Appendix C

Gas Chromatography Data
Headspace Analysis

CHEVRON RESEARCH GASOLINE ANALYSIS Headspace

Sample Name: 6018638 API BASE GASOLINE Customer: CARR
Acquisition Date: 5-Apr-1996 Acquisition Time: 14:16
Channel #: 1 Analysis: GASO5 Sample #: 14 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-	0.03	0.00	******	******	******	0.03	0.03	******	******	******	******
4	26.98	0.36	******	******	******	27.35	26.24	0.74	******	******	******
5	32.65	7.98	0.42	******	******	41.05	6.36	26.29	******	0.42	******
6	13.67	2.82	1.28	1.02	******	18.79	2.07	11.61	******	1.11	0.16
7	3.93	0.81	0.72	2.48	******	7.94	0.47	3.45	******	0.46	0.26
8	2.08	0.11	0.30	1.36	0.03	3.88	0.10	0.75	1.23	0.22	0.08
9	0.18	0.00	0.10	0.44	0.05	0.77	0.02	0.15	0.02	0.03	0.06
10	0.05	0.00	0.00	0.10	0.02	0.17	0.00	0.04	0.01	0.00	0.00
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	79.59	12.08	2.81	5.40	0.12	100.00	35.30	43.03	1.26	2.24	0.57

2. BY WEIGHT

3-	0.03	0.00	******	******	******	0.03	0.03	******	******	******	******
4	24.35	0.34	******	******	******	24.70	23.71	0.64	******	******	******
5	31.59	8.18	0.49	******	******	40.25	6.21	25.38	******	0.49	******
6	14.00	3.04	1.49	1.39	******	19.92	2.12	11.87	******	1.30	0.20
7	4.18	0.90	0.85	3.35	******	9.27	0.50	3.68	******	0.54	0.31
8	2.26	0.12	0.36	1.84	0.04	4.61	0.11	0.82	1.33	0.26	0.10
9	0.21	0.00	0.12	0.59	0.06	0.98	0.02	0.17	0.02	0.04	0.08
10	0.05	0.00	0.00	0.13	0.03	0.22	0.00	0.04	0.01	0.00	0.00
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	76.67	12.58	3.31	7.31	0.14	100.00	32.70	42.61	1.36	2.62	0.69

3. BY MOLAR

3-	0.04	0.00	******	******	******	0.04	0.04	******	******	******	******
4	30.61	0.45	******	******	******	31.06	29.80	0.81	******	******	******
5	31.99	8.53	0.51	******	******	41.03	6.29	25.70	******	0.51	******
6	11.87	2.64	1.30	1.30	******	17.11	1.80	10.07	******	1.13	0.17
7	3.05	0.67	0.63	2.65	******	7.00	0.37	2.68	******	0.40	0.23
8	1.44	0.08	0.23	1.26	0.02	3.04	0.07	0.52	0.85	0.17	0.07
9	0.12	0.00	0.07	0.36	0.04	0.58	0.01	0.10	0.01	0.02	0.05
10	0.03	0.00	0.00	0.07	0.02	0.12	0.00	0.02	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.01	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	79.15	12.38	2.74	5.65	0.08	100.00	38.39	39.90	0.86	2.22	0.51

GRP. TYPE, VOL %: P = 79.68, O = 12.09, N = 2.82, A = 5.41, Saturates = 82.50
DIENE CONTENT = 908. vol ppm AVG MW = 73.1 API GR. = 87.3 SP. GR. =0.6468
OCTANE NUMBER: (from pure values) RON = 87.5 MON = 83.2
(from blending values) RON = 90.3 MON = 84.2
CARBON-HYDROGEN RATIO =5.320 STOICH. AIR-FUEL RATIO =15.09 lbs air/lbs fuel
BTU/lb = 17925. NET, 19359. GROSS; BTU/gal = 96750. NET, 104492. GROSS
REID VAPOR PRESSURE =25.2 BROMINE NO. = 27.4

* DISTILLATION CURVES

VOL %	TBP	D86
0.	-127.	31.
5.	31.	31.
10.	31.	31.
15.	31.	31.
20.	31.	82.
25.	31.	82.
30.	82.	82.
35.	82.	82.
40.	82.	82.
45.	82.	82.
50.	82.	82.
55.	88.	97.
60.	97.	97.
65.	99.	101.
70.	136.	136.
75.	140.	140.
80.	146.	152.
85.	161.	168.
90.	194.	197.
95.	231.	231.
100.	472.	319.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

5-Apr-1996 14:16
6018638 API BASE GASOLINE 1GASO5
Sample 14 Injection 1

TOTAL UNCORRECTED AREA = 12344298.

NUMBER OF PEAKS READ IN = 237

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
3	0.04	0.03	0.02	PROPANE
4	29.80	26.24	23.71	N-BUTANE
6	6.29	6.36	6.21	N-PENTANE
9	1.80	2.07	2.12	N-HEXANE
14	0.37	0.47	0.50	N-HEPTANE
23	0.07	0.10	0.11	N-OCTANE
41	0.01	0.02	0.02	N-NONANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.81	0.74	0.64	ISOBUTANE	
8	0.21	0.23	0.21	NEOPENTANE	
7	25.49	26.06	25.17	ISOPENTANE	
12	0.88	1.02	1.04	22-DIME BUTANE	
13	1.61	1.84	1.90	23-DIME BUTANE	
10	4.93	5.72	5.81	2-ME PENTANE	
11	2.65	3.02	3.13	3-ME PENTANE	
18	0.05	0.06	0.06	22-DIME PENTANE	
20	0.58	0.77	0.80	24-DIME PENTANE	
19	0.85	1.08	1.17	23-DIME PENTANE	
15	0.61	0.79	0.83	2-ME HEXANE	
16	0.59	0.75	0.81	3-ME HEXANE	
37	0.77	1.12	1.20	224-TRIME PENTANE	*
28	0.01	0.01	0.01	22-DIME HEXANE	
36	0.01	0.02	0.02	223-TRIME PENTANE	*
31	0.07	0.10	0.11	25-DIME HEXANE	
30	0.10	0.14	0.16	24-DIME HEXANE	
32	0.01	0.01	0.01	33-DIME HEXANE	
34	0.02	0.03	0.03	2-ME-3-ET PENTANE	
29	0.07	0.09	0.10	23-DIME HEXANE	*
24	0.14	0.20	0.21	2-ME HEPTANE	
26	0.06	0.08	0.09	4-ME HEPTANE	
25	0.12	0.18	0.19	3-ME HEPTANE	
51	0.01	0.02	0.02	244-TRIME HEXANE	
43	0.01	0.02	0.02	235-TRIME HEXANE	*
53	0.01	0.02	0.02	26-DIME HEPTANE	
55	0.02	0.03	0.03	35-DIME HEPTANE	
56	0.01	0.01	0.01	23-DIME HEPTANE	
62	0.01	0.02	0.02	4-ME OCTANE	
60	0.02	0.03	0.03	2-ME OCTANE	
86	0.01	0.02	0.02	4-ME NONANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME

800	0.51	0.42	0.49	CYCLOPENTANE
801	1.13	1.11	1.30	ME CYCLOPENTANE
806	0.13	0.15	0.18	1C3-DIME CYCPENTANE
807	0.13	0.15	0.18	1T3-DIME CYCPENTANE
805	0.08	0.09	0.11	1T2-DIME CYCPENTANE
811	0.02	0.02	0.02	113-TRIME CPENTANE
802	0.06	0.06	0.08	ET CYCLOPENTANE
817	0.03	0.04	0.04	1T2C4TRIME CPENTANE
814	0.01	0.02	0.02	1T2C3TRIME CPENTANE
810	0.01	0.02	0.02	112-TRIME CPENTANE*
848	0.02	0.03	0.04	11C3T4-TETRME CPENT
864	0.02	0.02	0.03	1MEC3ET CYCPENTANE
865	0.01	0.02	0.02	1MET3ET CYCPENTANE
861	0.06	0.07	0.09	1ME-1ET CYCPENTANE
862	0.01	0.01	0.02	1ME-C2ET CYPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.17	0.16	0.20	CYCLOHEXANE
826	0.23	0.26	0.31	ME CYCLOHEXANE
830	0.01	0.01	0.02	1T2-DIME CYCHEXANE
832	0.02	0.03	0.04	1T3-DIME CYCHEXANE
833	0.01	0.02	0.02	1C4-DIME CYCHEXANE
827	0.01	0.01	0.02	ETHYL CYCLOHEXANE
941	0.01	0.01	0.02	1ME-C3ET CYCHEXANE
940	0.01	0.01	0.01	1ME-1-ET CYCHEXANE
943	0.01	0.01	0.01	1M-C4-ET CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.03	0.02	0.02	1-BUTENE
305	0.03	0.03	0.03	ISO-BUTENE
304	0.17	0.14	0.13	TRANS-2-BUTENE
303	0.22	0.17	0.17	C1S-2-BUTENE
310	0.20	0.19	0.19	3-METHYL-1-BUTENE
306	0.72	0.69	0.69	1-PENTENE
309	1.40	1.33	1.35	2-METHYL-1-BUTENE
509	0.04	0.03	0.03	ISOPRENE
308	1.96	1.86	1.88	TRANS-2-PENTENE
327	0.02	0.02	0.02	3,3-DIME BUTENE
307	1.08	1.01	1.04	CIS-2-PENTENE
311	2.74	2.55	2.63	2-METHYL-2-BUTENE
505	0.04	0.03	0.03	T-13-PENTADIENE
530	0.01	0.01	0.01	CYCLOPENTADIENE
504	0.02	0.02	0.02	C-13-PENTADIENE
450	0.33	0.26	0.31	CYCLOPENTENE
323	0.11	0.12	0.12	C-4ME-2-PENTENE
324	0.18	0.20	0.21	T-4ME-2-PENTENE
317	0.28	0.30	0.32	2-ME-1-PENTENE
312	0.14	0.16	0.17	1-HEXENE

