-3-ET BENZENE	
610	0.02	0.02	0.03	1-ME-4-ET BENZENE	
613	0.01	0.02	0.02	135-TRIME BENZENE	
608	0.01	0.01	0.01	1-ME-2-ET BENZENE	*
612	0.04	0.05	0.07	124-TRIME BENZENE	*

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
188	0.01	0.02	0.02	UNCLASS. H.C. C- 8
189	0.01	0.02	0.02	UNCLASS. H.C. C- 9

CHEVRON RESEARCH GASOLINE ANALYSIS

Vapor Generation

Sample Name: 6019776 FSL5814/CUT1ST-130/GAS/MTBE Customer: CARR
Acquisition Date: 11-Apr-1996 Acquisition Time: 14:09
Channel #: 13 Analysis: GASO129 Sample #: 3 Injection #: 1

*** DETAILED COMPOSITION, PERCENT ***

1. BY VOLUME

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	18.75	0.22	******	******	******	18.97	18.35	0.39	******	******	******
5	31.86	7.73	0.25	******	******	61.27	6.33	25.53	******	0.25	******
6	11.62	2.13	0.90	0.66	******	15.31	1.58	10.04	******	0.80	0.09
7	2.04	0.28	0.32	0.78	******	3.43	0.19	1.85	******	0.22	0.11
8	0.73	0.00	0.02	0.25	0.00	1.00	0.02	0.17	0.55	0.02	0.00
9	0.00	0.00	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	65.00	10.37	1.49	1.72	21.43	100.00	26.47	37.98	0.55	1.29	0.20

2. BY WEIGHT

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	16.66	0.21	******	******	******	16.87	16.32	0.34	******	******	******
5	30.34	7.80	0.28	******	******	62.23	6.08	24.26	******	0.28	******
6	11.70	2.25	1.03	0.89	******	15.88	1.59	10.11	******	0.92	0.11
7	2.14	0.31	0.37	1.04	******	3.86	0.20	1.94	******	0.25	0.12
8	0.78	0.00	0.02	0.33	0.00	1.13	0.02	0.18	0.58	0.02	0.00
9	0.00	0.00	0.00	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	61.62	10.57	1.71	2.30	23.80	100.00	24.22	36.82	0.58	1.47	0.24

3. BY MOLAR

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	20.58	0.27	******	******	******	20.85	20.17	0.42	******	******	******
5	30.20	8.00	0.29	******	******	62.18	6.05	24.15	******	0.29	******
6	9.75	1.92	0.88	0.82	******	13.38	1.33	8.42	******	0.78	0.10
7	1.53	0.22	0.27	0.81	******	2.84	0.15	1.39	******	0.18	0.09
8	0.49	0.00	0.01	0.22	0.00	0.73	0.01	0.11	0.37	0.01	0.00
9	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	62.56	10.42	1.46	1.88	23.69	100.00	27.70	34.49	0.37	1.27	0.19

GRP. TYPE, VOL %: P = 82.72, O = 13.19, N = 1.89, A = 2.20, Saturates = 84.61
DIENE CONTENT = 544. vol ppm AVG MW = 71.8 API GR. = 83.8 SP. GR. =0.6571
OCTANE NUMBER: (from pure values) RON = 92.5 MON = 86.5
(from blending values) RON = 94.6 MON = 87.3
CARBON-HYDROGEN RATIO =5.136 STOICH. AIR-FUEL RATIO =15.19 lbs air/lbs fuel
BTU/lb = 18766. NET, 20238. GROSS; BTU/gal =102906. NET, 110981. GROSS
REID VAPOR PRESSURE =20.8 BROMINE NO. = 23.4

11-Apr-1996 14:09
6019776 FSL5814/CUT1ST-130/GAS/MTBE 13GASO129
Sample 3 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	11.	31.
5.	31.	49.
10.	31.	82.
15.	31.	82.
20.	82.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	86.
45.	86.	97.
50.	97.	97.
55.	99.	101.
60.	130.	130.
65.	130.	130.
70.	130.	130.
75.	130.	130.
80.	130.	130.
85.	140.	140.
90.	146.	152.
95.	176.	177.
100.	337.	231.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

TOTAL UNCORRECTED AREA = 1156528.

NUMBER OF PEAKS READ IN = 76

11-Apr-1996 14:09
6019776 FSL5814/CUT1ST-130/GAS/MTBE 13GASO129
Sample 3 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
4	20.17	18.35	16.32	N-BUTANE
6	6.05	6.33	6.08	N-PENTANE
9	1.33	1.58	1.59	N-HEXANE
14	0.15	0.19	0.20	N-HEPTANE
23	0.01	0.02	0.02	N-OCTANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.42	0.39	0.34	ISOBUTANE	
8	0.17	0.19	0.18	NEOPENTANE	
7	23.98	25.34	24.09	ISOPENTANE	
12	0.81	0.98	0.97	22-DIME BUTANE	
13	1.36	1.61	1.64	23-DIME BUTANE	
10	4.13	4.95	4.96	2-ME PENTANE	
11	2.12	2.49	2.54	3-ME PENTANE	
18	0.03	0.04	0.04	22-DIME PENTANE	
20	0.35	0.47	0.49	24-DIME PENTANE	
19	0.42	0.56	0.59	23-DIME PENTANE	
15	0.29	0.39	0.40	2-ME HEXANE	
16	0.28	0.37	0.39	3-ME HEXANE	
17	0.02	0.03	0.03	3-ET PENTANE	
37	0.30	0.46	0.48	224-TRIME PENTANE	*
31	0.02	0.03	0.04	25-DIME HEXANE	
30	0.03	0.05	0.05	24-DIME HEXANE	
39	0.04	0.06	0.07	234-TRIME PENTANE	*
29	0.02	0.03	0.03	23-DIME HEXANE	*
24	0.03	0.04	0.05	2-ME HEPTANE	
25	0.03	0.04	0.05	3-ME HEPTANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.29	0.25	0.28	CYCLOPENTANE
801	0.78	0.80	0.92	ME CYCLOPENTANE
806	0.07	0.08	0.09	1C3-DIME CYCPENTANE
807	0.06	0.07	0.08	1T3-DIME CYCPENTANE
805	0.04	0.05	0.05	1T2-DIME CYCPENTANE
802	0.02	0.02	0.03	ET CYCLOPENTANE
861	0.01	0.02	0.02	1ME-1ET CYCPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.10	0.09	0.11	CYCLOHEXANE
826	0.09	0.11	0.12	ME CYCLOHEXANE

CHEVRON RESEARCH GASOLINE ANALYSIS
11-Apr-1996 14:09
6019776 FSL5814/CUT1ST-130/GAS/MTBE 13GASO129
Sample 3 Injection 1

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
304	0.11	0.10	0.09	TRANS-2-BUTENE
303	0.15	0.13	0.12	C1S-2-BUTENE
310	0.17	0.17	0.17	3-METHYL-1-BUTENE
306	0.67	0.66	0.65	1-PENTENE
309	1.32	1.29	1.29	2-METHYL-1-BUTENE
509	0.03	0.03	0.03	ISOPRENE
308	1.86	1.82	1.81	TRANS-2-PENTENE
327	0.02	0.02	0.02	3,3-DIME BUTENE
307	1.02	1.00	1.00	CIS-2-PENTENE
311	2.59	2.49	2.53	2-METHYL-2-BUTENE
505	0.03	0.03	0.03	T-13-PENTADIENE
450	0.31	0.25	0.29	CYCLOPENTENE
318	0.13	0.15	0.16	3-METHYL-1-PENTENE
324	0.15	0.17	0.17	T-4ME-2-PENTENE
317	0.21	0.24	0.25	2-ME-1-PENTENE
312	0.11	0.12	0.13	1-HEXENE
315	0.27	0.30	0.31	CIS-3-HEXENE
314	0.26	0.30	0.31	TRANS-2-HEXENE
2007	0.03	0.04	0.04	44-DIME-1-PENTENE
320	0.28	0.31	0.33	2-METHYL-2-PENTENE
321	0.17	0.18	0.19	C-3ME-2-PENTENE
313	0.14	0.15	0.16	CIS-2-HEXENE
451	0.19	0.19	0.22	1-ME CYLCOPENTENE
2033	0.02	0.02	0.02	2-ME-T3-HEXENE
2038	0.02	0.02	0.03	1-HEPTENE
5370	0.02	0.02	0.03	C-7 CYCLOPENTENE A
5371	0.02	0.02	0.03	C-7 CYCLOPENTENE B
2042	0.02	0.03	0.03	T3-HEPTENE
2025	0.02	0.03	0.03	2-ME-2-HEXENE
2034	0.02	0.02	0.02	3-ME-C3-HEXENE
2018	0.02	0.02	0.02	3-ET-2-PENTENE
2040	0.02	0.03	0.03	TRANS-2-HEPTENE
2008	0.02	0.02	0.02	23-DIME-C2-PENTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	0.82	0.66	0.89	BENZENE	
601	0.81	0.78	1.04	TOLUENE	
602	0.06	0.06	0.08	ETHYLBENZENE	
604	0.09	0.10	0.13	M-XYLENE	
605	0.04	0.04	0.06	P-XYLENE	
603	0.04	0.04	0.06	O-XYLENE	*
609	0.01	0.01	0.02	1-ME-3-ET BENZENE	
612	0.01	0.01	0.02	124-TRIME BENZENE	*

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1412	23.69	21.43	23.80	2-ME-2METHOXYPROPANE

CHEVRON RESEARCH GASOLINE ANALYSIS

Sample Name: 6020937 5823/API GAS/TAME(ST-130) Customer: CARR
Acquisition Date: 23-Apr-1996 Acquisition Time: 07:28
Channel #: 13 Analysis: GASO131 Sample #: 1 Injection #: 1

*** DETAILED COMPOSITION, PERCENT ***

1. BY VOLUME

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	21.23	0.30	******	******	******	21.53	20.81	0.41	******	******	******
5	44.67	11.13	0.33	******	******	56.13	9.00	35.67	******	0.33	******
6	12.80	2.37	0.78	0.60	******	20.18	1.48	11.32	******	0.72	0.07
7	1.19	0.15	0.16	0.31	******	1.81	0.09	1.10	******	0.12	0.05
8	0.29	0.00	0.00	0.06	0.00	0.36	0.00	0.06	0.24	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	80.19	13.94	1.27	0.97	3.63	100.00	31.38	48.57	0.24	1.16	0.11

2. BY WEIGHT

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	19.44	0.29	******	******	******	19.73	19.08	0.37	******	******	******
5	43.85	11.57	0.39	******	******	55.81	8.91	34.94	******	0.39	******
6	13.28	2.57	0.93	0.83	******	21.99	1.54	11.74	******	0.85	0.08
7	1.28	0.17	0.19	0.42	******	2.06	0.09	1.19	******	0.14	0.06
8	0.32	0.00	0.00	0.09	0.00	0.41	0.00	0.06	0.26	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	78.18	14.59	1.51	1.33	4.39	100.00	29.62	48.30	0.26	1.37	0.14