315	0.36	0.40	0.42	CIS-3-HEXENE
314	0.41	0.45	0.48	TRANS-2-HEXENE
320	0.41	0.44	0.47	2-METHYL-2-PENTENE
321	0.22	0.24	0.26	C-3ME-2-PENTENE
313	0.20	0.21	0.23	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	0.31	0.28	0.35	1-ME CYLCOPENTENE
2004	0.02	0.02	0.02	24-DIME-1-PENTENE
2017	0.00	0.01	0.01	3-ET 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	0.06	2-ME-T3-HEXENE
2010	0.01	0.02	0.02	34-DIME-C2-PENTENE
2038	0.05	0.06	0.06	1-HEPTENE
2035	0.03	0.03	0.03	3-ME-T3-HEXENE
5370	0.05	0.06	0.07	C-7 CYCLOPENTENE A
5371	0.05	0.05	0.06	C-7 CYCLOPENTENE B
2042	0.05	0.06	0.06	T3-HEPTENE
2025	0.06	0.07	0.08	2-ME-2-HEXENE
2034	0.08	0.10	0.11	3-ME-C3-HEXENE
2018	0.07	0.08	0.09	3-ET-2-PENTENE
2008	0.05	0.06	0.07	23-DIME-C2-PENTENE
2039	0.03	0.04	0.04	CIS-2-HEPTENE
4528	0.01	0.02	0.02	OCTENE D
4533	0.01	0.01	0.01	OCTENE I
4534	0.01	0.01	0.01	OCTENE J
2193	0.02	0.02	0.03	1-OCTENE
2198	0.01	0.02	0.02	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.30	1.02	1.39	BENZENE	
601	2.65	2.48	3.35	TOLUENE	
602	0.30	0.32	0.43	ETHYLBENZENE	
604	0.50	0.54	0.73	M-XYLENE	
605	0.21	0.23	0.30	P-XYLENE	
603	0.25	0.27	0.37	O-XYLENE	*
644	0.03	0.04	0.05	N-PROPYL BENZENE	
609	0.09	0.11	0.14	1-ME-3-ET BENZENE	
610	0.04	0.05	0.06	1-ME-4-ET BENZENE	
613	0.04	0.05	0.06	135-TRIME BENZENE	
608	0.02	0.03	0.04	1-ME-2-ET BENZENE	*
612	0.11	0.13	0.17	124-TRIME BENZENE	*
611	0.02	0.02	0.03	123-TRIME BENZENE	*
650	0.01	0.01	0.02	INDAN	*
647	0.01	0.01	0.02	1-ME-3-PR BENZENE	
648	0.01	0.01	0.01	1-ME-4-PR BENZENE	

651	0.01	0.01	0.02	12-DIET BENZENE *

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
188	0.02	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

Headspace - duplicate

Sample Name: 6018638 API BASE GASOLINE - DUP
Customer: CARR
Acquisition Date: 5-Apr-1996
Acquisition Time: 16:46
Channel #: 1 Analysis: GASO5 Sample #: 15 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-	0.03	0.00	******	******	******	0.03	0.03	******	******	******	******
4	26.54	0.36	******	******	******	26.89	25.81	0.72	******	******	******
5	32.36	7.93	0.42	******	******	40.71	6.32	26.04	******	0.42	******
6	13.75	2.85	1.29	1.03	******	18.93	2.09	11.66	******	1.13	0.17
7	4.06	0.83	0.74	2.61	******	8.24	0.50	3.56	******	0.47	0.26
8	2.19	0.11	0.32	1.46	0.04	4.12	0.11	0.80	1.28	0.23	0.09
9	0.20	0.00	0.11	0.47	0.07	0.85	0.02	0.17	0.02	0.04	0.07
10	0.06	0.00	0.00	0.10	0.03	0.19	0.00	0.04	0.01	0.00	0.00
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	79.20	12.08	2.88	5.69	0.14	100.00	34.89	43.01	1.31	2.29	0.60

2. BY WEIGHT

3-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	23.90	0.34	******	******	******	24.24	23.27	0.63	******	******	******
5	31.25	8.11	0.48	******	******	39.84	6.16	25.09	******	0.48	******
6	14.05	3.06	1.51	1.41	******	20.03	2.14	11.91	******	1.31	0.20
7	4.31	0.93	0.87	3.51	******	9.62	0.53	3.78	******	0.55	0.31
8	2.37	0.12	0.38	1.97	0.04	4.89	0.12	0.87	1.38	0.27	0.11
9	0.23	0.00	0.13	0.64	0.08	1.08	0.02	0.19	0.02	0.04	0.09
10	0.06	0.00	0.01	0.14	0.03	0.24	0.00	0.05	0.01	0.00	0.01
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	76.20	12.56	3.38	7.68	0.17	100.00	32.26	42.53	1.41	2.66	0.72

3. BY MOLAR

3-	0.04	0.00	******	******	******	0.04	0.04	******	******	******	******
4	30.16	0.44	******	******	******	30.60	29.36	0.79	******	******	******
5	31.76	8.49	0.51	******	******	40.76	6.26	25.50	******	0.51	******
6	11.96	2.68	1.32	1.32	******	17.27	1.82	10.13	******	1.14	0.17
7	3.16	0.70	0.65	2.80	******	7.30	0.39	2.77	******	0.41	0.23
8	1.52	0.08	0.25	1.36	0.03	3.24	0.08	0.56	0.89	0.18	0.07
9	0.13	0.00	0.08	0.39	0.05	0.64	0.01	0.11	0.01	0.02	0.05
10	0.03	0.00	0.00	0.08	0.02	0.13	0.00	0.03	0.01	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.01	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	78.76	12.39	2.80	5.95	0.10	100.00	37.96	39.89	0.90	2.26	0.54

GRP. TYPE, VOL %: P = 79.32, O = 12.10, N = 2.89, A = 5.70, Saturates = 82.20
DIENE CONTENT = 925. vol ppm AVG MW = 73.3 API GR. = 86.8 SP. GR. =0.6481
OCTANE NUMBER: (from pure values) RON = 87.4 MON = 83.1
(from blending values) RON = 90.2 MON = 84.1
CARBON-HYDROGEN RATIO =5.335 STOICH. AIR-FUEL RATIO =15.08 lbs air/lbs fuel
BTU/lb = 17850. NET, 19277. GROSS; BTU/gal = 96541. NET, 104260. GROSS
REID VAPOR PRESSURE =24.9 BROMINE NO. = 27.4

* DISTILLATION CURVES

VOL %	TBP	D86
0.	-127.	31.
5.	31.	31.
10.	31.	31.
15.	31.	31.
20.	31.	82.
25.	31.	82.
30.	82.	82.
35.	82.	82.
40.	82.	82.
45.	82.	82.
50.	82.	82.
55.	88.	97.
60.	97.	97.
65.	101.	101.
70.	136.	140.
75.	140.	140.
80.	146.	154.
85.	161.	176.
90.	197.	204.
95.	231.	231.
100.	472.	319.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

6018638 API BASE GASOLINE - DUP 1GASO5
Sample 15 Injection 1

TOTAL UNCORRECTED AREA = 15321901.

NUMBER OF PEAKS READ IN = 247

5-Apr-1996 16:46
6018638 API BASE GASOLINE - DUP 1GASO5
Sample 15 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
3	0.04	0.03	0.02	PROPANE
4	29.36	25.81	23.27	N-BUTANE
6	6.26	6.32	6.16	N-PENTANE
9	1.82	2.09	2.14	N-HEXANE
14	0.39	0.50	0.53	N-HEPTANE
23	0.08	0.11	0.12	N-OCTANE
41	0.01	0.02	0.02	N-NONANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.79	0.72	0.63	ISOBUTANE	
8	0.21	0.22	0.21	NEOPENTANE	
7	25.29	25.81	24.88	ISOPENTANE	
12	0.88	1.02	1.03	22-DIME BUTANE	
13	1.62	1.85	1.90	23-DIME BUTANE	
10	4.96	5.74	5.83	2-ME PENTANE	
11	2.68	3.05	3.15	3-ME PENTANE	
18	0.05	0.06	0.07	22-DIME PENTANE	
20	0.60	0.78	0.82	24-DIME PENTANE	
19	0.89	1.12	1.21	23-DIME PENTANE	
15	0.62	0.80	0.85	2-ME HEXANE	
16	0.61	0.78	0.84	3-ME HEXANE	
37	0.80	1.16	1.25	224-TRIME PENTANE	*
28	0.01	0.01	0.01	22-DIME HEXANE	
36	0.01	0.02	0.02	223-TRIME PENTANE	*
31	0.08	0.11	0.12	25-DIME HEXANE	
30	0.10	0.15	0.16	24-DIME HEXANE	
32	0.01	0.01	0.01	33-DIME HEXANE	
34	0.02	0.03	0.04	2-ME-3-ET PENTANE	
29	0.07	0.10	0.11	23-DIME HEXANE	*
24	0.15	0.21	0.23	2-ME HEPTANE	
26	0.06	0.08	0.09	4-ME HEPTANE	
25	0.13	0.19	0.21	3-ME HEPTANE	
51	0.01	0.02	0.02	244-TRIME HEXANE	
43	0.01	0.02	0.02	235-TRIME HEXANE	*
53	0.01	0.02	0.02	26-DIME HEPTANE	
55	0.02	0.04	0.04	35-DIME HEPTANE	
56	0.01	0.01	0.01	23-DIME HEPTANE	
62	0.01	0.02	0.02	4-ME OCTANE	
60	0.02	0.03	0.03	2-ME OCTANE	
86	0.01	0.02	0.02	4-ME NONANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME

800	0.51	0.42	0.48	CYCLOPENTANE
801	1.14	1.13	1.31	ME CYCLOPENTANE
806	0.13	0.15	0.17	1C3-DIME CYCPENTANE
807	0.14	0.16	0.18	1T3-DIME CYCPENTANE
805	0.08	0.10	0.11	1T2-DIME CYCPENTANE
811	0.02	0.02	0.03	113-TRIME CPENTANE
802	0.06	0.07	0.08	ET CYCLOPENTANE
817	0.03	0.04	0.04	1T2C4TRIME CPENTANE
814	0.01	0.02	0.02	1T2C3TRIME CPENTANE
810	0.01	0.02	0.02	112-TRIME CPENTANE*
848	0.02	0.03	0.04	11C3T4-TETRME CPENT
864	0.02	0.02	0.03	1MEC3ET CYCPENTANE
865	0.02	0.02	0.02	1MET3ET CYCPENTANE
861	0.06	0.08	0.09	1ME-1ET CYCPENTANE
862	0.01	0.01	0.02	1ME-C2ET CYPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.17	0.17	0.20	CYCLOHEXANE
826	0.23	0.26	0.31	ME CYCLOHEXANE
830	0.01	0.01	0.02	1T2-DIME CYCHEXANE
832	0.03	0.03	0.04	1T3-DIME CYCHEXANE
833	0.02	0.02	0.02	1C4-DIME CYCHEXANE
827	0.01	0.01	0.02	ETHYL CYCLOHEXANE
941	0.01	0.02	0.02	1ME-C3ET CYCHEXANE
940	0.01	0.01	0.01	1ME-1-ET CYCHEXANE
943	0.01	0.01	0.01	1M-C4-ET CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.03	0.02	0.02	1-BUTENE
305	0.04	0.03	0.03	ISO-BUTENE
304	0.17	0.14	0.13	TRANS-2-BUTENE
303	0.21	0.17	0.16	C1S-2-BUTENE
310	0.20	0.19	0.19	3-METHYL-1-BUTENE
306	0.71	0.69	0.68	1-PENTENE
309	1.39	1.32	1.33	2-METHYL-1-BUTENE
509	0.04	0.03	0.03	ISOPRENE
308	1.95	1.85	1.86	TRANS-2-PENTENE
327	0.02	0.02	0.02	3,3-DIME BUTENE
307	1.07	1.01	1.03	CIS-2-PENTENE
311	2.73	2.54	2.61	2-METHYL-2-BUTENE
505	0.04	0.03	0.03	T-13-PENTADIENE
530	0.01	0.01	0.01	CYCLOPENTADIENE
504	0.02	0.02	0.02	C-13-PENTADIENE
450	0.33	0.26	0.31	CYCLOPENTENE
323	0.11	0.12	0.12	C-4ME-2-PENTENE
324	0.18	0.20	0.21	T-4ME-2-PENTENE
317	0.28	0.31	0.32	2-ME-1-PENTENE
312	0.15	0.16	0.17	1-HEXENE

315	0.37	0.40	0.42	CIS-3-HEXENE
314	0.42	0.46	0.48	TRANS-2-HEXENE
320	0.43	0.47	0.50	2-METHYL-2-PENTENE
321	0.20	0.22	0.23	C-3ME-2-PENTENE
313	0.20	0.22	0.23	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	0.31	0.29	0.35	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	0.06	2-ME-T3-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	0.06	0.06	0.08	C-7 CYCLOPENTENE A
5371	0.05	0.05	0.06	C-7 CYCLOPENTENE B
2042	0.05	0.06	0.06	T3-HEPTENE
2025	0.06	0.07	0.08	2-ME-2-HEXENE
2034	0.08	0.10	0.11	3-ME-C3-HEXENE
2018	0.07	0.08	0.09	3-ET-2-PENTENE
2008	0.05	0.06	0.07	23-DIME-C2-PENTENE
2039	0.04	0.04	0.05	CIS-2-HEPTENE
4532	0.00	0.01	0.01	OCTENE H
4528	0.01	0.02	0.02	OCTENE D
4533	0.01	0.01	0.01	OCTENE I
4534	0.01	0.01	0.01	OCTENE J
2193	0.02	0.03	0.03	1-OCTENE
2198	0.01	0.02	0.02	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.32	1.03	1.41	BENZENE	
601	2.80	2.61	3.51	TOLUENE	
602	0.32	0.34	0.46	ETHYLBENZENE	
604	0.55	0.59	0.79	M-XYLENE	
605	0.22	0.24	0.32	P-XYLENE	
603	0.27	0.29	0.39	O-XYLENE	*
607	0.01	0.01	0.01	CUMENE	
644	0.03	0.04	0.06	N-PROPYL BENZENE	
609	0.09	0.11	0.15	1-ME-3-ET BENZENE	
610	0.04	0.05	0.07	1-ME-4-ET BENZENE	
613	0.04	0.05	0.07	135-TRIME BENZENE	
608	0.03	0.03	0.04	1-ME-2-ET BENZENE	*
612	0.11	0.14	0.18	124-TRIME BENZENE	*
611	0.02	0.03	0.03	123-TRIME BENZENE	*
650	0.01	0.01	0.02	INDAN	*
647	0.01	0.01	0.02	1-ME-3-PR BENZENE	

648	0.01	0.01	0.01	1-ME-4-PR BENZENE
651	0.01	0.01	0.02	12-DIET BENZENE *
656	0.01	0.01	0.01	12-DIME4ET BENZENE *

UNCLASSIFIED HCS

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

CHEVRON RESEARCH GASOLINE ANALYSIS

Headspace

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Sample Name: 6012720 API BLEND #1 GASOLINE/MTBE Customer: CARR
Acquisition Date: 1-Apr-1996 Acquisition Time: 12:43
Channel #: 1 Analysis: GASO5 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-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	20.72	0.27	******	******	******	20.99	20.17	0.55	******	******	******
5	25.88	6.31	0.34	******	******	51.88	5.08	20.81	******	0.34	******
6	11.06	2.19	1.05	0.82	******	15.13	1.69	9.38	******	0.92	0.14
7	3.36	0.75	0.64	2.30	******	7.05	0.42	2.94	******	0.41	0.23
8	1.96	0.11	0.29	1.46	0.04	3.85	0.10	0.74	1.11	0.21	0.08
9	0.20	0.00	0.11	0.48	0.06	0.86	0.02	0.16	0.02	0.03	0.08
10	0.05	0.00	0.00	0.11	0.03	0.19	0.00	0.04	0.01	0.00	0.00
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	63.26	9.63	2.44	5.18	19.50	100.00	27.49	34.63	1.14	1.91	0.53

2. BY WEIGHT

3-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	18.15	0.25	******	******	******	18.41	17.69	0.47	******	******	******
5	24.31	6.28	0.38	******	******	52.18	4.81	19.51	******	0.38	******
6	11.00	2.30	1.20	1.09	******	15.58	1.68	9.31	******	1.04	0.16
7	3.47	0.81	0.73	3.01	******	8.02	0.43	3.04	******	0.47	0.27
8	2.06	0.11	0.34	1.91	0.05	4.47	0.11	0.79	1.16	0.25	0.09
9	0.22	0.00	0.13	0.64	0.07	1.05	0.02	0.18	0.02	0.04	0.09
10	0.06	0.00	0.00	0.14	0.03	0.24	0.00	0.05	0.01	0.00	0.00
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	59.30	9.75	2.79	6.80	21.37	100.00	24.76	33.34	1.19	2.17	0.62

3. BY MOLAR

3-	0.03	0.00	******	******	******	0.03	0.03	******	******	******	******
4	22.96	0.33	******	******	******	23.29	22.37	0.59	******	******	******
5	24.77	6.59	0.40	******	******	53.37	4.90	19.87	******	0.40	******
6	9.38	2.01	1.05	1.03	******	13.46	1.44	7.94	******	0.91	0.14
7	2.55	0.61	0.55	2.40	******	6.10	0.32	2.23	******	0.35	0.20
8	1.33	0.07	0.22	1.32	0.03	2.98	0.07	0.51	0.75	0.16	0.06
9	0.12	0.00	0.07	0.39	0.04	0.63	0.01	0.10	0.01	0.02	0.05
10	0.03	0.00	0.00	0.08	0.02	0.13	0.00	0.02	0.01	0.00	0.00
11	0.00	0.00	0.00	0.01	0.00	0.01	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	61.17	9.61	2.29	5.22	21.70	100.00	29.13	31.27	0.76	1.84	0.46

GRP. TYPE, VOL %: P = 78.58, O = 11.96, N = 3.03, A = 6.43, Saturates = 81.61
DIENE CONTENT = 703. vol ppm AVG MW = 73.5 API GR. = 80.9 SP. GR. =0.6661
OCTANE NUMBER: (from pure values) RON = 91.9 MON = 85.9
(from blending values) RON = 94.1 MON = 86.7
CARBON-HYDROGEN RATIO =5.276 STOICH. AIR-FUEL RATIO =15.11 lbs air/lbs fuel
BTU/lb = 17904. NET, 19306. GROSS; BTU/gal = 99526. NET, 107323. GROSS
REID VAPOR PRESSURE =20.8 BROMINE NO. = 21.2

1-Apr-1996 12:43
6012720 API BLEND #1 GASOLINE/MTBE 1GASO5
Sample 1 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	-127.	31.
5.	31.	31.
10.	31.	82.
15.	31.	82.
20.	31.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	97.
45.	97.	97.
50.	97.	111.
55.	130.	130.
60.	130.	130.
65.	130.	130.
70	130.	130.
75	136.	140.
80	144.	146.
85.	156.	161.
90.	194.	197.
95.	231.	231.
100.	472.	319.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

1-Apr-1996 12:43
6012720 API BLEND #1 GASOLINE/MTBE 1GASO5
Sample 1 Injection 1

TOTAL UNCORRECTED AREA = 12015542.

NUMBER OF PEAKS READ IN = 244

1-Apr-1996 12:43
6012720 API BLEND #1 GASOLINE/MTBE 1GASO5
Sample 1 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
3	0.03	0.02	0.02	PROPANE
4	22.37	20.17	17.69	N-BUTANE
6	4.90	5.08	4.81	N-PENTANE
9	1.44	1.69	1.68	N-HEXANE
14	0.32	0.42	0.43	N-HEPTANE
23	0.07	0.10	0.11	N-OCTANE
41	0.01	0.02	0.02	N-NONANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.59	0.55	0.47	ISOBUTANE	
8	0.16	0.18	0.16	NEOPENTANE	
7	19.71	20.63	19.34	ISOPENTANE	
12	0.69	0.82	0.80	22-DIME BUTANE	
13	1.27	1.49	1.49	23-DIME BUTANE	
10	3.89	4.62	4.56	2-ME PENTANE	
11	2.10	2.45	2.46	3-ME PENTANE	
18	0.04	0.05	0.05	22-DIME PENTANE	
20	0.48	0.64	0.65	24-DIME PENTANE	
19	0.72	0.93	0.98	23-DIME PENTANE	
15	0.50	0.66	0.68	2-ME HEXANE	
16	0.50	0.66	0.68	3-ME HEXANE	
37	0.67	1.00	1.04	224-TRIME PENTANE	*
28	0.01	0.01	0.01	22-DIME HEXANE	
36	0.01	0.02	0.02	223-TRIME PENTANE	*
31	0.07	0.10	0.10	25-DIME HEXANE	
30	0.09	0.14	0.14	24-DIME HEXANE	
32	0.01	0.01	0.01	33-DIME HEXANE	
34	0.02	0.03	0.03	2-ME-3-ET PENTANE	
29	0.06	0.09	0.10	23-DIME HEXANE	*
24	0.13	0.20	0.21	2-ME HEPTANE	
26	0.05	0.08	0.09	4-ME HEPTANE	
25	0.12	0.18	0.19	3-ME HEPTANE	
51	0.01	0.02	0.02	244-TRIME HEXANE	
43	0.01	0.02	0.02	235-TRIME HEXANE	*
53	0.01	0.02	0.02	26-DIME HEPTANE	
55	0.02	0.04	0.04	35-DIME HEPTANE	
56	0.01	0.01	0.01	23-DIME HEPTANE	
62	0.01	0.02	0.02	4-ME OCTANE	
60	0.02	0.03	0.03	2-ME OCTANE	
86	0.01	0.02	0.02	4-ME NONANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME

800	0.40	0.34	0.38	CYCLOPENTANE
801	0.91	0.92	1.04	ME CYCLOPENTANE
806	0.11	0.13	0.15	1C3-DIME CYCPENTANE
807	0.11	0.13	0.15	1T3-DIME CYCPENTANE
805	0.07	0.08	0.09	1T2-DIME CYCPENTANE
811	0.01	0.02	0.02	113-TRIME CPENTANE
802	0.05	0.06	0.07	ET CYCLOPENTANE
817	0.03	0.03	0.04	1T2C4TRIME CPENTANE
814	0.01	0.02	0.02	1T2C3TRIME CPENTANE
810	0.01	0.02	0.02	112-TRIME CPENTANE*
848	0.02	0.03	0.04	11C3T4-TETRME CPENT
864	0.02	0.02	0.03	1MEC3ET CYCPENTANE
865	0.01	0.02	0.02	1MET3ET CYCPENTANE
861	0.06	0.07	0.09	1ME-1ET CYCPENTANE
862	0.01	0.01	0.02	1ME-C2ET CYPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.14	0.14	0.16	CYCLOHEXANE
826	0.20	0.23	0.27	ME CYCLOHEXANE
830	0.01	0.01	0.02	1T2-DIME CYCHEXANE
832	0.02	0.03	0.03	1T3-DIME CYCHEXANE
833	0.01	0.02	0.02	1C4-DIME CYCHEXANE
827	0.01	0.01	0.02	ETHYL CYCLOHEXANE
940	0.01	0.01	0.01	1ME-1-ET CYCHEXANE
943	0.01	0.01	0.01	1M-C4-ET CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.02	0.02	0.02	1-BUTENE
305	0.02	0.02	0.02	ISO-BUTENE
304	0.12	0.10	0.09	TRANS-2-BUTENE
303	0.16	0.13	0.12	C1S-2-BUTENE
310	0.15	0.15	0.14	3-METHYL-1-BUTENE
306	0.55	0.54	0.53	1-PENTENE
309	1.08	1.05	1.03	2-METHYL-1-BUTENE
509	0.03	0.02	0.02	ISOPRENE
308	1.51	1.47	1.44	TRANS-2-PENTENE
327	0.01	0.02	0.02	3,3-DIME BUTENE
307	0.83	0.80	0.80	CIS-2-PENTENE
311	2.12	2.02	2.03	2-METHYL-2-BUTENE
505	0.03	0.03	0.03	T-13-PENTADIENE
530	0.01	0.01	0.01	CYCLOPENTADIENE
504	0.01	0.01	0.01	C-13-PENTADIENE
450	0.26	0.21	0.24	CYCLOPENTENE
324	0.14	0.16	0.16	T-4ME-2-PENTENE
317	0.22	0.24	0.25	2-ME-1-PENTENE
312	0.11	0.13	0.13	1-HEXENE
315	0.29	0.32	0.33	CIS-3-HEXENE
314	0.33	0.37	0.38	TRANS-2-HEXENE

320	0.32	0.36	0.37	2-METHYL-2-PENTENE
321	0.17	0.19	0.20	C-3ME-2-PENTENE
313	0.16	0.17	0.18	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	0.25	0.24	0.28	1-ME CYLCOPENTENE
2004	0.01	0.02	0.02	24-DIME-1-PENTENE
403	0.01	0.01	0.01	HEPTENES
2003	0.01	0.02	0.02	23-DIME-1-PENTENE
2024	0.01	0.01	0.01	5-ME-1-HEXENE
2009	0.02	0.02	0.02	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
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	0.05	0.06	C-7 CYCLOPENTENE A
5371	0.04	0.04	0.05	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	0.07	0.08	0.09	3-ME-C3-HEXENE
2040	0.06	0.07	0.08	TRANS-2-HEPTENE
2008	0.04	0.05	0.06	23-DIME-C2-PENTENE
2039	0.03	0.04	0.04	CIS-2-HEPTENE
4532	0.00	0.01	0.01	OCTENE H
4528	0.01	0.02	0.02	OCTENE D
4533	0.01	0.01	0.01	OCTENE I
4534	0.01	0.01	0.01	OCTENE J
2193	0.02	0.03	0.03	1-OCTENE
2198	0.01	0.02	0.02	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.03	0.82	1.09	BENZENE	
601	2.40	2.30	3.01	TOLUENE	
602	0.31	0.34	0.44	ETHYLBENZENE	
604	0.51	0.57	0.74	M-XYLENE	
605	0.23	0.26	0.34	P-XYLENE	
603	0.27	0.29	0.39	O-XYLENE	*
607	0.01	0.01	0.01	CUMENE	
644	0.03	0.04	0.06	N-PROPYL BENZENE	
609	0.10	0.12	0.16	1-ME-3-ET BENZENE	
610	0.04	0.05	0.07	1-ME-4-ET BENZENE	
613	0.04	0.05	0.07	135-TRIME BENZENE	
608	0.03	0.03	0.04	1-ME-2-ET BENZENE	*
612	0.11	0.14	0.19	124-TRIME BENZENE	*
611	0.02	0.02	0.03	123-TRIME BENZENE	*
650	0.01	0.01	0.02	INDAN	*
647	0.01	0.01	0.02	1-ME-3-PR BENZENE	
648	0.01	0.01	0.01	1-ME-4-PR BENZENE	

651	0.01	0.01	0.02	12-DIET BENZENE *
656	0.01	0.01	0.01	12-DIME4ET BENZENE *

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1412	21.61	19.36	21.21	2-ME-2METHOXYPROPANE
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

Headspace - duplicate

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Sample Name: 6012720 API BLEND #1 GASOLINE/MTBE DUP Customer: CARR
Acquisition Date: 1-Apr-1996 Acquisition Time: 17:46
Channel #: 1 Analysis: GASO5 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-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	20.66	0.28	******	******	******	20.93	20.11	0.55	******	******	******
5	25.87	6.31	0.34	******	******	51.83	5.07	20.80	******	0.34	******
6	11.02	2.20	1.06	0.82	******	15.10	1.69	9.33	******	0.92	0.14
7	3.40	0.73	0.64	2.33	******	7.10	0.42	2.98	******	0.41	0.23
8	1.98	0.11	0.30	1.50	0.04	3.93	0.11	0.75	1.12	0.22	0.08
9	0.21	0.00	0.12	0.49	0.05	0.87	0.02	0.17	0.02	0.03	0.08
10	0.06	0.00	0.00	0.10	0.03	0.19	0.00	0.05	0.01	0.00	0.00
11	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.01	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	63.23	9.62	2.45	5.26	19.45	100.00	27.45	34.63	1.15	1.91	0.54

2. BY WEIGHT

3-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	18.10	0.26	******	******	******	18.35	17.63	0.46	******	******	******
5	24.30	6.28	0.38	******	******	52.11	4.81	19.49	******	0.38	******
6	10.95	2.30	1.20	1.09	******	15.54	1.69	9.26	******	1.04	0.16
7	3.51	0.79	0.73	3.05	******	8.08	0.44	3.08	******	0.46	0.27
8	2.09	0.11	0.34	1.97	0.05	4.56	0.12	0.80	1.17	0.25	0.09
9	0.23	0.00	0.14	0.65	0.06	1.08	0.02	0.19	0.02	0.04	0.10
10	0.06	0.00	0.01	0.14	0.04	0.24	0.00	0.05	0.01	0.00	0.01
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	59.26	9.74	2.80	6.90	21.31	100.00	24.72	33.34	1.20	2.17	0.63

3. BY MOLAR

3-	0.03	0.00	******	******	******	0.03	0.03	******	******	******	******
4	22.90	0.33	******	******	******	23.23	22.31	0.59	******	******	******
5	24.77	6.59	0.40	******	******	53.33	4.90	19.87	******	0.40	******
6	9.35	2.02	1.05	1.03	******	13.44	1.44	7.91	******	0.91	0.14
7	2.58	0.59	0.55	2.44	******	6.15	0.32	2.26	******	0.34	0.20
8	1.34	0.08	0.23	1.36	0.03	3.04	0.07	0.51	0.75	0.16	0.06
9	0.13	0.00	0.08	0.40	0.04	0.64	0.01	0.11	0.01	0.02	0.06
10	0.03	0.00	0.00	0.07	0.02	0.13	0.00	0.03	0.01	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.01	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	61.13	9.61	2.30	5.30	21.66	100.00	29.09	31.27	0.77	1.84	0.47

GRP. TYPE, VOL %: P = 78.49, O = 11.94, N = 3.04, A = 6.52, Saturates = 81.53
DIENE CONTENT = 717. vol ppm AVG MW = 73.5 API GR. = 80.8 SP. GR. =0.6664
OCTANE NUMBER: (from pure values) RON = 91.9 MON = 85.9
(from blending values) RON = 94.1 MON = 86.7
CARBON-HYDROGEN RATIO =5.280 STOICH. AIR-FUEL RATIO =15.11 lbs air/lbs fuel
BTU/lb = 17885. NET, 19286. GROSS; BTU/gal = 99453. NET, 107244. GROSS
REID VAPOR PRESSURE =20.8 BROMINE NO. = 21.2

1-Apr-1996 17:46
6012720 API BLEND #1 GASOLINE/MTBE DUP 1GASO5
Sample 3 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	-127.	31.
5.	31.	31.
10.	31.	82.
15.	31.	82.
20.	31.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	97.
45.	97.	97.
50.	97.	112.
55.	130.	130.
60.	130.	130.
65.	130.	130.
70.	130.	130.
75.	136.	140.
80.	144.	146.
85.	156.	161.
90.	194.	197.
95.	231.	231.
100.	472.	319.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

1-Apr-1996 17:46
6012720 API BLEND #1 GASOLINE/MTBE DUP 1GASO5
Sample 3 Injection 1

TOTAL UNCORRECTED AREA = 14690884.

NUMBER OF PEAKS READ IN = 243

1-Apr-1996 17:46
6012720 API BLEND #1 GASOLINE/MTBE DUP 1GASO5
Sample 3 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
3	0.03	0.02	0.02	PROPANE
4	22.31	20.11	17.63	N-BUTANE
6	4.90	5.07	4.81	N-PENTANE
9	1.44	1.69	1.69	N-HEXANE
14	0.32	0.42	0.44	N-HEPTANE
23	0.07	0.11	0.12	N-OCTANE
41	0.01	0.02	0.02	N-NONANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.59	0.55	0.46	ISOBUTANE	
8	0.16	0.18	0.16	NEOPENTANE	
7	19.71	20.62	19.33	ISOPENTANE	
12	0.69	0.82	0.80	22-DIME BUTANE	
13	1.27	1.49	1.49	23-DIME BUTANE	
10	3.85	4.57	4.51	2-ME PENTANE	
11	2.10	2.45	2.46	3-ME PENTANE	
18	0.04	0.05	0.05	22-DIME PENTANE	
20	0.48	0.64	0.65	24-DIME PENTANE	
19	0.72	0.94	0.99	23-DIME PENTANE	
15	0.51	0.68	0.70	2-ME HEXANE	
16	0.50	0.66	0.69	3-ME HEXANE	
37	0.68	1.00	1.05	224-TRIME PENTANE	*
28	0.01	0.01	0.01	22-DIME HEXANE	
36	0.01	0.02	0.02	223-TRIME PENTANE	*
31	0.07	0.10	0.10	25-DIME HEXANE	
30	0.09	0.14	0.15	24-DIME HEXANE	
32	0.01	0.01	0.01	33-DIME HEXANE	
34	0.02	0.03	0.03	2-ME-3-ET PENTANE	
29	0.06	0.09	0.10	23-DIME HEXANE	*
24	0.14	0.20	0.21	2-ME HEPTANE	
26	0.06	0.08	0.09	4-ME HEPTANE	
25	0.13	0.18	0.19	3-ME HEPTANE	
51	0.01	0.02	0.02	244-TRIME HEXANE	
43	0.01	0.02	0.02	235-TRIME HEXANE	*
53	0.01	0.02	0.02	26-DIME HEPTANE	
55	0.02	0.04	0.04	35-DIME HEPTANE	
56	0.01	0.01	0.01	23-DIME HEPTANE	
62	0.01	0.02	0.02	4-ME OCTANE	
60	0.02	0.03	0.03	2-ME OCTANE	
86	0.01	0.02	0.02	4-ME NONANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME

800	0.40	0.34	0.38	CYCLOPENTANE
801	0.91	0.92	1.04	ME CYCLOPENTANE
806	0.11	0.13	0.15	1C3-DIME CYCPENTANE
807	0.11	0.13	0.15	1T3-DIME CYCPENTANE
805	0.07	0.08	0.09	1T2-DIME CYCPENTANE
811	0.01	0.02	0.02	113-TRIME CPENTANE
802	0.05	0.06	0.07	ET CYCLOPENTANE
817	0.03	0.03	0.04	1T2C4TRIME CPENTANE
814	0.01	0.02	0.02	1T2C3TRIME CPENTANE
810	0.01	0.01	0.02	112-TRIME CPENTANE*
848	0.02	0.03	0.04	11C3T4-TETRME CPENT
864	0.02	0.02	0.03	1MEC3ET CYCPENTANE
865	0.01	0.02	0.02	1MET3ET CYCPENTANE
861	0.06	0.08	0.09	1ME-1ET CYCPENTANE
862	0.01	0.01	0.02	1ME-C2ET CYPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.14	0.14	0.16	CYCLOHEXANE
826	0.20	0.23	0.27	ME CYCLOHEXANE
830	0.01	0.01	0.02	1T2-DIME CYCHEXANE
832	0.02	0.02	0.03	1T3-DIME CYCHEXANE
833	0.01	0.02	0.02	1C4-DIME CYCHEXANE
827	0.01	0.01	0.02	ETHYL CYCLOHEXANE
941	0.01	0.02	0.02	1ME-C3ET CYCHEXANE
940	0.01	0.01	0.01	1ME-1-ET CYCHEXANE
943	0.01	0.02	0.02	1M-C4-ET CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.02	0.02	0.02	1-BUTENE
305	0.02	0.02	0.02	ISO-BUTENE
304	0.13	0.10	0.10	TRANS-2-BUTENE
303	0.16	0.13	0.12	C1S-2-BUTENE
310	0.15	0.15	0.14	3-METHYL-1-BUTENE
306	0.55	0.54	0.53	1-PENTENE
309	1.08	1.04	1.03	2-METHYL-1-BUTENE
509	0.03	0.02	0.03	ISOPRENE
308	1.51	1.47	1.44	TRANS-2-PENTENE
327	0.01	0.02	0.02	3,3-DIME BUTENE
307	0.83	0.80	0.80	CIS-2-PENTENE
311	2.12	2.02	2.03	2-METHYL-2-BUTENE
505	0.03	0.03	0.03	T-13-PENTADIENE
530	0.01	0.01	0.01	CYCLOPENTADIENE
504	0.01	0.01	0.01	C-13-PENTADIENE
450	0.26	0.21	0.24	CYCLOPENTENE
324	0.14	0.16	0.16	T-4ME-2-PENTENE
317	0.22	0.24	0.25	2-ME-1-PENTENE
312	0.11	0.13	0.13	1-HEXENE
315	0.29	0.32	0.33	CIS-3-HEXENE

314	0.33	0.37	0.38	TRANS-2-HEXENE
320	0.33	0.36	0.37	2-METHYL-2-PENTENE
321	0.17	0.19	0.20	C-3ME-2-PENTENE
313	0.16	0.17	0.18	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	0.25	0.24	0.28	1-ME CYLCOPENTENE
2004	0.01	0.02	0.02	24-DIME-1-PENTENE
403	0.01	0.01	0.01	HEPTENES
2003	0.01	0.02	0.02	23-DIME-1-PENTENE
2024	0.01	0.01	0.01	5-ME-1-HEXENE
2009	0.02	0.02	0.02	24-DIME-CIS2-PENTENE
403	0.01	0.01	0.01	HEPTENES
2033	0.04	0.05	0.05	2-ME-T3-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	0.05	0.05	0.06	C-7 CYCLOPENTENE A
5371	0.04	0.04	0.05	C-7 CYCLOPENTENE B
2042	0.05	0.06	0.07	T3-HEPTENE
2025	0.05	0.06	0.07	2-ME-2-HEXENE
2034	0.07	0.08	0.09	3-ME-C3-HEXENE
2040	0.06	0.08	0.08	TRANS-2-HEPTENE
2008	0.04	0.05	0.06	23-DIME-C2-PENTENE
2039	0.03	0.04	0.04	CIS-2-HEPTENE
4532	0.00	0.01	0.01	OCTENE H
4528	0.01	0.02	0.02	OCTENE D
4533	0.01	0.01	0.01	OCTENE I
4534	0.01	0.01	0.01	OCTENE J
2193	0.02	0.03	0.03	1-OCTENE
2198	0.01	0.02	0.02	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.03	0.82	1.09	BENZENE	
601	2.44	2.33	3.05	TOLUENE	
602	0.31	0.35	0.45	ETHYLBENZENE	
604	0.54	0.60	0.78	M-XYLENE	
605	0.23	0.25	0.33	P-XYLENE	
603	0.28	0.30	0.40	O-XYLENE	*
607	0.01	0.01	0.01	CUMENE	
644	0.04	0.04	0.06	N-PROPYL BENZENE	
609	0.10	0.12	0.16	1-ME-3-ET BENZENE	
610	0.04	0.05	0.07	1-ME-4-ET BENZENE	
613	0.04	0.05	0.07	135-TRIME BENZENE	
608	0.03	0.03	0.04	1-ME-2-ET BENZENE	*
612	0.12	0.14	0.19	124-TRIME BENZENE	*
611	0.02	0.02	0.03	123-TRIME BENZENE	*
650	0.01	0.01	0.02	INDAN	*
647	0.01	0.01	0.02	1-ME-3-PR BENZENE	
648	0.01	0.01	0.01	1-ME-4-PR BENZENE	

651	0.01	0.01	0.02	12-DIET BENZENE *

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1412	21.57	19.31	21.16	2-ME-2METHOXYPROPANE
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

Headspace

Sample Name: 6012721 API BLEND #2 GASOLINE/TAME Customer: CARR
Acquisition Date: 2-Apr-1996 Acquisition Time: 11:01
Channel #: 1 Analysis: GASO5 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-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	22.93	0.30	******	******	******	23.23	22.32	0.61	******	******	******
5	28.62	6.99	0.37	******	******	35.99	5.61	23.02	******	0.37	******
6	12.28	2.55	1.17	0.92	******	27.49	1.88	10.40	******	1.02	0.15
7	3.78	0.83	0.71	2.56	******	7.88	0.47	3.31	******	0.45	0.26
8	2.19	0.11	0.34	1.60	0.03	4.27	0.12	0.83	1.24	0.24	0.10
9	0.22	0.00	0.12	0.51	0.06	0.91	0.02	0.18	0.02	0.04	0.09
10	0.05	0.00	0.00	0.10	0.03	0.19	0.00	0.04	0.01	0.00	0.00
11	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	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	70.11	10.79	2.72	5.69	10.69	100.00	30.44	38.39	1.27	2.12	0.60

2. BY WEIGHT

3-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	20.18	0.28	******	******	******	20.46	19.66	0.52	******	******	******
5	27.00	6.99	0.42	******	******	34.41	5.34	21.66	******	0.42	******
6	12.26	2.68	1.34	1.22	******	29.76	1.88	10.38	******	1.16	0.18
7	3.93	0.90	0.82	3.36	******	9.00	0.49	3.43	******	0.51	0.31
8	2.31	0.12	0.39	2.10	0.04	4.97	0.13	0.88	1.31	0.28	0.11
9	0.24	0.00	0.15	0.67	0.07	1.13	0.02	0.19	0.02	0.04	0.11
10	0.06	0.00	0.01	0.13	0.04	0.24	0.00	0.05	0.01	0.00	0.01
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	66.00	10.97	3.13	7.50	12.41	100.00	27.53	37.12	1.34	2.42	0.71

3. BY MOLAR

3-	0.03	0.00	******	******	******	0.03	0.03	******	******	******	******
4	26.10	0.38	******	******	******	26.48	25.43	0.67	******	******	******
5	28.14	7.50	0.45	******	******	36.10	5.56	22.58	******	0.45	******
6	10.70	2.40	1.20	1.17	******	26.17	1.64	9.06	******	1.04	0.16
7	2.95	0.69	0.63	2.74	******	7.01	0.37	2.58	******	0.39	0.23
8	1.52	0.08	0.26	1.49	0.02	3.38	0.08	0.58	0.86	0.19	0.08
9	0.14	0.00	0.09	0.42	0.04	0.69	0.01	0.11	0.01	0.02	0.06
10	0.03	0.00	0.00	0.08	0.02	0.13	0.00	0.02	0.01	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.01	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	69.62	11.05	2.63	5.91	10.79	100.00	33.13	35.61	0.88	2.09	0.54

GRP. TYPE, VOL %: P = 78.50, O = 12.08, N = 3.05, A = 6.37, Saturates = 81.55
DIENE CONTENT = 780. vol ppm AVG MW = 75.2 API GR. = 81.8 SP. GR. =0.6634
OCTANE NUMBER: (from pure values) RON = 89.1 MON = 83.7
(from blending values) RON = 91.6 MON = 84.6
CARBON-HYDROGEN RATIO =5.332 STOICH. AIR-FUEL RATIO =15.08 lbs air/lbs fuel
BTU/lb = 17810. NET, 19213. GROSS; BTU/gal = 98593. NET, 106360. GROSS
REID VAPOR PRESSURE =22.3 BROMINE NO. = 23.8

CHEVRON RESEARCH GASOLINE ANALYSIS
2-Apr-1996 11:01
6012721 API BLEND #2 GASOLINE/TAME 1GASO5
Sample 4 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	-127.	31.
5.	31.	31.
10.	31.	34.
15.	31.	82.
20.	31.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	82.
45.	82.	97.
50.	97.	97.
55.	97.	101.
60.	122.	138.
65.	140.	140.
70.	146.	153.
75.	168.	176.
80.	187.	187.
85.	187.	187.
90.	197.	204.
95.	231.	231.
100.	466.	319.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

2-Apr-1996 11:01
6012721 API BLEND #2 GASOLINE/TAME 1GASO5
Sample 4 Injection 1

TOTAL UNCORRECTED AREA = 10901414.