3. BY MOLAR

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	23.89	0.37	******	******	******	24.26	23.44	0.45	******	******	******
5	43.42	11.80	0.39	******	******	55.61	8.82	34.59	******	0.39	******
6	11.01	2.18	0.79	0.76	******	18.37	1.28	9.73	******	0.72	0.07
7	0.92	0.12	0.14	0.32	******	1.50	0.07	0.85	******	0.10	0.04
8	0.20	0.00	0.00	0.06	0.00	0.26	0.00	0.04	0.16	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	79.43	14.47	1.32	1.14	3.64	100.00	33.61	45.66	0.16	1.21	0.11

GRP. TYPE, VOL %: P = 83.21, O = 14.47, N = 1.32, A = 1.00, Saturates = 84.53
DIENE CONTENT = 1255. vol ppm AVG MW = 71.4 API GR. = 90.4 SP. GR. =0.6376
OCTANE NUMBER: (from pure values) RON = 88.5 MON = 84.1
(from blending values) RON = 91.1 MON = 84.8
CARBON-HYDROGEN RATIO =5.143 STOICH. AIR-FUEL RATIO =15.19 lbs air/lbs fuel
BTU/lb = 19073. NET, 20596. GROSS; BTU/gal =101480. NET, 109584. GROSS
REID VAPOR PRESSURE =24.2 BROMINE NO. = 32.9

CHEVRON RESEARCH GASOLINE ANALYSIS
23-Apr-1996 07:28
6020937 5823/API GAS/TAME(ST-130) 13GASO131
Sample 1 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	11.	31.
5.	31.	31.
10.	31.	82.
15.	31.	82.
20.	31.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	82.
45.	82.	82.
50.	82.	82.
55.	82.	86.
60.	88.	97.
65.	97.	97.
70.	97.	97.
75.	101.	101.
80.	136.	136.
85.	140.	140.
90.	152.	154.
95.	187.	187.
100.	292.	213.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

TOTAL UNCORRECTED AREA = 2361339.

NUMBER OF PEAKS READ IN = 80

23-Apr-1996 07:28
6020937 5823/API GAS/TAME(ST-130) 13GASO131
Sample 1 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
4	23.44	20.81	19.08	N-BUTANE
6	8.82	9.00	8.91	N-PENTANE
9	1.28	1.48	1.54	N-HEXANE
14	0.07	0.09	0.09	N-HEPTANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
5	0.45	0.41	0.37	ISOBUTANE
8	0.21	0.23	0.22	NEOPENTANE
7	34.38	35.44	34.73	ISOPENTANE
12	1.09	1.28	1.32	22-DIME BUTANE
13	1.64	1.89	1.98	23-DIME BUTANE
10	4.71	5.51	5.68	2-ME PENTANE
11	2.29	2.64	2.77	3-ME PENTANE
18	0.02	0.03	0.03	22-DIME PENTANE
20	0.26	0.35	0.37	24-DIME PENTANE
19	0.24	0.31	0.34	23-DIME PENTANE
15	0.16	0.21	0.22	2-ME HEXANE
16	0.15	0.19	0.21	3-ME HEXANE
17	0.01	0.02	0.02	3-ET PENTANE
37	0.14	0.21	0.23	224-TRIME PENTANE *
31	0.01	0.01	0.01	25-DIME HEXANE
30	0.01	0.02	0.02	24-DIME HEXANE
39	0.02	0.02	0.02	234-TRIME PENTANE *
24	0.01	0.01	0.02	2-ME HEPTANE
25	0.01	0.01	0.01	3-ME HEPTANE

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.39	0.33	0.39	CYCLOPENTANE
801	0.72	0.72	0.85	ME CYCLOPENTANE
806	0.04	0.04	0.05	1C3-DIME CYCPENTANE
807	0.03	0.04	0.04	1T3-DIME CYCPENTANE
805	0.02	0.02	0.03	1T2-DIME CYCPENTANE
802	0.01	0.01	0.01	ET CYCLOPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.07	0.07	0.08	CYCLOHEXANE
826	0.04	0.05	0.06	ME CYCLOHEXANE

23-Apr-1996 07:28
6020937 5823/API GAS/TAME(ST-130) 13GASO131
Sample 1 Injection 1

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.02	0.01	0.01	1-BUTENE
305	0.02	0.02	0.02	ISO-BUTENE
304	0.13	0.11	0.10	TRANS-2-BUTENE
303	0.19	0.15	0.15	C1S-2-BUTENE
310	0.24	0.23	0.24	3-METHYL-1-BUTENE
306	0.99	0.96	0.97	1-PENTENE
309	1.94	1.86	1.91	2-METHYL-1-BUTENE
509	0.05	0.04	0.05	ISOPRENE
308	2.74	2.62	2.69	TRANS-2-PENTENE
327	0.02	0.03	0.03	3,3-DIME BUTENE
307	1.51	1.43	1.48	CIS-2-PENTENE
311	3.80	3.56	3.73	2-METHYL-2-BUTENE
505	0.05	0.04	0.05	T-13-PENTADIENE
530	0.01	0.01	0.01	CYCLOPENTADIENE
504	0.02	0.02	0.02	C-13-PENTADIENE
450	0.44	0.35	0.42	CYCLOPENTENE
318	0.18	0.20	0.21	3-METHYL-1-PENTENE
323	0.11	0.13	0.13	C-4ME-2-PENTENE
324	0.18	0.20	0.21	T-4ME-2-PENTENE
317	0.24	0.27	0.29	2-ME-1-PENTENE
312	0.12	0.13	0.14	1-HEXENE
315	0.28	0.30	0.33	CIS-3-HEXENE
314	0.30	0.33	0.35	TRANS-2-HEXENE
320	0.28	0.30	0.33	2-METHYL-2-PENTENE
321	0.17	0.18	0.20	C-3ME-2-PENTENE
313	0.14	0.15	0.16	CIS-2-HEXENE
532	0.01	0.01	0.01	2-ME CYCLOPENTADIENE
2011	0.01	0.01	0.01	44-DIME-C2-PENTENE
451	0.16	0.15	0.18	1-ME CYLCOPENTENE
2009	0.01	0.01	0.01	24-DIME-CIS2-PENTENE
2033	0.01	0.02	0.02	2-ME-T3-HEXENE
2031	0.01	0.01	0.01	5-ME-T2-HEXENE
2038	0.01	0.01	0.01	1-HEPTENE
5370	0.01	0.01	0.02	C-7 CYCLOPENTENE A
5371	0.01	0.01	0.01	C-7 CYCLOPENTENE B
2042	0.01	0.01	0.01	T3-HEPTENE
2025	0.01	0.01	0.02	2-ME-2-HEXENE
2034	0.01	0.01	0.01	3-ME-C3-HEXENE
2018	0.01	0.01	0.01	3-ET-2-PENTENE
2040	0.01	0.01	0.02	TRANS-2-HEPTENE
2008	0.01	0.01	0.01	23-DIME-C2-PENTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	0.76	0.60	0.83	BENZENE	
601	0.32	0.31	0.42	TOLUENE	
602	0.02	0.02	0.02	ETHYLBENZENE	
604	0.02	0.03	0.04	M-XYLENE	
605	0.01	0.01	0.02	P-XYLENE	
603	0.01	0.01	0.01	O-XYLENE	*

CHEVRON RESEARCH GASOLINE ANALYSIS
23-Apr-1996 07:28
6020937 5823/API GAS/TAME(ST-130) 13GASO131
Sample 1 Injection 1

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1413	3.64	3.63	4.39	2-ME-2-METHOXYBUTANE

Vapor Generation

DIPE

CHEVRON RESEARCH GASOLINE ANALYSIS

Sample Name: 6022087 FSL 5824 CUT #1 ST-130 Customer: CARR
Acquisition Date: 24-Apr-1996 Acquisition Time: 08:42
Channel #: 13 Analysis: GASO131 Sample #: 4 Injection #: 1

*** DETAILED COMPOSITION, PERCENT ***

1. BY VOLUME

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	23.41	0.32	******	******	******	23.73	22.92	0.49	******	******	******
5	37.65	8.99	0.26	******	******	46.90	7.27	30.37	******	0.26	******
6	10.94	1.80	0.75	0.57	******	26.61	1.35	9.59	******	0.68	0.07
7	1.38	0.18	0.21	0.44	******	2.20	0.11	1.26	******	0.14	0.06
8	0.43	0.00	0.01	0.12	0.00	0.55	0.01	0.09	0.32	0.01	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	73.80	11.29	1.23	1.13	12.55	100.00	31.67	41.81	0.32	1.09	0.14

2. BY WEIGHT

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	21.27	0.31	******	******	******	21.58	20.84	0.43	******	******	******
5	36.66	9.27	0.31	******	******	46.25	7.14	29.52	******	0.31	******
6	11.27	1.94	0.88	0.78	******	29.02	1.40	9.87	******	0.79	0.09
7	1.48	0.20	0.24	0.60	******	2.52	0.12	1.35	******	0.17	0.08
8	0.46	0.00	0.01	0.16	0.00	0.64	0.01	0.10	0.35	0.01	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	71.15	11.72	1.45	1.54	14.15	100.00	29.52	41.28	0.35	1.28	0.16

3. BY MOLAR

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	26.40	0.39	******	******	******	26.79	25.86	0.54	******	******	******
5	36.65	9.55	0.31	******	******	46.52	7.14	29.51	******	0.31	******
6	9.43	1.67	0.76	0.72	******	24.42	1.17	8.26	******	0.68	0.08
7	1.06	0.15	0.18	0.47	******	1.86	0.09	0.97	******	0.12	0.06
8	0.29	0.00	0.01	0.11	0.00	0.41	0.01	0.06	0.22	0.01	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	73.84	11.76	1.26	1.30	11.84	100.00	34.27	39.35	0.22	1.13	0.13

GRP. TYPE, VOL %: P = 84.40, O = 12.91, N = 1.41, A = 1.29, Saturates = 85.80
DIENE CONTENT = 1026. vol ppm AVG MW = 72.1 API GR. = 88.7 SP. GR. =0.6425
OCTANE NUMBER: (from pure values) RON = 89.7 MON = 84.9
(from blending values) RON = 91.9 MON = 85.6
CARBON-HYDROGEN RATIO =5.129 STOICH. AIR-FUEL RATIO =15.20 lbs air/lbs fuel
BTU/lb = 18982. NET, 20486. GROSS; BTU/gal =101779. NET, 109843. GROSS
REID VAPOR PRESSURE =23.8 BROMINE NO. = 26.5

CHEVRON RESEARCH GASOLINE ANALYSIS
24-Apr-1996 08:42
6022087 FSL 5826 CUT #1 ST-130 13GASO131
Sample 4 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	11.	31.
5.	31.	31.
10.	31.	31.
15.	31.	82.
20.	31.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	82.
45.	82.	82.
50.	82.	82.
55.	86.	97.
60.	97.	97.
65.	97.	99.
70.	101.	122.
75.	140.	140.
80.	146.	146.
85.	177.	187.
90.	187.	187.
95.	187.	187.
100.	292.	231.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

TOTAL UNCORRECTED AREA = 2097342.