NUMBER OF PEAKS READ IN = 236

2-Apr-1996 11:01
6012721 API BLEND #2 GASOLINE/TAME 1GASO5
Sample 4 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
3	0.03	0.02	0.02	PROPANE
4	25.43	22.32	19.66	N-BUTANE
6	5.56	5.61	5.34	N-PENTANE
9	1.64	1.88	1.88	N-HEXANE
14	0.37	0.47	0.49	N-HEPTANE
23	0.08	0.12	0.13	N-OCTANE
41	0.01	0.02	0.02	N-NONANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.67	0.61	0.52	ISOBUTANE	
8	0.18	0.20	0.18	NEOPENTANE	
7	22.40	22.82	21.49	ISOPENTANE	
12	0.78	0.91	0.89	22-DIME BUTANE	
13	1.44	1.65	1.65	23-DIME BUTANE	
10	4.43	5.12	5.08	2-ME PENTANE	
11	2.40	2.72	2.75	3-ME PENTANE	
18	0.04	0.06	0.06	22-DIME PENTANE	
20	0.55	0.72	0.73	24-DIME PENTANE	
19	0.83	1.05	1.10	23-DIME PENTANE	
15	0.58	0.75	0.78	2-ME HEXANE	
16	0.57	0.73	0.76	3-ME HEXANE	
37	0.77	1.12	1.18	224-TRIME PENTANE	*
28	0.01	0.01	0.01	22-DIME HEXANE	
36	0.01	0.02	0.02	223-TRIME PENTANE	*
31	0.07	0.11	0.11	25-DIME HEXANE	
30	0.11	0.15	0.16	24-DIME HEXANE	
32	0.01	0.01	0.01	33-DIME HEXANE	
34	0.02	0.03	0.04	2-ME-3-ET PENTANE	
29	0.07	0.10	0.11	23-DIME HEXANE	*
24	0.15	0.22	0.23	2-ME HEPTANE	
26	0.06	0.09	0.10	4-ME HEPTANE	
25	0.14	0.20	0.21	3-ME HEPTANE	
51	0.01	0.02	0.02	244-TRIME HEXANE	
43	0.01	0.02	0.02	235-TRIME HEXANE	*
53	0.01	0.02	0.02	26-DIME HEPTANE	
55	0.02	0.03	0.04	35-DIME HEPTANE	
56	0.01	0.01	0.01	23-DIME HEPTANE	
62	0.01	0.02	0.02	4-ME OCTANE	
60	0.02	0.03	0.04	2-ME OCTANE	
86	0.01	0.02	0.02	4-ME NONANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME

800	0.45	0.37	0.42	CYCLOPENTANE
801	1.04	1.02	1.16	ME CYCLOPENTANE
806	0.13	0.15	0.17	1C3-DIME CYCPENTANE
807	0.11	0.13	0.15	1T3-DIME CYCPENTANE
805	0.09	0.10	0.11	1T2-DIME CYCPENTANE
811	0.02	0.02	0.02	113-TRIME CPENTANE
802	0.06	0.07	0.08	ET CYCLOPENTANE
817	0.03	0.04	0.04	1T2C4TRIME CPENTANE
814	0.01	0.02	0.02	1T2C3TRIME CPENTANE
810	0.01	0.02	0.02	112-TRIME CPENTANE*
848	0.02	0.03	0.04	11C3T4-TETRME CPENT
864	0.02	0.02	0.03	1MEC3ET CYCPENTANE
865	0.02	0.02	0.02	1MET3ET CYCPENTANE
861	0.07	0.08	0.10	1ME-1ET CYCPENTANE
862	0.01	0.01	0.02	1ME-C2ET CYPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.16	0.15	0.18	CYCLOHEXANE
826	0.23	0.26	0.31	ME CYCLOHEXANE
830	0.01	0.02	0.02	1T2-DIME CYCHEXANE
832	0.03	0.04	0.04	1T3-DIME CYCHEXANE
833	0.02	0.02	0.02	1C4-DIME CYCHEXANE
827	0.01	0.02	0.02	ETHYL CYCLOHEXANE
941	0.02	0.02	0.03	1ME-C3ET CYCHEXANE
940	0.01	0.01	0.02	1ME-1-ET CYCHEXANE
943	0.01	0.02	0.02	1M-C4-ET 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	0.11	0.11	TRANS-2-BUTENE
303	0.19	0.15	0.14	C1S-2-BUTENE
310	0.17	0.16	0.16	3-METHYL-1-BUTENE
306	0.63	0.60	0.59	1-PENTENE
309	1.23	1.16	1.15	2-METHYL-1-BUTENE
509	0.03	0.03	0.03	ISOPRENE
308	1.72	1.63	1.61	TRANS-2-PENTENE
327	0.02	0.02	0.02	3,3-DIME BUTENE
307	0.95	0.89	0.89	CIS-2-PENTENE
311	2.42	2.24	2.25	2-METHYL-2-BUTENE
505	0.03	0.03	0.03	T-13-PENTADIENE
530	0.01	0.01	0.01	CYCLOPENTADIENE
504	0.02	0.01	0.01	C-13-PENTADIENE
450	0.30	0.23	0.27	CYCLOPENTENE
323	0.10	0.11	0.11	C-4ME-2-PENTENE
324	0.16	0.18	0.18	T-4ME-2-PENTENE
317	0.25	0.27	0.28	2-ME-1-PENTENE
312	0.13	0.14	0.15	1-HEXENE

315	0.33	0.36	0.37	CIS-3-HEXENE
314	0.38	0.41	0.42	TRANS-2-HEXENE
320	0.37	0.40	0.41	2-METHYL-2-PENTENE
321	0.20	0.21	0.23	C-3ME-2-PENTENE
313	0.18	0.19	0.20	CIS-2-HEXENE
2005	0.01	0.01	0.01	33-DIME-1-PENTENE
4500	0.01	0.01	0.01	HEPTENE A
2011	0.02	0.03	0.03	44-DIME-C2-PENTENE
451	0.29	0.27	0.31	1-ME CYLCOPENTENE
2004	0.02	0.02	0.02	24-DIME-1-PENTENE
403	0.01	0.01	0.01	HEPTENES
2003	0.01	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
2030	0.02	0.02	0.02	5-ME-C2-HEXENE
2010	0.01	0.02	0.02	34-DIME-C2-PENTENE
2038	0.04	0.06	0.06	1-HEPTENE
2035	0.03	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	0.06	0.06	T3-HEPTENE
2025	0.06	0.07	0.08	2-ME-2-HEXENE
2034	0.08	0.09	0.10	3-ME-C3-HEXENE
2040	0.07	0.08	0.09	TRANS-2-HEPTENE
2008	0.05	0.06	0.06	23-DIME-C2-PENTENE
2039	0.03	0.03	0.04	CIS-2-HEPTENE
4532	0.00	0.01	0.01	OCTENE H
4528	0.02	0.02	0.02	OCTENE D
4533	0.01	0.01	0.01	OCTENE I
4534	0.01	0.01	0.01	OCTENE J
2193	0.02	0.02	0.03	1-OCTENE
2198	0.01	0.02	0.02	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.17	0.92	1.22	BENZENE	
601	2.74	2.56	3.36	TOLUENE	
602	0.35	0.37	0.49	ETHYLBENZENE	
604	0.58	0.63	0.82	M-XYLENE	
605	0.26	0.28	0.36	P-XYLENE	
603	0.30	0.32	0.43	O-XYLENE	*
607	0.01	0.01	0.01	CUMENE	
644	0.04	0.05	0.06	N-PROPYL BENZENE	
609	0.10	0.13	0.17	1-ME-3-ET BENZENE	
610	0.04	0.05	0.07	1-ME-4-ET BENZENE	
613	0.05	0.06	0.07	135-TRIME BENZENE	
608	0.03	0.03	0.04	1-ME-2-ET BENZENE	*
612	0.12	0.15	0.20	124-TRIME BENZENE	*
611	0.02	0.02	0.03	123-TRIME BENZENE	*
650	0.01	0.01	0.02	INDAN	*

647	0.01	0.01	0.02	1-ME-3-PR BENZENE
648	0.01	0.01	0.01	1-ME-4-PR BENZENE
651	0.01	0.01	0.02	12-DIET BENZENE *

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1413	10.70	10.56	12.26	2-ME-2-METHOXYBUTANE
188	0.02	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

Headspace - duplicate

Sample Name: 6012721 API BLEND #2 GASOLINE/TAME DUP Customer: CARR
Acquisition Date: 2-Apr-1996 Acquisition Time: 13:00
Channel #: 1 Analysis: GASO5 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-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	23.02	0.31	******	******	******	23.33	22.40	0.61	******	******	******
5	28.56	6.97	0.37	******	******	35.91	5.60	22.97	******	0.37	******
6	12.28	2.56	1.17	0.92	******	27.55	1.88	10.40	******	1.02	0.15
7	3.78	0.84	0.70	2.55	******	7.88	0.47	3.31	******	0.45	0.25
8	2.18	0.12	0.33	1.57	0.03	4.23	0.12	0.82	1.25	0.23	0.10
9	0.22	0.00	0.12	0.48	0.07	0.88	0.02	0.18	0.02	0.04	0.08
10	0.05	0.00	0.00	0.10	0.03	0.18	0.00	0.04	0.01	0.00	0.00
11	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	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	70.12	10.80	2.70	5.62	10.76	100.00	30.51	38.34	1.27	2.11	0.59

2. BY WEIGHT

3-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	20.26	0.29	******	******	******	20.54	19.73	0.52	******	******	******
5	26.95	6.97	0.42	******	******	34.34	5.33	21.62	******	0.42	******
6	12.26	2.68	1.34	1.22	******	29.84	1.88	10.38	******	1.16	0.18
7	3.92	0.91	0.81	3.36	******	9.00	0.49	3.44	******	0.51	0.30
8	2.31	0.13	0.39	2.06	0.04	4.92	0.12	0.87	1.31	0.27	0.11
9	0.24	0.00	0.14	0.64	0.08	1.09	0.02	0.19	0.02	0.04	0.10
10	0.06	0.00	0.00	0.13	0.04	0.23	0.00	0.04	0.01	0.00	0.00
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	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	66.02	10.98	3.10	7.41	12.49	100.00	27.60	37.08	1.34	2.41	0.69

3. BY MOLAR

3-	0.03	0.00	******	******	******	0.03	0.03	******	******	******	******
4	26.20	0.39	******	******	******	26.58	25.52	0.68	******	******	******
5	28.08	7.48	0.45	******	******	36.01	5.55	22.53	******	0.45	******
6	10.69	2.40	1.20	1.17	******	26.23	1.64	9.05	******	1.04	0.16
7	2.94	0.70	0.62	2.74	******	7.00	0.37	2.58	******	0.39	0.23
8	1.52	0.09	0.26	1.46	0.02	3.35	0.08	0.57	0.86	0.18	0.08
9	0.14	0.00	0.08	0.40	0.05	0.67	0.01	0.11	0.01	0.02	0.06
10	0.03	0.00	0.00	0.07	0.02	0.12	0.00	0.02	0.01	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.01	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	69.64	11.06	2.61	5.85	10.85	100.00	33.21	35.55	0.88	2.09	0.52

GRP. TYPE, VOL %: P = 78.58, O = 12.10, N = 3.02, A = 6.30, Saturates = 81.61
DIENE CONTENT = 781. vol ppm AVG MW = 75.2 API GR. = 81.8 SP. GR. =0.6632
OCTANE NUMBER: (from pure values) RON = 89.1 MON = 83.7
(from blending values) RON = 91.6 MON = 84.6
CARBON-HYDROGEN RATIO =5.330 STOICH. AIR-FUEL RATIO =15.08 lbs air/lbs fuel
BTU/lb = 17827. NET, 19231. GROSS; BTU/gal = 98668. NET, 106440. GROSS
REID VAPOR PRESSURE =22.4 BROMINE NO. = 23.8

2-Apr-1996 13:00
6012721 API BLEND #2 GASOLINE/TAME DUP 1GASO5
Sample 5 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	-127.	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.	97.
50.	97.	97.
55.	97.	101.
60.	122.	138.
65.	140.	140.
70.	146.	153.
75.	168.	176.
80.	187.	187.
85.	187.	187.
90.	197.	204.
95.	231.	231.
100.	472.	319.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

2-Apr-1996 13:00
6012721 API BLEND #2 GASOLINE/TAME DUP 1GASO5
Sample 5 Injection 1

TOTAL UNCORRECTED AREA = 11759763.

NUMBER OF PEAKS READ IN = 236

CHEVRON RESEARCH GASOLINE ANALYSIS
2-Apr-1996 13:00
6012721 API BLEND #2 GASOLINE/TAME DUP 1GASO5
Sample 5 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
3	0.03	0.02	0.02	PROPANE
4	25.52	22.40	19.73	N-BUTANE
6	5.55	5.60	5.33	N-PENTANE
9	1.64	1.88	1.88	N-HEXANE
14	0.37	0.47	0.49	N-HEPTANE
23	0.08	0.12	0.12	N-OCTANE
41	0.01	0.02	0.02	N-NONANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.68	0.61	0.52	ISOBUTANE	
8	0.18	0.19	0.17	NEOPENTANE	
7	22.35	22.77	21.45	ISOPENTANE	
12	0.78	0.90	0.89	22-DIME BUTANE	
13	1.44	1.65	1.65	23-DIME BUTANE	
10	4.43	5.13	5.08	2-ME PENTANE	
11	2.40	2.73	2.75	3-ME PENTANE	
18	0.04	0.06	0.06	22-DIME PENTANE	
20	0.55	0.72	0.73	24-DIME PENTANE	
19	0.83	1.04	1.10	23-DIME PENTANE	
15	0.58	0.76	0.78	2-ME HEXANE	
16	0.57	0.73	0.77	3-ME HEXANE	
37	0.77	1.12	1.18	224-TRIME PENTANE	*
28	0.01	0.01	0.01	22-DIME HEXANE	
36	0.01	0.02	0.02	223-TRIME PENTANE	*
31	0.07	0.11	0.11	25-DIME HEXANE	
30	0.11	0.15	0.16	24-DIME HEXANE	
32	0.01	0.01	0.01	33-DIME HEXANE	
34	0.02	0.03	0.04	2-ME-3-ET PENTANE	
29	0.07	0.10	0.11	23-DIME HEXANE	*
24	0.15	0.22	0.23	2-ME HEPTANE	
26	0.06	0.09	0.09	4-ME HEPTANE	
25	0.14	0.20	0.21	3-ME HEPTANE	
51	0.01	0.02	0.02	244-TRIME HEXANE	
43	0.01	0.02	0.02	235-TRIME HEXANE	*
53	0.01	0.02	0.02	26-DIME HEPTANE	
55	0.03	0.04	0.04	35-DIME HEPTANE	
56	0.01	0.01	0.01	23-DIME HEPTANE	
62	0.01	0.02	0.02	4-ME OCTANE	
60	0.02	0.03	0.04	2-ME OCTANE	
86	0.01	0.02	0.02	4-ME NONANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME

800	0.45	0.37	0.42	CYCLOPENTANE
801	1.04	1.02	1.16	ME CYCLOPENTANE
806	0.13	0.15	0.17	1C3-DIME CYCPENTANE
807	0.11	0.13	0.15	1T3-DIME CYCPENTANE
805	0.09	0.10	0.11	1T2-DIME CYCPENTANE
811	0.02	0.02	0.02	113-TRIME CPENTANE
802	0.06	0.07	0.08	ET CYCLOPENTANE
817	0.03	0.04	0.04	1T2C4TRIME CPENTANE
814	0.01	0.02	0.02	1T2C3TRIME CPENTANE
810	0.01	0.02	0.02	112-TRIME CPENTANE*
848	0.02	0.03	0.04	11C3T4-TETRME CPENT
864	0.02	0.02	0.03	1MEC3ET CYCPENTANE
865	0.02	0.02	0.02	1MET3ET CYCPENTANE
861	0.06	0.08	0.10	1ME-1ET CYCPENTANE
862	0.01	0.01	0.02	1ME-C2ET CYPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.16	0.15	0.18	CYCLOHEXANE
826	0.23	0.25	0.30	ME CYCLOHEXANE
830	0.01	0.02	0.02	1T2-DIME CYCHEXANE
832	0.03	0.04	0.04	1T3-DIME CYCHEXANE
833	0.02	0.02	0.02	1C4-DIME CYCHEXANE
827	0.01	0.02	0.02	ETHYL CYCLOHEXANE
941	0.01	0.02	0.02	1ME-C3ET CYCHEXANE
940	0.01	0.01	0.01	1ME-1-ET CYCHEXANE
943	0.01	0.01	0.02	1M-C4-ET CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.03	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	0.19	0.15	0.14	C1S-2-BUTENE
310	0.17	0.16	0.16	3-METHYL-1-BUTENE
306	0.63	0.60	0.59	1-PENTENE
309	1.23	1.16	1.14	2-METHYL-1-BUTENE
509	0.03	0.03	0.03	ISOPRENE
308	1.72	1.63	1.60	TRANS-2-PENTENE
327	0.02	0.02	0.02	3,3-DIME BUTENE
307	0.95	0.89	0.88	CIS-2-PENTENE
311	2.41	2.23	2.25	2-METHYL-2-BUTENE
505	0.03	0.03	0.03	T-13-PENTADIENE
530	0.01	0.01	0.01	CYCLOPENTADIENE
504	0.02	0.01	0.01	C-13-PENTADIENE
450	0.29	0.23	0.27	CYCLOPENTENE
323	0.10	0.11	0.11	C-4ME-2-PENTENE
324	0.16	0.18	0.18	T-4ME-2-PENTENE
317	0.25	0.27	0.28	2-ME-1-PENTENE
312	0.13	0.14	0.15	1-HEXENE

315	0.33	0.36	0.37	CIS-3-HEXENE
314	0.38	0.41	0.42	TRANS-2-HEXENE
320	0.37	0.39	0.41	2-METHYL-2-PENTENE
321	0.21	0.22	0.23	C-3ME-2-PENTENE
313	0.18	0.19	0.20	CIS-2-HEXENE
2005	0.01	0.01	0.01	33-DIME-1-PENTENE
4500	0.01	0.01	0.01	HEPTENE A
2011	0.02	0.03	0.03	44-DIME-C2-PENTENE
451	0.29	0.26	0.31	1-ME CYLCOPENTENE
2004	0.02	0.02	0.02	24-DIME-1-PENTENE
2017	0.00	0.01	0.01	3-ET 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	0.03	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
2030	0.02	0.02	0.02	5-ME-C2-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	0.06	0.07	C-7 CYCLOPENTENE A
5371	0.05	0.05	0.06	C-7 CYCLOPENTENE B
2042	0.05	0.06	0.07	T3-HEPTENE
2025	0.06	0.07	0.08	2-ME-2-HEXENE
2034	0.08	0.09	0.10	3-ME-C3-HEXENE
2040	0.07	0.08	0.09	TRANS-2-HEPTENE
2008	0.05	0.06	0.07	23-DIME-C2-PENTENE
2039	0.04	0.04	0.05	CIS-2-HEPTENE
4528	0.01	0.02	0.02	OCTENE D
4533	0.01	0.01	0.01	OCTENE I
4534	0.01	0.01	0.01	OCTENE J
2193	0.02	0.03	0.03	1-OCTENE
2198	0.01	0.02	0.02	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.17	0.92	1.22	BENZENE	
601	2.74	2.55	3.36	TOLUENE	
602	0.34	0.37	0.48	ETHYLBENZENE	
604	0.58	0.63	0.82	M-XYLENE	
605	0.24	0.26	0.35	P-XYLENE	
603	0.29	0.31	0.42	O-XYLENE	*
607	0.01	0.01	0.01	CUMENE	
644	0.04	0.04	0.06	N-PROPYL BENZENE	
609	0.10	0.12	0.16	1-ME-3-ET BENZENE	
610	0.04	0.05	0.07	1-ME-4-ET BENZENE	
613	0.04	0.05	0.07	135-TRIME BENZENE	
608	0.03	0.03	0.04	1-ME-2-ET BENZENE	*
612	0.12	0.14	0.19	124-TRIME BENZENE	*
611	0.02	0.02	0.03	123-TRIME BENZENE	*
650	0.01	0.01	0.02	INDAN	*

647	0.01	0.01	0.01	1-ME-3-PR BENZENE
648	0.01	0.01	0.01	1-ME-4-PR BENZENE
651	0.01	0.01	0.01	12-DIET BENZENE *

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1413	10.76	10.62	12.33	2-ME-2-METHOXYBUTANE
188	0.02	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

Headspace

Sample Name: 6015317 API BLEND 3 GASOLINE/DIPE Customer: CARR
Acquisition Date: 5-Apr-1996 Acquisition Time: 08:50
Channel #: 1 Analysis: GASO5 Sample #: 12 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-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	20.89	0.28	******	******	******	21.17	20.34	0.55	******	******	******
5	26.70	6.56	0.35	******	******	33.61	5.25	21.44	******	0.35	******
6	11.64	1.90	1.11	0.87	******	32.20	1.78	9.86	******	0.97	0.14
7	3.60	0.75	0.69	2.50	******	7.53	0.46	3.14	******	0.44	0.25
8	2.11	0.11	0.32	1.65	0.04	4.23	0.12	0.80	1.19	0.23	0.09
9	0.23	0.00	0.13	0.57	0.06	0.99	0.02	0.18	0.02	0.04	0.09
10	0.06	0.00	0.00	0.12	0.04	0.22	0.00	0.05	0.01	0.00	0.00
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	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	65.25	9.61	2.60	5.72	16.82	100.00	27.99	36.04	1.22	2.02	0.58