NUMBER OF PEAKS READ IN = 79

24-Apr-1996 08:42
6022087 FSL 5826 CUT #1 ST-130 13GASO131
Sample 4 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
4	25.86	22.92	20.84	N-BUTANE
6	7.14	7.27	7.14	N-PENTANE
9	1.17	1.35	1.40	N-HEXANE
14	0.09	0.11	0.12	N-HEPTANE
23	0.01	0.01	0.01	N-OCTANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.54	0.49	0.43	ISOBUTANE	
8	0.22	0.24	0.22	NEOPENTANE	
7	29.29	30.14	29.30	ISOPENTANE	
12	0.88	1.03	1.05	22-DIME BUTANE	
13	1.37	1.58	1.64	23-DIME BUTANE	
10	4.01	4.68	4.79	2-ME PENTANE	
11	2.01	2.30	2.40	3-ME PENTANE	
18	0.02	0.03	0.03	22-DIME PENTANE	
20	0.27	0.36	0.38	24-DIME PENTANE	
19	0.29	0.37	0.40	23-DIME PENTANE	
15	0.19	0.25	0.27	2-ME HEXANE	
16	0.18	0.23	0.25	3-ME HEXANE	
17	0.01	0.02	0.02	3-ET PENTANE	
37	0.19	0.27	0.30	224-TRIME PENTANE	*
31	0.01	0.02	0.02	25-DIME HEXANE	
30	0.02	0.03	0.03	24-DIME HEXANE	
39	0.02	0.03	0.04	234-TRIME PENTANE	*
29	0.01	0.01	0.02	23-DIME HEXANE	*
24	0.02	0.03	0.03	2-ME HEPTANE	
25	0.01	0.02	0.02	3-ME HEPTANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.31	0.26	0.31	CYCLOPENTANE
801	0.68	0.68	0.79	ME CYCLOPENTANE
806	0.04	0.05	0.06	1C3-DIME CYCPENTANE
807	0.04	0.05	0.06	1T3-DIME CYCPENTANE
805	0.02	0.03	0.03	1T2-DIME CYCPENTANE
802	0.01	0.01	0.02	ET CYCLOPENTANE
865	0.01	0.01	0.01	1MET3ET CYCPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.08	0.07	0.09	CYCLOHEXANE
826	0.06	0.06	0.08	ME CYCLOHEXANE

CHEVRON RESEARCH GASOLINE ANALYSIS
24-Apr-1996 08:42
6022087 FSL 5826 CUT #1 ST-130 13GASO131
Sample 4 Injection 1

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.02	0.02	0.02	1-BUTENE
305	0.03	0.02	0.02	ISO-BUTENE
304	0.15	0.12	0.11	TRANS-2-BUTENE
303	0.20	0.16	0.16	C1S-2-BUTENE
310	0.22	0.21	0.21	3-METHYL-1-BUTENE
306	0.82	0.80	0.80	1-PENTENE
309	1.60	1.53	1.56	2-METHYL-1-BUTENE
509	0.04	0.03	0.04	ISOPRENE
308	2.20	2.11	2.14	TRANS-2-PENTENE
327	0.02	0.02	0.02	3,3-DIME BUTENE
307	1.21	1.14	1.18	CIS-2-PENTENE
311	3.03	2.83	2.94	2-METHYL-2-BUTENE
505	0.04	0.04	0.04	T-13-PENTADIENE
530	0.01	0.01	0.01	CYCLOPENTADIENE
504	0.02	0.02	0.02	C-13-PENTADIENE
450	0.35	0.27	0.33	CYCLOPENTENE
318	0.14	0.16	0.17	3-METHYL-1-PENTENE
323	0.09	0.10	0.11	C-4ME-2-PENTENE
324	0.15	0.16	0.17	T-4ME-2-PENTENE
317	0.21	0.23	0.24	2-ME-1-PENTENE
312	0.10	0.12	0.12	1-HEXENE
315	0.25	0.27	0.29	CIS-3-HEXENE
320	0.26	0.29	0.31	2-METHYL-2-PENTENE
321	0.15	0.17	0.18	C-3ME-2-PENTENE
313	0.13	0.14	0.15	CIS-2-HEXENE
451	0.16	0.15	0.18	1-ME CYLCOPENTENE
2009	0.01	0.01	0.01	24-DIME-CIS2-PENTENE
2033	0.02	0.02	0.02	2-ME-T3-HEXENE
2031	0.01	0.01	0.01	5-ME-T2-HEXENE
2038	0.01	0.02	0.02	1-HEPTENE
5370	0.01	0.01	0.02	C-7 CYCLOPENTENE A
5371	0.01	0.01	0.02	C-7 CYCLOPENTENE B
2042	0.01	0.02	0.02	T3-HEPTENE
2025	0.01	0.02	0.02	2-ME-2-HEXENE
2034	0.01	0.01	0.01	3-ME-C3-HEXENE
2018	0.01	0.01	0.01	3-ET-2-PENTENE
2040	0.02	0.02	0.02	TRANS-2-HEPTENE
2008	0.01	0.01	0.02	23-DIME-C2-PENTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	0.72	0.57	0.78	BENZENE	
601	0.47	0.44	0.60	TOLUENE	
602	0.03	0.03	0.04	ETHYLBENZENE	
604	0.04	0.05	0.06	M-XYLENE	
605	0.02	0.02	0.03	P-XYLENE	
603	0.02	0.02	0.03	O-XYLENE	*

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME

1430	11.84	12.55	14.15	DIISOPROPYLETHER

Vapor Generation

DIPE

CHEVRON RESEARCH GASOLINE ANALYSIS

Sample Name: 6022088 FSL 5824 CUT 2 130-134 Customer: CARR
Acquisition Date: 24-Apr-1996 Acquisition Time: 13:11
Channel #: 13 Analysis: GASO131 Sample #: 5 Injection #: 1

*** DETAILED COMPOSITION, PERCENT ***

1. BY VOLUME

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	8.91	0.13	******	******	******	9.04	8.80	0.11	******	******	******
5	34.11	9.38	0.34	******	******	43.83	7.54	26.57	******	0.34	******
6	16.16	2.77	1.24	0.91	******	41.50	2.20	13.96	******	1.11	0.13
7	2.64	0.44	0.39	0.90	******	4.37	0.24	2.40	******	0.26	0.13
8	0.92	0.00	0.05	0.26	0.01	1.23	0.02	0.23	0.66	0.04	0.01
9	0.00	0.00	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	62.74	12.72	2.01	2.09	20.43	100.00	18.81	43.27	0.66	1.75	0.26

2. BY WEIGHT

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	7.84	0.12	******	******	******	7.96	7.75	0.09	******	******	******
5	32.16	9.37	0.38	******	******	41.91	7.17	24.99	******	0.38	******
6	16.10	2.90	1.41	1.22	******	43.88	2.20	13.90	******	1.26	0.15
7	2.73	0.48	0.45	1.18	******	4.84	0.25	2.49	******	0.30	0.15
8	0.97	0.00	0.06	0.34	0.01	1.37	0.02	0.25	0.70	0.05	0.01
9	0.00	0.00	0.00	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	59.80	12.87	2.29	2.77	22.27	100.00	17.38	41.72	0.70	1.98	0.31

3. BY MOLAR

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	10.41	0.16	******	******	******	10.57	10.28	0.12	******	******	******
5	34.39	10.33	0.42	******	******	45.13	7.66	26.72	******	0.42	******
6	14.42	2.66	1.29	1.20	******	39.51	1.97	12.45	******	1.15	0.14
7	2.11	0.38	0.35	0.98	******	3.82	0.19	1.92	******	0.24	0.12
8	0.66	0.00	0.04	0.24	0.01	0.95	0.02	0.17	0.47	0.03	0.01
9	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	61.98	13.53	2.10	2.46	19.94	100.00	20.12	41.38	0.47	1.84	0.26

GRP. TYPE, VOL %: P = 78.85, O = 15.99, N = 2.53, A = 2.63, Saturates = 81.38
DIENE CONTENT = 1037. vol ppm AVG MW = 77.2 API GR. = 81.6 SP. GR. =0.6641
OCTANE NUMBER: (from pure values) RON = 88.6 MON = 83.2
(from blending values) RON = 91.2 MON = 84.2
CARBON-HYDROGEN RATIO =5.242 STOICH. AIR-FUEL RATIO =15.13 lbs air/lbs fuel
BTU/lb = 18649. NET, 20095. GROSS; BTU/gal =103356. NET, 111368. GROSS
REID VAPOR PRESSURE =15.6 BROMINE NO. = 28.4

24-Apr-1996 13:11
6022088 FSL 5824 CUT 2 130-134 13GASO131
Sample 5 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	11.	82.
5.	31.	82.
10.	82.	82.
15.	82.	82.
20.	82.	82.
25.	82.	82.
30.	82.	88.
35.	82.	97.
40.	97.	97.
45.	97.	99.
50.	101.	122.
55.	136.	140.
60.	140.	140.
65.	146.	146.
70.	156.	156.
75.	187.	187.
80.	187.	187.
85.	187.	187.
90.	187.	187.
95.	187.	194.
100.	337.	239.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

TOTAL UNCORRECTED AREA = 1984563.

NUMBER OF PEAKS READ IN = 90

24-Apr-1996 13:11
6022088 FSL 5824 CUT 2 130-134 13GASO131
Sample 5 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
4	10.28	8.80	7.75	N-BUTANE
6	7.66	7.54	7.17	N-PENTANE
9	1.97	2.20	2.20	N-HEXANE
14	0.19	0.24	0.25	N-HEPTANE
23	0.02	0.02	0.02	N-OCTANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.12	0.11	0.09	ISOBUTANE	
8	0.12	0.12	0.11	NEOPENTANE	
7	26.61	26.45	24.88	ISOPENTANE	
12	1.16	1.31	1.29	22-DIME BUTANE	
13	2.02	2.24	2.25	23-DIME BUTANE	
10	6.11	6.89	6.83	2-ME PENTANE	
11	3.16	3.51	3.53	3-ME PENTANE	
18	0.04	0.05	0.05	22-DIME PENTANE	
20	0.51	0.65	0.66	24-DIME PENTANE	
19	0.58	0.71	0.75	23-DIME PENTANE	
15	0.39	0.50	0.51	2-ME HEXANE	
16	0.37	0.46	0.48	3-ME HEXANE	
17	0.03	0.03	0.03	3-ET PENTANE	
37	0.39	0.56	0.58	224-TRIME PENTANE	*
31	0.03	0.04	0.04	25-DIME HEXANE	
30	0.04	0.06	0.06	24-DIME HEXANE	
39	0.05	0.07	0.08	234-TRIME PENTANE	*
34	0.01	0.01	0.01	2-ME-3-ET PENTANE	
29	0.02	0.03	0.03	23-DIME HEXANE	*
24	0.04	0.06	0.06	2-ME HEPTANE	
26	0.01	0.02	0.02	4-ME HEPTANE	
25	0.04	0.05	0.05	3-ME HEPTANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.42	0.34	0.38	CYCLOPENTANE
801	1.15	1.11	1.26	ME CYCLOPENTANE
806	0.09	0.10	0.11	1C3-DIME CYCPENTANE
807	0.07	0.08	0.09	1T3-DIME CYCPENTANE
805	0.05	0.06	0.06	1T2-DIME CYCPENTANE
802	0.02	0.03	0.03	ET CYCLOPENTANE
817	0.01	0.01	0.02	1T2C4TRIME CPENTANE
865	0.02	0.03	0.03	1MET3ET CYCPENTANE

24-Apr-1996 13:11
6022088 FSL 5824 CUT 2 130-134 13GASO131
Sample 5 Injection 1

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.14	0.13	0.15	CYCLOHEXANE
826	0.12	0.13	0.15	ME CYCLOHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
304	0.06	0.05	0.05	TRANS-2-BUTENE
303	0.10	0.08	0.07	C1S-2-BUTENE
310	0.17	0.16	0.15	3-METHYL-1-BUTENE
306	0.80	0.75	0.73	1-PENTENE
309	1.60	1.47	1.45	2-METHYL-1-BUTENE
509	0.04	0.03	0.04	ISOPRENE
308	2.41	2.23	2.19	TRANS-2-PENTENE
327	0.02	0.03	0.02	3,3-DIME BUTENE
307	1.33	1.22	1.21	CIS-2-PENTENE
311	3.46	3.13	3.14	2-METHYL-2-BUTENE
505	0.05	0.04	0.04	T-13-PENTADIENE
530	0.01	0.01	0.01	CYCLOPENTADIENE
504	0.02	0.02	0.02	C-13-PENTADIENE
450	0.43	0.33	0.38	CYCLOPENTENE
318	0.21	0.22	0.22	3-METHYL-1-PENTENE
323	0.13	0.14	0.15	C-4ME-2-PENTENE
324	0.22	0.24	0.24	T-4ME-2-PENTENE
317	0.33	0.35	0.36	2-ME-1-PENTENE
312	0.17	0.18	0.18	1-HEXENE
315	0.40	0.43	0.44	CIS-3-HEXENE
320	0.44	0.46	0.48	2-METHYL-2-PENTENE
321	0.25	0.26	0.27	C-3ME-2-PENTENE
313	0.21	0.22	0.23	CIS-2-HEXENE
451	0.28	0.25	0.30	1-ME CYLCOPENTENE
2004	0.01	0.02	0.02	24-DIME-1-PENTENE
2003	0.01	0.01	0.01	23-DIME-1-PENTENE
2009	0.02	0.02	0.02	24-DIME-CIS2-PENTENE
2033	0.03	0.04	0.04	2-ME-T3-HEXENE
2031	0.02	0.02	0.02	5-ME-T2-HEXENE
2030	0.01	0.01	0.01	5-ME-C2-HEXENE
2010	0.01	0.01	0.01	34-DIME-C2-PENTENE
2038	0.03	0.03	0.03	1-HEPTENE
2035	0.01	0.02	0.02	3-ME-T3-HEXENE
5370	0.03	0.03	0.04	C-7 CYCLOPENTENE A
5371	0.03	0.03	0.03	C-7 CYCLOPENTENE B
2042	0.03	0.04	0.04	T3-HEPTENE
2025	0.03	0.04	0.04	2-ME-2-HEXENE
2034	0.02	0.03	0.03	3-ME-C3-HEXENE
2018	0.02	0.02	0.03	3-ET-2-PENTENE
2040	0.04	0.04	0.04	TRANS-2-HEPTENE
2008	0.03	0.03	0.03	23-DIME-C2-PENTENE
2039	0.01	0.02	0.02	CIS-2-HEPTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME

24-Apr-1996 13:11
6022088 FSL 5824 CUT 2 130-134 13GASO131
Sample 5 Injection 1

600	1.20	0.91	1.22	BENZENE	
601	0.98	0.90	1.18	TOLUENE	
602	0.06	0.07	0.09	ETHYLBENZENE	
604	0.10	0.10	0.13	M-XYLENE	
605	0.04	0.04	0.06	P-XYLENE	
603	0.04	0.04	0.06	O-XYLENE	*
609	0.01	0.01	0.02	1-ME-3-ET BENZENE	
612	0.01	0.02	0.02	124-TRIME BENZENE	*

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1430	19.93	20.42	22.26	DIISOPROPYLETHER

ETBE Vapor Generation

CHEVRON RESEARCH GASOLINE ANALYSIS

Sample Name: 6021892 FSL5825/APIGAS/ETBE/(ST-130) Customer: CARR
Acquisition Date: 23-Apr-1996 Acquisition Time: 09:38
Channel #: 13 Analysis: GASO131 Sample #: 2 Injection #: 1

*** DETAILED COMPOSITION, PERCENT ***

1. BY VOLUME

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	22.19	0.37	******	******	******	22.58	21.74	0.45	******	******	******
5	41.28	10.01	0.29	******	******	51.58	8.14	33.14	******	0.29	******
6	11.58	2.12	0.72	0.54	******	23.86	1.36	10.23	******	0.65	0.06
7	1.12	0.12	0.14	0.28	******	1.66	0.08	1.04	******	0.10	0.04
8	0.27	0.00	0.00	0.05	0.00	0.32	0.00	0.05	0.22	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	76.44	12.62	1.15	0.87	8.91	100.00	31.32	44.90	0.22	1.04	0.11

2. BY WEIGHT

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	20.22	0.36	******	******	******	20.60	19.83	0.39	******	******	******
5	40.32	10.36	0.34	******	******	51.01	8.02	32.30	******	0.34	******
6	11.96	2.29	0.85	0.74	******	26.14	1.41	10.56	******	0.77	0.08
7	1.20	0.13	0.17	0.38	******	1.88	0.09	1.11	******	0.12	0.05
8	0.29	0.00	0.00	0.07	0.00	0.37	0.00	0.06	0.24	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	73.99	13.13	1.35	1.20	10.32	100.00	29.34	44.41	0.24	1.23	0.13

3. BY MOLAR

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	24.96	0.46	******	******	******	25.44	24.48	0.48	******	******	******
5	40.09	10.61	0.35	******	******	51.05	7.97	32.12	******	0.35	******
6	9.96	1.95	0.72	0.68	******	21.89	1.17	8.79	******	0.66	0.06
7	0.86	0.10	0.12	0.30	******	1.38	0.06	0.80	******	0.09	0.04
8	0.18	0.00	0.00	0.05	0.00	0.23	0.00	0.04	0.15	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	76.06	13.11	1.19	1.03	8.61	100.00	33.69	42.22	0.15	1.09	0.10

GRP. TYPE, VOL %: P = 83.92, O = 13.86, N = 1.26, A = 0.96, Saturates = 85.18
DIENE CONTENT = 963. vol ppm AVG MW = 71.7 API GR. = 89.3 SP. GR. =0.6407
OCTANE NUMBER: (from pure values) RON = 90.5 MON = 85.3
(from blending values) RON = 92.8 MON = 86.0
CARBON-HYDROGEN RATIO =5.127 STOICH. AIR-FUEL RATIO =15.20 lbs air/lbs fuel
BTU/lb = 19065. NET, 20581. GROSS; BTU/gal =101943. NET, 110049. GROSS
REID VAPOR PRESSURE =24.1 BROMINE NO. = 29.6

CHEVRON RESEARCH GASOLINE ANALYSIS
23-Apr-1996 09:38
6021892 FSL5825/APIGAS/ETBE/(ST-130) 13GASO131
Sample 2 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	11.	31.
5.	31.	31.
10.	31.	68.
15.	31.	82.
20.	31.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	82.
45.	82.	82.
50.	82.	82.
55.	82.	88.
60.	97.	97.
65.	97.	97.
70.	99.	101.
75.	122.	136.
80.	140.	140.
85.	146.	154.
90.	162.	162.
95.	162.	162.
100.	292.	210.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

TOTAL UNCORRECTED AREA = 1903497.

NUMBER OF PEAKS READ IN = 73

23-Apr-1996 09:38
6021892 FSL5825/APIGAS/ETBE/(ST-130) 13GASO131
Sample 2 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
4	24.48	21.74	19.83	N-BUTANE
6	7.97	8.14	8.02	N-PENTANE
9	1.17	1.36	1.41	N-HEXANE
14	0.06	0.08	0.09	N-HEPTANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.48	0.45	0.39	ISOBUTANE	
8	0.21	0.23	0.21	NEOPENTANE	
7	31.91	32.91	32.09	ISOPENTANE	
12	0.98	1.16	1.18	22-DIME BUTANE	
13	1.47	1.70	1.77	23-DIME BUTANE	
10	4.25	4.98	5.11	2-ME PENTANE	
11	2.08	2.39	2.50	3-ME PENTANE	
18	0.02	0.03	0.03	22-DIME PENTANE	
20	0.25	0.33	0.34	24-DIME PENTANE	
19	0.23	0.30	0.32	23-DIME PENTANE	
15	0.15	0.20	0.21	2-ME HEXANE	
16	0.14	0.18	0.19	3-ME HEXANE	
17	0.01	0.01	0.01	3-ET PENTANE	
37	0.13	0.20	0.21	224-TRIME PENTANE	*
31	0.01	0.01	0.01	25-DIME HEXANE	
30	0.01	0.02	0.02	24-DIME HEXANE	
39	0.01	0.02	0.02	234-TRIME PENTANE	*
24	0.01	0.01	0.01	2-ME HEPTANE	
25	0.01	0.01	0.01	3-ME HEPTANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.35	0.29	0.34	CYCLOPENTANE
801	0.66	0.65	0.77	ME CYCLOPENTANE
806	0.03	0.04	0.05	1C3-DIME CYCPENTANE
807	0.03	0.04	0.04	1T3-DIME CYCPENTANE
805	0.02	0.02	0.03	1T2-DIME CYCPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.06	0.06	0.08	CYCLOHEXANE
826	0.04	0.04	0.05	ME CYCLOHEXANE

23-Apr-1996 09:38
6021892 FSL5825/APIGAS/ETBE/(ST-130) 13GASO131
Sample 2 Injection 1

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.12	0.10	0.09	1-BUTENE
304	0.14	0.12	0.11	TRANS-2-BUTENE
303	0.20	0.16	0.15	C1S-2-BUTENE
310	0.23	0.22	0.23	3-METHYL-1-BUTENE
306	0.90	0.88	0.88	1-PENTENE
309	1.77	1.69	1.73	2-METHYL-1-BUTENE
509	0.04	0.04	0.04	ISOPRENE
308	2.46	2.36	2.41	TRANS-2-PENTENE
327	0.02	0.03	0.03	3,3-DIME BUTENE
307	1.35	1.28	1.32	CIS-2-PENTENE
311	3.39	3.18	3.31	2-METHYL-2-BUTENE
505	0.04	0.04	0.04	T-13-PENTADIENE
504	0.02	0.02	0.02	C-13-PENTADIENE
450	0.39	0.30	0.37	CYCLOPENTENE
318	0.16	0.18	0.19	3-METHYL-1-PENTENE
323	0.10	0.11	0.12	C-4ME-2-PENTENE
324	0.16	0.18	0.19	T-4ME-2-PENTENE
317	0.22	0.24	0.26	2-ME-1-PENTENE
312	0.11	0.12	0.13	1-HEXENE
315	0.25	0.27	0.29	CIS-3-HEXENE
314	0.27	0.30	0.32	TRANS-2-HEXENE
320	0.25	0.27	0.30	2-METHYL-2-PENTENE
321	0.15	0.16	0.17	C-3ME-2-PENTENE
313	0.12	0.13	0.14	CIS-2-HEXENE
451	0.15	0.14	0.17	1-ME CYLCOPENTENE
2033	0.01	0.01	0.01	2-ME-T3-HEXENE
2038	0.01	0.01	0.01	1-HEPTENE
5370	0.01	0.01	0.01	C-7 CYCLOPENTENE A
5371	0.01	0.01	0.01	C-7 CYCLOPENTENE B
2042	0.01	0.01	0.01	T3-HEPTENE
2025	0.01	0.01	0.01	2-ME-2-HEXENE
2034	0.01	0.01	0.01	3-ME-C3-HEXENE
2018	0.01	0.01	0.01	3-ET-2-PENTENE
2040	0.01	0.01	0.02	TRANS-2-HEPTENE
2008	0.01	0.01	0.01	23-DIME-C2-PENTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME
600	0.68	0.54	0.74	BENZENE
601	0.30	0.28	0.38	TOLUENE
602	0.01	0.01	0.02	ETHYLBENZENE
604	0.02	0.02	0.03	M-XYLENE

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1009	0.03	0.02	0.02	2-ME 2-PROPANOL
1450	8.58	8.90	10.30	2-ME-2ETHOXYPROPANE

EtOH Vapor Generatior

CHEVRON RESEARCH GASOLINE ANALYSIS

Acquisition Date: 23-Apr-1996 Acquisition Time: 12:08
Sample Name: 6020938 5826/APIGAS/ETHANOL(ST-130) Customer: CARR
Channel #: 13 Analysis: GASO131 Sample #: 3 Injection #: 1

*** DETAILED COMPOSITION, PERCENT ***

1. BY VOLUME

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	9.34	0.00	******	******	******	******
4	19.35	0.26	******	******	******	19.61	18.95	0.41	******	******	******
5	34.17	8.58	0.29	******	******	43.04	6.98	27.19	******	0.29	******
6	15.08	3.07	1.27	0.85	******	20.27	2.20	12.87	******	1.12	0.15
7	3.37	0.61	0.54	1.21	******	5.73	0.34	3.03	******	0.35	0.19
8	1.40	0.01	0.14	0.38	0.02	1.95	0.04	0.38	0.98	0.11	0.03
9	0.02	0.00	0.00	0.04	0.00	0.06	0.00	0.02	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	73.40	12.53	2.24	2.47	9.37	100.00	28.51	43.91	0.98	1.88	0.37

2. BY WEIGHT

3-	0.00	0.00	******	******	******	11.18	0.00	******	******	******	******
4	17.22	0.24	******	******	******	17.46	16.87	0.35	******	******	******
5	32.59	8.67	0.33	******	******	41.59	6.71	25.88	******	0.33	******
6	15.21	3.24	1.47	1.14	******	21.06	2.23	12.98	******	1.29	0.18
7	3.54	0.67	0.63	1.60	******	6.44	0.36	3.18	******	0.41	0.22
8	1.50	0.01	0.16	0.50	0.02	2.20	0.04	0.41	1.05	0.12	0.04
9	0.02	0.00	0.00	0.05	0.00	0.07	0.00	0.02	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	70.07	12.84	2.59	3.29	11.20	100.00	26.21	42.82	1.05	2.15	0.43

3. BY MOLAR

3-	0.00	0.00	******	******	******	23.44	0.00	******	******	******	******
4	18.68	0.27	******	******	******	18.95	18.30	0.38	******	******	******
5	28.48	7.81	0.30	******	******	36.59	5.86	22.61	******	0.30	******
6	11.13	2.44	1.10	0.92	******	15.59	1.63	9.50	******	0.97	0.13
7	2.23	0.43	0.40	1.10	******	4.16	0.23	2.00	******	0.26	0.14
8	0.83	0.01	0.09	0.30	0.01	1.24	0.02	0.23	0.58	0.07	0.02
9	0.01	0.00	0.00	0.03	0.00	0.04	0.00	0.01	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	61.35	10.96	1.89	2.34	23.46	100.00	26.04	34.73	0.58	1.60	0.29

GRP. TYPE, VOL %: P = 80.98, O = 13.83, N = 2.47, A = 2.72, Saturates = 83.45
DIENE CONTENT = 1497. vol ppm AVG MW = 63.1 API GR. = 84.1 SP. GR. =0.6563
OCTANE NUMBER: (from pure values) RON = 89.7 MON = 83.6
(from blending values) RON = 92.4 MON = 84.7
CARBON-HYDROGEN RATIO =5.068 STOICH. AIR-FUEL RATIO =15.24 lbs air/lbs fuel
BTU/lb = 18654. NET, 20145. GROSS; BTU/gal =102161. NET, 110321. GROSS
REID VAPOR PRESSURE =18.3 BROMINE NO. = 28.4

23-Apr-1996 12:08
6020938 5826/APIGAS/ETHANOL(ST-130) 13GASO131
Sample 3 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	11.	31.
5.	31.	31.
10.	31.	82.
15.	31.	82.
20.	82.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	82.
45.	82.	88.
50.	97.	97.
55.	97.	97.
60.	101.	106.
65.	136.	140.
70.	140.	140.
75.	146.	146.
80.	156.	161.
85.	173.	173.
90.	173.	173.
95.	195.	204.
100.	337.	249.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

TOTAL UNCORRECTED AREA = 2108955.

23-Apr-1996 12:08
6020938 5826/APIGAS/ETHANOL(ST-130) 13GASO131
Sample 3 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
4	18.30	18.95	16.87	N-BUTANE
6	5.86	6.98	6.71	N-PENTANE
9	1.63	2.20	2.23	N-HEXANE
14	0.23	0.34	0.36	N-HEPTANE
23	0.02	0.04	0.04	N-OCTANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.38	0.41	0.35	ISOBUTANE	
8	0.15	0.19	0.18	NEOPENTANE	
7	22.46	27.00	25.70	ISOPENTANE	
12	0.86	1.18	1.17	22-DIME BUTANE	
13	1.53	2.05	2.08	23-DIME BUTANE	
10	4.65	6.34	6.35	2-ME PENTANE	
11	2.46	3.30	3.37	3-ME PENTANE	
18	0.04	0.06	0.06	22-DIME PENTANE	
20	0.48	0.74	0.76	24-DIME PENTANE	
19	0.62	0.92	0.98	23-DIME PENTANE	
15	0.43	0.65	0.68	2-ME HEXANE	
16	0.41	0.62	0.66	3-ME HEXANE	
17	0.03	0.04	0.05	3-ET PENTANE	
37	0.47	0.80	0.85	224-TRIME PENTANE	*
36	0.01	0.01	0.01	223-TRIME PENTANE	*
31	0.04	0.06	0.07	25-DIME HEXANE	
30	0.05	0.09	0.09	24-DIME HEXANE	
39	0.07	0.12	0.13	234-TRIME PENTANE	*
34	0.01	0.02	0.02	2-ME-3-ET PENTANE	
29	0.03	0.05	0.05	23-DIME HEXANE	*
24	0.06	0.10	0.11	2-ME HEPTANE	
26	0.02	0.03	0.03	4-ME HEPTANE	
25	0.05	0.09	0.09	3-ME HEPTANE	
55	0.01	0.02	0.02	35-DIME HEPTANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.30	0.29	0.33	CYCLOPENTANE
801	0.97	1.12	1.29	ME CYCLOPENTANE
806	0.09	0.13	0.15	1C3-DIME CYCPENTANE
807	0.08	0.11	0.13	1T3-DIME CYCPENTANE
805	0.05	0.07	0.09	1T2-DIME CYCPENTANE
811	0.01	0.01	0.02	113-TRIME CPENTANE
802	0.03	0.04	0.05	ET CYCLOPENTANE
817	0.01	0.02	0.03	1T2C4TRIME CPENTANE
864	0.01	0.01	0.01	1MEC3ET CYCPENTANE
865	0.03	0.04	0.05	1MET3ET CYCPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.13	0.15	0.18	CYCLOHEXANE
826	0.14	0.19	0.22	ME CYCLOHEXANE
832	0.01	0.01	0.02	1T3-DIME CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.01	0.01	0.01	1-BUTENE
305	0.02	0.02	0.02	ISO-BUTENE
304	0.10	0.10	0.09	TRANS-2-BUTENE
303	0.14	0.13	0.13	C1S-2-BUTENE
310	0.16	0.18	0.18	3-METHYL-1-BUTENE
306	0.64	0.72	0.71	1-PENTENE
309	1.26	1.40	1.40	2-METHYL-1-BUTENE
509	0.03	0.03	0.03	ISOPRENE
308	1.76	1.97	1.96	TRANS-2-PENTENE
327	0.02	0.02	0.02	3,3-DIME BUTENE
307	1.02	1.13	1.14	CIS-2-PENTENE
311	2.52	2.76	2.80	2-METHYL-2-BUTENE
505	0.07	0.07	0.08	T-13-PENTADIENE
530	0.02	0.02	0.02	CYCLOPENTADIENE
504	0.03	0.03	0.03	C-13-PENTADIENE
450	0.30	0.27	0.32	CYCLOPENTENE
318	0.15	0.20	0.20	3-METHYL-1-PENTENE
323	0.10	0.13	0.13	C-4ME-2-PENTENE
324	0.17	0.22	0.23	T-4ME-2-PENTENE
317	0.25	0.32	0.33	2-ME-1-PENTENE
312	0.13	0.16	0.17	1-HEXENE
315	0.32	0.41	0.42	CIS-3-HEXENE
314	0.36	0.46	0.48	TRANS-2-HEXENE
320	0.34	0.43	0.45	2-METHYL-2-PENTENE
321	0.20	0.25	0.27	C-3ME-2-PENTENE
313	0.17	0.21	0.23	CIS-2-HEXENE
2011	0.01	0.01	0.01	44-DIME-C2-PENTENE
451	0.24	0.27	0.32	1-ME CYLCOPENTENE
2004	0.01	0.02	0.02	24-DIME-1-PENTENE
2003	0.01	0.02	0.02	23-DIME-1-PENTENE
2009	0.02	0.02	0.03	24-DIME-CIS2-PENTENE
403	0.01	0.01	0.01	HEPTENES
2033	0.03	0.04	0.05	2-ME-T3-HEXENE
2031	0.02	0.03	0.03	5-ME-T2-HEXENE
2030	0.01	0.02	0.02	5-ME-C2-HEXENE
2010	0.01	0.01	0.01	34-DIME-C2-PENTENE
2038	0.03	0.04	0.04	1-HEPTENE
2035	0.02	0.02	0.03	3-ME-T3-HEXENE
5370	0.03	0.04	0.05	C-7 CYCLOPENTENE A
5371	0.03	0.04	0.05	C-7 CYCLOPENTENE B
2042	0.03	0.05	0.05	T3-HEPTENE
2025	0.04	0.05	0.06	2-ME-2-HEXENE
2034	0.02	0.04	0.04	3-ME-C3-HEXENE
2018	0.02	0.03	0.04	3-ET-2-PENTENE
2040	0.04	0.06	0.06	TRANS-2-HEPTENE
2008	0.03	0.04	0.05	23-DIME-C2-PENTENE

2039	0.02	0.02	0.03	CIS-2-HEPTENE
4528	0.01	0.01	0.01	OCTENE D

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	0.92	0.85	1.14	BENZENE	
601	1.10	1.21	1.60	TOLUENE	
602	0.08	0.10	0.13	ETHYLBENZENE	
604	0.12	0.15	0.20	M-XYLENE	
605	0.05	0.07	0.09	P-XYLENE	
603	0.05	0.06	0.09	O-XYLENE	*
609	0.01	0.02	0.02	1-ME-3-ET BENZENE	
612	0.01	0.02	0.03	124-TRIME BENZENE	*

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1003	13.00	5.18	6.20	ETHANOL
1003	5.44	2.17	2.60	ETHANOL
1003	0.59	0.23	0.28	ETHANOL
1003	1.31	0.52	0.63	ETHANOL
1003	0.17	0.07	0.08	ETHANOL
1003	0.19	0.07	0.09	ETHANOL
1003	0.15	0.06	0.07	ETHANOL
1003	0.17	0.07	0.08	ETHANOL
1003	0.27	0.11	0.13	ETHANOL
1003	0.23	0.09	0.11	ETHANOL
1003	0.23	0.09	0.11	ETHANOL
1003	0.17	0.07	0.08	ETHANOL
1003	0.29	0.12	0.14	ETHANOL
1003	0.37	0.15	0.18	ETHANOL
1003	0.26	0.10	0.12	ETHANOL
1003	0.05	0.02	0.03	ETHANOL
1003	0.05	0.02	0.02	ETHANOL
1003	0.30	0.12	0.14	ETHANOL
1003	0.14	0.06	0.07	ETHANOL
1003	0.04	0.02	0.02	ETHANOL
188	0.01	0.01	0.02	UNCLASS. H.C. C- 8

Vapor Generation

CHEVRON RESEARCH GASOLINE ANALYSIS

Sample Name: 6023651 5827 TBA CUT 1 ST-130 Customer: CARR
Acquisition Date: 2-May-1996 Acquisition Time: 10:24
Channel #: 13 Analysis: GASO134 Sample #: 1 Injection #: 1

*** DETAILED COMPOSITION, PERCENT ***

1. BY VOLUME

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	24.69	0.32	******	******	******	27.91	24.12	0.57	******	******	******
5	36.96	8.77	0.29	******	******	46.02	7.30	29.65	******	0.29	******
6	14.42	2.92	1.18	0.83	******	19.35	2.05	12.37	******	1.05	0.14
7	2.97	0.49	0.49	1.12	******	5.07	0.29	2.68	******	0.33	0.16
8	1.18	0.00	0.08	0.34	0.01	1.61	0.03	0.32	0.83	0.07	0.01
9	0.00	0.00	0.00	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	80.22	12.50	2.04	2.33	2.91	100.00	33.80	45.59	0.83	1.73	0.31

2. BY WEIGHT

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	22.44	0.31	******	******	******	26.32	21.94	0.50	******	******	******
5	36.00	9.05	0.34	******	******	45.39	7.18	28.83	******	0.34	******
6	14.85	3.15	1.40	1.15	******	20.55	2.12	12.74	******	1.23	0.17
7	3.19	0.55	0.58	1.51	******	5.83	0.32	2.87	******	0.38	0.20
8	1.29	0.00	0.09	0.46	0.01	1.86	0.04	0.35	0.91	0.08	0.01
9	0.00	0.00	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	77.77	13.06	2.40	3.17	3.59	100.00	31.58	45.28	0.91	2.03	0.38

3. BY MOLAR

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	27.49	0.39	******	******	******	32.26	26.88	0.61	******	******	******
5	35.54	9.20	0.34	******	******	45.09	7.08	28.46	******	0.34	******
6	12.28	2.67	1.18	1.05	******	17.18	1.75	10.53	******	1.04	0.14
7	2.26	0.40	0.42	1.17	******	4.26	0.22	2.04	******	0.28	0.14
8	0.81	0.00	0.06	0.31	0.01	1.18	0.02	0.22	0.57	0.05	0.01
9	0.00	0.00	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	78.38	12.67	2.00	2.56	4.39	100.00	35.97	41.85	0.57	1.71	0.29

GRP. TYPE, VOL %: P = 82.62, O = 12.88, N = 2.10, A = 2.40, Saturates = 84.72
DIENE CONTENT = 841. vol ppm AVG MW = 71.2 API GR. = 88.8 SP. GR. =0.6424
OCTANE NUMBER: (from pure values) RON = 88.1 MON = 83.5
(from blending values) RON = 90.7 MON = 84.5
CARBON-HYDROGEN RATIO =5.182 STOICH. AIR-FUEL RATIO =15.17 lbs air/lbs fuel
BTU/lb = 18711. NET, 20208. GROSS; BTU/gal =100299. NET, 108325. GROSS
REID VAPOR PRESSURE =24.2 BROMINE NO. = 28.8

CHEVRON RESEARCH GASOLINE ANALYSIS
2-May-1996 10:24
6023651 5827 TBA CUT 1 ST-130 13GASO134
Sample 1 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	11.	31.
5.	31.	31.
10.	31.	31.
15.	31.	82.
20.	31.	82.
25.	39.	82.
30.	82.	82.
35.	82.	82.
40.	82.	82.
45.	82.	82.
50.	82.	82.
55.	86.	97.
60.	97.	97.
65.	97.	99.
70.	101.	121.
75.	140.	140.
80.	140.	144.
85.	153.	156.
90.	176.	177.
95.	194.	197.
100.	337.	245.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

TOTAL UNCORRECTED AREA = 1784508.

NUMBER OF PEAKS READ IN = 91

CHEVRON RESEARCH GASOLINE ANALYSIS
2-May-1996 10:24
6023651 5827 TBA CUT 1 ST-130 13GASO134
Sample 1 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
4	26.88	24.12	21.94	N-BUTANE
6	7.08	7.30	7.18	N-PENTANE
9	1.75	2.05	2.12	N-HEXANE
14	0.22	0.29	0.32	N-HEPTANE
23	0.02	0.03	0.04	N-OCTANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.61	0.57	0.50	ISOBUTANE	
8	0.22	0.24	0.23	NEOPENTANE	
7	28.24	29.41	28.60	ISOPENTANE	
12	1.00	1.19	1.21	22-DIME BUTANE	
13	1.70	1.98	2.06	23-DIME BUTANE	
10	5.13	6.06	6.21	2-ME PENTANE	
11	2.69	3.13	3.26	3-ME PENTANE	
18	0.04	0.05	0.06	22-DIME PENTANE	
20	0.50	0.66	0.70	24-DIME PENTANE	
19	0.62	0.81	0.88	23-DIME PENTANE	
15	0.43	0.57	0.61	2-ME HEXANE	
16	0.41	0.54	0.58	3-ME HEXANE	
17	0.03	0.04	0.04	3-ET PENTANE	
37	0.47	0.69	0.75	224-TRIME PENTANE	*
31	0.04	0.05	0.06	25-DIME HEXANE	
30	0.05	0.07	0.08	24-DIME HEXANE	
39	0.07	0.10	0.11	234-TRIME PENTANE	*
34	0.01	0.01	0.02	2-ME-3-ET PENTANE	
29	0.03	0.04	0.05	23-DIME HEXANE	*
24	0.06	0.08	0.09	2-ME HEPTANE	
26	0.02	0.02	0.03	4-ME HEPTANE	
25	0.05	0.07	0.08	3-ME HEPTANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.34	0.29	0.34	CYCLOPENTANE
801	1.04	1.05	1.23	ME CYCLOPENTANE
806	0.10	0.11	0.13	1C3-DIME CYCPENTANE
807	0.09	0.11	0.13	1T3-DIME CYCPENTANE
805	0.06	0.07	0.08	1T2-DIME CYCPENTANE
811	0.01	0.01	0.01	113-TRIME CPENTANE
802	0.03	0.04	0.04	ET CYCLOPENTANE
817	0.01	0.02	0.02	1T2C4TRIME CPENTANE
865	0.03	0.04	0.04	1MET3ET CYCPENTANE

2-May-1996 10:24
6023651 5827 TBA CUT 1 ST-130 13GASO134
Sample 1 Injection 1

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.14	0.14	0.17	CYCLOHEXANE
826	0.14	0.16	0.20	ME CYCLOHEXANE
832	0.01	0.01	0.01	1T3-DIME CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.02	0.02	0.02	1-BUTENE
305	0.03	0.02	0.02	ISO-BUTENE
304	0.14	0.12	0.11	TRANS-2-BUTENE
303	0.20	0.16	0.16	C1S-2-BUTENE
310	0.21	0.20	0.20	3-METHYL-1-BUTENE
306	0.78	0.76	0.77	1-PENTENE
309	1.51	1.46	1.49	2-METHYL-1-BUTENE
509	0.04	0.03	0.04	ISOPRENE
308	2.14	2.07	2.10	TRANS-2-PENTENE
327	0.02	0.02	0.02	3,3-DIME BUTENE
307	1.17	1.12	1.15	CIS-2-PENTENE
311	2.96	2.80	2.91	2-METHYL-2-BUTENE
505	0.04	0.03	0.04	T-13-PENTADIENE
504	0.02	0.02	0.02	C-13-PENTADIENE
450	0.35	0.28	0.34	CYCLOPENTENE
318	0.17	0.19	0.20	3-METHYL-1-PENTENE
323	0.11	0.12	0.13	C-4ME-2-PENTENE
324	0.18	0.21	0.22	T-4ME-2-PENTENE
317	0.27	0.30	0.32	2-ME-1-PENTENE
312	0.14	0.16	0.17	1-HEXENE
315	0.35	0.39	0.41	CIS-3-HEXENE
314	0.39	0.44	0.46	TRANS-2-HEXENE
320	0.36	0.40	0.43	2-METHYL-2-PENTENE
321	0.22	0.24	0.26	C-3ME-2-PENTENE
313	0.18	0.20	0.22	CIS-2-HEXENE
451	0.26	0.25	0.30	1-ME CYLCOPENTENE
2004	0.01	0.02	0.02	24-DIME-1-PENTENE
2003	0.01	0.01	0.02	23-DIME-1-PENTENE
2009	0.02	0.02	0.02	24-DIME-CIS2-PENTENE
2033	0.03	0.04	0.04	2-ME-T3-HEXENE
2031	0.02	0.02	0.03	5-ME-T2-HEXENE
2038	0.03	0.04	0.04	1-HEPTENE
2035	0.02	0.02	0.02	3-ME-T3-HEXENE
5370	0.03	0.04	0.04	C-7 CYCLOPENTENE A
5371	0.03	0.03	0.04	C-7 CYCLOPENTENE B
2042	0.03	0.04	0.05	T3-HEPTENE
2025	0.04	0.04	0.05	2-ME-2-HEXENE
2034	0.03	0.03	0.04	3-ME-C3-HEXENE
2018	0.02	0.03	0.03	3-ET-2-PENTENE
2040	0.04	0.05	0.06	TRANS-2-HEPTENE
2008	0.03	0.04	0.04	23-DIME-C2-PENTENE
2039	0.02	0.02	0.02	CIS-2-HEPTENE

CHEVRON RESEARCH GASOLINE ANALYSIS
2-May-1996 10:24
6023651 5827 TBA CUT 1 ST-130 13GASO134
Sample 1 Injection 1

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.05	0.83	1.15	BENZENE	
601	1.17	1.12	1.51	TOLUENE	
602	0.08	0.09	0.12	ETHYLBENZENE	
604	0.12	0.14	0.18	M-XYLENE	
605	0.05	0.06	0.08	P-XYLENE	
603	0.05	0.06	0.08	O-XYLENE	*
609	0.01	0.02	0.02	1-ME-3-ET BENZENE	
612	0.02	0.02	0.03	124-TRIME BENZENE	*

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1009	4.38	2.90	3.57	2-ME 2-PROPANOL
188	0.01	0.01	0.01	UNCLASS. H.C. C- 8

CHEVRON RESEARCH GASOLINE ANALYSIS

Sample Name: 6023652 5827 TBA CUT #2 Customer: CARR
Acquisition Date: 2-May-1996 Acquisition Time: 12:38
Channel #: 13 Analysis: GASO134 Sample #: 2 Injection #: 1

*** DETAILED COMPOSITION, PERCENT ***

1. BY VOLUME

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	15.54	0.20	******	******	******	18.63	15.28	0.26	******	******	******
5	38.05	9.78	0.35	******	******	48.18	8.05	30.00	******	0.35	******
6	18.10	3.69	1.51	1.05	******	24.35	2.62	15.47	******	1.34	0.18
7	3.89	0.67	0.64	1.42	******	6.61	0.39	3.50	******	0.43	0.21
8	1.57	0.00	0.11	0.46	0.01	2.16	0.04	0.42	1.11	0.10	0.01
9	0.02	0.00	0.00	0.06	0.00	0.08	0.00	0.02	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	77.16	14.33	2.61	2.98	2.91	100.00	26.39	49.67	1.11	2.21	0.40

2. BY WEIGHT

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	13.91	0.19	******	******	******	17.62	13.69	0.22	******	******	******
5	36.53	9.95	0.40	******	******	46.88	7.79	28.73	******	0.40	******
6	18.37	3.92	1.76	1.42	******	25.47	2.67	15.70	******	1.55	0.21
7	4.10	0.74	0.74	1.90	******	7.48	0.41	3.69	******	0.50	0.25
8	1.69	0.00	0.13	0.61	0.02	2.45	0.05	0.46	1.19	0.11	0.02
9	0.02	0.00	0.00	0.08	0.00	0.10	0.00	0.02	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	74.63	14.79	3.03	4.01	3.53	100.00	24.62	48.83	1.19	2.56	0.48

3. BY MOLAR

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	17.66	0.25	******	******	******	22.37	17.38	0.28	******	******	******
5	37.35	10.48	0.42	******	******	48.25	7.97	29.38	******	0.42	******
6	15.73	3.44	1.54	1.34	******	22.05	2.29	13.44	******	1.35	0.19
7	3.02	0.56	0.56	1.52	******	5.65	0.30	2.72	******	0.37	0.19
8	1.09	0.00	0.09	0.43	0.01	1.62	0.03	0.29	0.77	0.08	0.01
9	0.01	0.00	0.00	0.05	0.00	0.06	0.00	0.01	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	74.86	14.73	2.61	3.33	4.47	100.00	27.97	46.12	0.77	2.23	0.38

GRP. TYPE, VOL %: P = 79.47, O = 14.76, N = 2.69, A = 3.07, Saturates = 82.17
DIENE CONTENT = 1283. vol ppm AVG MW = 73.8 API GR. = 85.5 SP. GR. =0.6520
OCTANE NUMBER: (from pure values) RON = 86.7 MON = 82.1
(from blending values) RON = 89.8 MON = 83.3
CARBON-HYDROGEN RATIO =5.261 STOICH. AIR-FUEL RATIO =15.12 lbs air/lbs fuel
BTU/lb = 18523. NET, 19992. GROSS; BTU/gal =100788. NET, 108780. GROSS
REID VAPOR PRESSURE =19.8 BROMINE NO. = 32.4

CHEVRON RESEARCH GASOLINE ANALYSIS
2-May-1996 12:38
6023652 5827 TBA CUT #2 13GASO134
Sample 2 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	11.	31.
5.	31.	82.
10.	31.	82.
15.	31.	82.
20.	82.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	82.
45.	82.	97.
50.	97.	97.
55.	97.	97.
60.	101.	101.
65.	122.	136.
70.	140.	140.
75.	140.	140.
80.	146.	152.
85.	156.	161.
90.	181.	181.
95.	197.	209.
100.	337.	275.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

TOTAL UNCORRECTED AREA = 1630031.

NUMBER OF PEAKS READ IN = 94

2-May-1996 12:38
6023652 5827 TBA CUT #2 13GASO134
Sample 2 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
4	17.38	15.28	13.69	N-BUTANE
6	7.97	8.05	7.79	N-PENTANE
9	2.29	2.62	2.67	N-HEXANE
14	0.30	0.39	0.41	N-HEPTANE
23	0.03	0.04	0.05	N-OCTANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.28	0.26	0.22	ISOBUTANE	
8	0.17	0.18	0.17	NEOPENTANE	
7	29.21	29.82	28.57	ISOPENTANE	
12	1.23	1.44	1.44	22-DIME BUTANE	
13	2.15	2.46	2.51	23-DIME BUTANE	
10	6.58	7.62	7.69	2-ME PENTANE	
11	3.48	3.96	4.06	3-ME PENTANE	
18	0.05	0.07	0.07	22-DIME PENTANE	
20	0.66	0.86	0.90	24-DIME PENTANE	
19	0.83	1.05	1.13	23-DIME PENTANE	
15	0.58	0.75	0.79	2-ME HEXANE	
16	0.56	0.71	0.76	3-ME HEXANE	
17	0.04	0.05	0.05	3-ET PENTANE	
37	0.63	0.91	0.97	224-TRIME PENTANE	*
36	0.01	0.01	0.01	223-TRIME PENTANE	*
31	0.05	0.07	0.07	25-DIME HEXANE	
30	0.07	0.10	0.10	24-DIME HEXANE	
39	0.09	0.13	0.15	234-TRIME PENTANE	*
34	0.01	0.02	0.02	2-ME-3-ET PENTANE	
29	0.04	0.06	0.06	23-DIME HEXANE	*
24	0.08	0.11	0.12	2-ME HEPTANE	
26	0.02	0.03	0.04	4-ME HEPTANE	
25	0.07	0.10	0.10	3-ME HEPTANE	
55	0.01	0.02	0.02	35-DIME HEPTANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.42	0.35	0.40	CYCLOPENTANE
801	1.35	1.34	1.55	ME CYCLOPENTANE
806	0.13	0.15	0.17	1C3-DIME CYCPENTANE
807	0.13	0.15	0.17	1T3-DIME CYCPENTANE
805	0.08	0.09	0.10	1T2-DIME CYCPENTANE
811	0.01	0.02	0.02	113-TRIME CPENTANE
802	0.04	0.05	0.05	ET CYCLOPENTANE
817	0.02	0.02	0.03	1T2C4TRIME CPENTANE
864	0.01	0.01	0.01	1MEC3ET CYCPENTANE
865	0.04	0.05	0.06	1MET3ET CYCPENTANE

CHEVRON RESEARCH GASOLINE ANALYSIS
2-May-1996 12:38
6023652 5827 TBA CUT #2 13GASO134
Sample 2 Injection 1

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.19	0.18	0.21	CYCLOHEXANE
826	0.19	0.21	0.25	ME CYCLOHEXANE
832	0.01	0.01	0.02	1T3-DIME CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
304	0.10	0.08	0.08	TRANS-2-BUTENE
303	0.15	0.12	0.11	C1S-2-BUTENE
310	0.20	0.19	0.19	3-METHYL-1-BUTENE
306	0.84	0.80	0.80	1-PENTENE
309	1.65	1.56	1.57	2-METHYL-1-BUTENE
509	0.04	0.04	0.04	ISOPRENE
308	2.44	2.31	2.32	TRANS-2-PENTENE
327	0.02	0.03	0.03	3,3-DIME BUTENE
307	1.35	1.27	1.28	CIS-2-PENTENE
311	3.44	3.19	3.27	2-METHYL-2-BUTENE
505	0.05	0.04	0.04	T-13-PENTADIENE
504	0.06	0.05	0.05	C-13-PENTADIENE
450	0.42	0.33	0.39	CYCLOPENTENE
318	0.21	0.24	0.24	3-METHYL-1-PENTENE
323	0.14	0.15	0.16	C-4ME-2-PENTENE
324	0.24	0.26	0.27	T-4ME-2-PENTENE
317	0.35	0.38	0.40	2-ME-1-PENTENE
312	0.18	0.20	0.21	1-HEXENE
315	0.45	0.49	0.51	CIS-3-HEXENE
314	0.51	0.55	0.58	TRANS-2-HEXENE
320	0.47	0.51	0.54	2-METHYL-2-PENTENE
321	0.28	0.30	0.32	C-3ME-2-PENTENE
313	0.24	0.26	0.27	CIS-2-HEXENE
451	0.34	0.32	0.38	1-ME CYLCOPENTENE
2004	0.02	0.02	0.02	24-DIME-1-PENTENE
2003	0.02	0.02	0.02	23-DIME-1-PENTENE
2009	0.02	0.03	0.03	24-DIME-CIS2-PENTENE
2033	0.04	0.05	0.05	2-ME-T3-HEXENE
2031	0.02	0.03	0.03	5-ME-T2-HEXENE
2010	0.01	0.01	0.02	34-DIME-C2-PENTENE
2038	0.04	0.05	0.05	1-HEPTENE
2035	0.02	0.03	0.03	3-ME-T3-HEXENE
5370	0.04	0.05	0.06	C-7 CYCLOPENTENE A
5371	0.04	0.04	0.05	C-7 CYCLOPENTENE B
2042	0.05	0.06	0.06	T3-HEPTENE
2025	0.05	0.06	0.06	2-ME-2-HEXENE
2034	0.03	0.04	0.05	3-ME-C3-HEXENE
2018	0.03	0.04	0.04	3-ET-2-PENTENE
2040	0.06	0.07	0.07	TRANS-2-HEPTENE
2008	0.04	0.05	0.05	23-DIME-C2-PENTENE
2039	0.02	0.03	0.03	CIS-2-HEPTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME

CHEVRON RESEARCH GASOLINE ANALYSIS
2-May-1996 12:38
6023652 5827 TBA CUT #2 13GASO134
Sample 2 Injection 1

600	1.34	1.05	1.42	BENZENE	
601	1.52	1.42	1.90	TOLUENE	
602	0.11	0.12	0.15	ETHYLBENZENE	
604	0.17	0.18	0.24	M-XYLENE	
605	0.08	0.08	0.11	P-XYLENE	
603	0.08	0.08	0.11	O-XYLENE	*
609	0.02	0.02	0.03	1-ME-3-ET BENZENE	
612	0.02	0.03	0.03	124-TRIME BENZENE	*

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1009	4.46	2.90	3.52	2-ME 2-PROPANOL
188	0.01	0.01	0.02	UNCLASS. H.C. C- 8

CHEVRON RESEARCH GASOLINE ANALYSIS

Sample Name: 6023653 5827 TBA CUT #3 130-135 Customer: CARR
Acquisition Date: 2-May-1996 Acquisition Time: 14:27
Channel #: 13 Analysis: GASO134 Sample #: 3 Injection #: 1

*** DETAILED COMPOSITION, PERCENT ***

1. BY VOLUME

C NO.	PARA	OLEF	NAPH	AROM	UNCL HC	TOTALS BY C #	NORMAL PARA	NON-ALKYL I-PARA	ALKYL I-PARA	CYCLO-PENT	CYCLO-HEX
3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	9.55	0.13	******	******	******	36.92	9.41	0.14	******	******	******
5	28.02	7.55	0.28	******	******	35.84	6.08	21.94	******	0.28	******
6	14.73	3.01	1.24	0.86	******	19.84	2.14	12.59	******	1.10	0.14
7	3.23	0.55	0.53	1.19	******	5.51	0.33	2.91	******	0.36	0.17
8	1.32	0.00	0.09	0.40	0.01	1.82	0.04	0.36	0.92	0.07	0.01
9	0.01	0.00	0.00	0.06	0.00	0.07	0.00	0.01	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	56.86	11.24	2.14	2.50	27.26	100.00	18.00	37.95	0.92	1.81	0.33

2. BY WEIGHT

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	8.09	0.11	******	******	******	39.44	7.97	0.12	******	******	******
5	25.43	7.27	0.30	******	******	32.99	5.56	19.86	******	0.30	******
6	14.14	3.02	1.37	1.10	******	19.63	2.06	12.07	******	1.20	0.16
7	3.23	0.58	0.59	1.50	******	5.89	0.33	2.90	******	0.39	0.19
8	1.34	0.00	0.10	0.51	0.01	1.96	0.04	0.37	0.94	0.08	0.02
9	0.01	0.00	0.00	0.07	0.00	0.08	0.00	0.01	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	52.23	10.98	2.35	3.18	31.26	100.00	15.96	35.33	0.94	1.98	0.37

3. BY MOLAR

3-	0.00	0.00	******	******	******	0.00	0.00	******	******	******	******
4	9.61	0.14	******	******	******	46.87	9.47	0.14	******	******	******
5	24.33	7.17	0.30	******	******	31.80	5.32	19.01	******	0.30	******
6	11.33	2.49	1.12	0.97	******	15.91	1.65	9.68	******	0.99	0.14
7	2.22	0.41	0.41	1.12	******	4.17	0.22	2.00	******	0.28	0.14
8	0.81	0.00	0.06	0.33	0.01	1.21	0.02	0.22	0.57	0.05	0.01
9	0.01	0.00	0.00	0.04	0.00	0.05	0.00	0.01	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOT	48.31	10.20	1.89	2.47	37.12	100.00	16.69	31.05	0.57	1.61	0.28

GRP. TYPE, VOL %: P = 78.17, O = 15.45, N = 2.94, A = 3.44, Saturates = 81.11
DIENE CONTENT = 2060. vol ppm AVG MW = 69.0 API GR. = 73.6 SP. GR. =0.6898
OCTANE NUMBER: (from pure values) RON = 92.7 MON = 84.2
(from blending values) RON = 95.2 MON = 85.2
CARBON-HYDROGEN RATIO =5.134 STOICH. AIR-FUEL RATIO =15.20 lbs air/lbs fuel
BTU/lb = 18566. NET, 20017. GROSS; BTU/gal =106868. NET, 115215. GROSS
REID VAPOR PRESSURE =12.7 BROMINE NO. = 24.4

CHEVRON RESEARCH GASOLINE ANALYSIS
2-May-1996 14:27
6023653 5827 TBA CUT #3 130-135 13GASO134
Sample 3 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	11.	82.
5.	31.	82.
10.	82.	82.
15.	82.	82.
20.	82.	82.
25.	82.	88.
30.	82.	97.
35.	97.	97.
40.	97.	111.
45.	111.	136.
50.	140.	140.
55.	140.	146.
60.	154.	156.
65.	176.	181.
70.	181.	181.
75.	181.	181.
80.	181.	181.
85.	181.	181.
90.	181.	181.
95.	194.	200.
100.	337.	257.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

TOTAL UNCORRECTED AREA = 1691542.

NUMBER OF PEAKS READ IN = 92

CHEVRON RESEARCH GASOLINE ANALYSIS
2-May-1996 14:27
6023653 5827 TBA CUT #3 130-135 13GASO134
Sample 3 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
4	9.47	9.41	7.97	N-BUTANE
6	5.32	6.08	5.56	N-PENTANE
9	1.65	2.14	2.06	N-HEXANE
14	0.22	0.33	0.33	N-HEPTANE
23	0.02	0.04	0.04	N-OCTANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.14	0.14	0.12	ISOBUTANE	
8	0.10	0.12	0.10	NEOPENTANE	
7	18.91	21.82	19.76	ISOPENTANE	
12	0.95	1.25	1.19	22-DIME BUTANE	
13	1.53	1.98	1.91	23-DIME BUTANE	
10	4.69	6.14	5.86	2-ME PENTANE	
11	2.50	3.21	3.11	3-ME PENTANE	
18	0.04	0.06	0.06	22-DIME PENTANE	
20	0.48	0.71	0.70	24-DIME PENTANE	
19	0.61	0.88	0.89	23-DIME PENTANE	
15	0.43	0.62	0.62	2-ME HEXANE	
16	0.41	0.59	0.59	3-ME HEXANE	
17	0.03	0.04	0.04	3-ET PENTANE	
37	0.47	0.76	0.77	224-TRIME PENTANE	*
31	0.04	0.06	0.06	25-DIME HEXANE	
30	0.05	0.08	0.08	24-DIME HEXANE	
39	0.07	0.11	0.12	234-TRIME PENTANE	*
34	0.01	0.01	0.01	2-ME-3-ET PENTANE	
29	0.03	0.05	0.05	23-DIME HEXANE	*
24	0.06	0.09	0.10	2-ME HEPTANE	
26	0.02	0.03	0.03	4-ME HEPTANE	
25	0.05	0.08	0.08	3-ME HEPTANE	
55	0.01	0.01	0.01	35-DIME HEPTANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.30	0.28	0.30	CYCLOPENTANE
801	0.99	1.10	1.20	ME CYCLOPENTANE
806	0.10	0.12	0.14	1C3-DIME CYCPENTANE
807	0.09	0.12	0.13	1T3-DIME CYCPENTANE
805	0.06	0.07	0.08	1T2-DIME CYCPENTANE
811	0.01	0.01	0.01	113-TRIME CPENTANE
802	0.03	0.04	0.05	ET CYCLOPENTANE
817	0.01	0.02	0.02	1T2C4TRIME CPENTANE
865	0.03	0.04	0.05	1MET3ET CYCPENTANE

CHEVRON RESEARCH GASOLINE ANALYSIS
2-May-1996 14:27
6023653 5827 TBA CUT #3 130-135 13GASO134
Sample 3 Injection 1

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.14	0.14	0.16	CYCLOHEXANE
826	0.14	0.17	0.19	ME CYCLOHEXANE
832	0.01	0.01	0.02	1T3-DIME CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
304	0.06	0.05	0.05	TRANS-2-BUTENE
303	0.09	0.08	0.07	C1S-2-BUTENE
310	0.13	0.13	0.13	3-METHYL-1-BUTENE
306	0.55	0.60	0.56	1-PENTENE
309	1.09	1.17	1.11	2-METHYL-1-BUTENE
509	0.03	0.03	0.03	ISOPRENE
308	1.64	1.76	1.67	TRANS-2-PENTENE
327	0.02	0.02	0.02	3,3-DIME BUTENE
307	0.91	0.96	0.92	CIS-2-PENTENE
311	2.34	2.46	2.38	2-METHYL-2-BUTENE
505	0.04	0.04	0.04	T-13-PENTADIENE
504	0.14	0.14	0.14	C-13-PENTADIENE
450	0.30	0.26	0.29	CYCLOPENTENE
318	0.15	0.19	0.19	3-METHYL-1-PENTENE
323	0.10	0.12	0.12	C-4ME-2-PENTENE
324	0.17	0.21	0.21	T-4ME-2-PENTENE
317	0.25	0.31	0.31	2-ME-1-PENTENE
312	0.13	0.16	0.16	1-HEXENE
315	0.33	0.40	0.40	CIS-3-HEXENE
314	0.37	0.46	0.45	TRANS-2-HEXENE
320	0.34	0.42	0.42	2-METHYL-2-PENTENE
321	0.21	0.25	0.25	C-3ME-2-PENTENE
313	0.17	0.21	0.21	CIS-2-HEXENE
451	0.25	0.26	0.30	1-ME CYLCOPENTENE
2004	0.01	0.02	0.02	24-DIME-1-PENTENE
2003	0.01	0.02	0.02	23-DIME-1-PENTENE
2009	0.02	0.02	0.02	24-DIME-CIS2-PENTENE
2033	0.03	0.04	0.04	2-ME-T3-HEXENE
2031	0.02	0.02	0.02	5-ME-T2-HEXENE
2010	0.01	0.01	0.01	34-DIME-C2-PENTENE
2038	0.03	0.04	0.04	1-HEPTENE
2035	0.02	0.02	0.02	3-ME-T3-HEXENE
5370	0.03	0.04	0.04	C-7 CYCLOPENTENE A
5371	0.03	0.04	0.04	C-7 CYCLOPENTENE B
2042	0.03	0.05	0.05	T3-HEPTENE
2025	0.04	0.05	0.05	2-ME-2-HEXENE
2034	0.03	0.03	0.04	3-ME-C3-HEXENE
2018	0.02	0.03	0.03	3-ET-2-PENTENE
2040	0.04	0.06	0.06	TRANS-2-HEPTENE
2008	0.03	0.04	0.04	23-DIME-C2-PENTENE
2039	0.02	0.02	0.02	CIS-2-HEPTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME

2-May-1996 14:27
6023653 5827 TBA CUT #3 130-135 13GASO134
Sample 3 Injection 1

600	0.97	0.86	1.10	BENZENE	
601	1.12	1.19	1.50	TOLUENE	
602	0.08	0.10	0.13	ETHYLBENZENE	
604	0.13	0.16	0.20	M-XYLENE	
605	0.06	0.07	0.09	P-XYLENE	
603	0.06	0.07	0.09	O-XYLENE	*
609	0.02	0.02	0.03	1-ME-3-ET BENZENE	
612	0.02	0.02	0.03	124-TRIME BENZENE	*

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1009	37.12	27.24	31.24	2-ME 2-PROPANOL
188	0.01	0.01	0.01	UNCLASS. H.C. C- 8