2. BY WEIGHT

3-	0.01	0.00	******	******	******	0.01	0.01	******	******	******	******
4	18.35	0.26	******	******	******	18.61	17.89	0.46	******	******	******
5	25.15	6.55	0.40	******	******	32.09	4.99	20.16	******	0.40	******
6	11.60	2.01	1.26	1.16	******	34.21	1.78	9.82	******	1.09	0.17
7	3.73	0.81	0.79	3.27	******	8.61	0.47	3.26	******	0.50	0.29
8	2.23	0.12	0.37	2.17	0.04	4.94	0.13	0.85	1.25	0.27	0.11
9	0.25	0.00	0.15	0.75	0.07	1.22	0.03	0.20	0.02	0.04	0.11
10	0.07	0.00	0.01	0.17	0.04	0.28	0.00	0.06	0.01	0.00	0.01
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	61.40	9.75	2.98	7.53	18.34	100.00	25.30	34.82	1.28	2.30	0.68

3. BY MOLAR

3-	0.03	0.00	******	******	******	0.03	0.03	******	******	******	******
4	24.04	0.35	******	******	******	24.39	23.43	0.61	******	******	******
5	26.53	7.12	0.43	******	******	34.08	5.27	21.26	******	0.43	******
6	10.25	1.82	1.14	1.13	******	30.39	1.57	8.68	******	0.99	0.15
7	2.83	0.63	0.61	2.70	******	6.78	0.36	2.47	******	0.38	0.23
8	1.48	0.08	0.25	1.56	0.03	3.41	0.08	0.57	0.83	0.18	0.07
9	0.15	0.00	0.09	0.48	0.04	0.76	0.02	0.12	0.01	0.03	0.06
10	0.04	0.00	0.00	0.09	0.02	0.16	0.00	0.03	0.01	0.00	0.00
11	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	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	65.34	10.01	2.53	5.97	16.15	100.00	30.75	33.75	0.85	2.01	0.52

GRP. TYPE, VOL %: P = 78.45, O = 11.55, N = 3.12, A = 6.88, Saturates = 81.57
DIENE CONTENT = 733. vol ppm AVG MW = 76.1 API GR. = 81.5 SP. GR. =0.6644
OCTANE NUMBER: (from pure values) RON = 89.4 MON = 84.1
(from blending values) RON = 91.6 MON = 84.8
CARBON-HYDROGEN RATIO =5.331 STOICH. AIR-FUEL RATIO =15.08 lbs air/lbs fuel
BTU/lb = 17769. NET, 19159. GROSS; BTU/gal = 98512. NET, 106220. GROSS
REID VAPOR PRESSURE =20.5 BROMINE NO. = 21.3

CHEVRON RESEARCH GASOLINE ANALYSIS
5-Apr-1996 08:50
6015317 API BLEND 3 GASOLINE/DIPE 1GASO5
Sample 12 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	-44.	31.
5.	31.	31.
10.	31.	82.
15.	31.	82.
20.	31.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	97.
45.	97.	97.
50.	97.	101.
55.	122.	140.
60.	140.	140.
65.	146.	156.
70.	176.	177.
75.	187.	187.
80.	187.	187.
85.	187.	187.
90.	197.	204.
95.	231.	236.
100.	472.	324.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

5-Apr-1996 08:50
6015317 API BLEND 3 GASOLINE/DIPE 1GASO5
Sample 12 Injection 1

TOTAL UNCORRECTED AREA = 11363749.

NUMBER OF PEAKS READ IN = 237

5-Apr-1996 08:50
6015317 API BLEND 3 GASOLINE/DIPE 1GASO5
Sample 12 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
3	0.03	0.02	0.01	PROPANE
4	23.43	20.34	17.89	N-BUTANE
6	5.27	5.25	4.99	N-PENTANE
9	1.57	1.78	1.78	N-HEXANE
14	0.36	0.46	0.47	N-HEPTANE
23	0.08	0.12	0.13	N-OCTANE
41	0.02	0.02	0.03	N-NONANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.61	0.55	0.46	ISOBUTANE	
8	0.17	0.18	0.16	NEOPENTANE	
7	21.09	21.26	20.00	ISOPENTANE	
12	0.74	0.85	0.84	22-DIME BUTANE	
13	1.38	1.55	1.56	23-DIME BUTANE	
10	4.25	4.86	4.82	2-ME PENTANE	
11	2.30	2.59	2.61	3-ME PENTANE	
18	0.04	0.05	0.06	22-DIME PENTANE	
20	0.52	0.68	0.69	24-DIME PENTANE	
19	0.79	0.99	1.04	23-DIME PENTANE	
15	0.57	0.73	0.75	2-ME HEXANE	
16	0.55	0.70	0.73	3-ME HEXANE	
37	0.74	1.06	1.12	224-TRIME PENTANE	*
28	0.01	0.01	0.01	22-DIME HEXANE	
36	0.01	0.02	0.02	223-TRIME PENTANE	*
31	0.07	0.10	0.11	25-DIME HEXANE	
30	0.11	0.15	0.16	24-DIME HEXANE	
32	0.01	0.01	0.01	33-DIME HEXANE	
34	0.02	0.03	0.03	2-ME-3-ET PENTANE	
29	0.07	0.10	0.11	23-DIME HEXANE	*
24	0.15	0.21	0.23	2-ME HEPTANE	
26	0.06	0.09	0.09	4-ME HEPTANE	
25	0.14	0.20	0.21	3-ME HEPTANE	
51	0.01	0.02	0.02	244-TRIME HEXANE	
43	0.01	0.02	0.02	235-TRIME HEXANE	*
53	0.01	0.02	0.02	26-DIME HEPTANE	
55	0.02	0.03	0.04	35-DIME HEPTANE	
56	0.01	0.01	0.01	23-DIME HEPTANE	
62	0.02	0.02	0.03	4-ME OCTANE	
60	0.02	0.04	0.04	2-ME OCTANE	
86	0.01	0.02	0.03	4-ME NONANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.43	0.35	0.40	CYCLOPENTANE

801	0.99	0.97	1.09	ME CYCLOPENTANE
806	0.12	0.14	0.16	1C3-DIME CYCPENTANE
807	0.12	0.14	0.16	1T3-DIME CYCPENTANE
805	0.08	0.09	0.10	1T2-DIME CYCPENTANE
811	0.02	0.02	0.02	113-TRIME CPENTANE
802	0.06	0.07	0.08	ET CYCLOPENTANE
817	0.03	0.04	0.04	1T2C4TRIME CPENTANE
814	0.01	0.02	0.02	1T2C3TRIME CPENTANE
810	0.01	0.02	0.02	112-TRIME CPENTANE*
848	0.02	0.03	0.04	11C3T4-TETRME CPENT
864	0.02	0.02	0.03	1MEC3ET CYCPENTANE
865	0.02	0.02	0.02	1MET3ET CYCPENTANE
861	0.07	0.08	0.10	1ME-1ET CYCPENTANE
862	0.01	0.02	0.02	1ME-C2ET CYPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.15	0.14	0.17	CYCLOHEXANE
826	0.23	0.25	0.29	ME CYCLOHEXANE
830	0.01	0.02	0.02	1T2-DIME CYCHEXANE
832	0.02	0.03	0.03	1T3-DIME CYCHEXANE
833	0.02	0.02	0.02	1C4-DIME CYCHEXANE
827	0.01	0.02	0.02	ETHYL CYCLOHEXANE
941	0.02	0.02	0.03	1ME-C3ET CYCHEXANE
940	0.01	0.01	0.02	1ME-1-ET CYCHEXANE
943	0.01	0.01	0.02	1M-C4-ET 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	0.13	0.11	0.10	TRANS-2-BUTENE
303	0.17	0.13	0.13	C1S-2-BUTENE
310	0.16	0.15	0.15	3-METHYL-1-BUTENE
306	0.60	0.56	0.55	1-PENTENE
309	1.16	1.09	1.07	2-METHYL-1-BUTENE
509	0.03	0.03	0.03	ISOPRENE
308	1.64	1.53	1.51	TRANS-2-PENTENE
327	0.01	0.02	0.02	3,3-DIME BUTENE
307	0.90	0.83	0.83	CIS-2-PENTENE
311	2.30	2.11	2.12	2-METHYL-2-BUTENE
505	0.03	0.03	0.03	T-13-PENTADIENE
530	0.01	0.01	0.01	CYCLOPENTADIENE
504	0.01	0.01	0.01	C-13-PENTADIENE
450	0.28	0.22	0.25	CYCLOPENTENE
323	0.09	0.10	0.10	C-4ME-2-PENTENE
324	0.15	0.17	0.17	T-4ME-2-PENTENE
317	0.24	0.26	0.26	2-ME-1-PENTENE
312	0.12	0.14	0.14	1-HEXENE
315	0.31	0.34	0.35	CIS-3-HEXENE

321	0.43	0.46	0.48	C-3ME-2-PENTENE
313	0.17	0.18	0.19	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	0.27	0.25	0.29	1-ME CYLCOPENTENE
2004	0.01	0.02	0.02	24-DIME-1-PENTENE
403	0.01	0.01	0.01	HEPTENES
2003	0.01	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
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	0.04	0.05	0.06	T3-HEPTENE
2025	0.06	0.07	0.07	2-ME-2-HEXENE
2034	0.08	0.09	0.10	3-ME-C3-HEXENE
2018	0.07	0.08	0.08	3-ET-2-PENTENE
2008	0.05	0.06	0.06	23-DIME-C2-PENTENE
2039	0.03	0.03	0.04	CIS-2-HEPTENE
4532	0.00	0.01	0.01	OCTENE H
4528	0.01	0.02	0.02	OCTENE D
4533	0.01	0.01	0.01	OCTENE I
4534	0.01	0.01	0.01	OCTENE J
2193	0.02	0.03	0.03	1-OCTENE
2198	0.01	0.02	0.02	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.13	0.87	1.16	BENZENE	
601	2.70	2.50	3.27	TOLUENE	
602	0.36	0.38	0.50	ETHYLBENZENE	
604	0.62	0.66	0.86	M-XYLENE	
605	0.26	0.28	0.36	P-XYLENE	
603	0.32	0.34	0.45	O-XYLENE	*
607	0.01	0.01	0.02	CUMENE	
644	0.04	0.05	0.06	N-PROPYL BENZENE	
609	0.12	0.14	0.18	1-ME-3-ET BENZENE	
610	0.05	0.06	0.08	1-ME-4-ET BENZENE	
613	0.05	0.06	0.08	135-TRIME BENZENE	
608	0.03	0.04	0.05	1-ME-2-ET BENZENE	*
612	0.14	0.17	0.22	124-TRIME BENZENE	*
611	0.02	0.03	0.04	123-TRIME BENZENE	*
650	0.01	0.01	0.02	INDAN	*
647	0.01	0.01	0.02	1-ME-3-PR BENZENE	
648	0.01	0.01	0.02	1-ME-4-PR BENZENE	
651	0.01	0.01	0.02	12-DIET BENZENE	*
656	0.01	0.01	0.02	12-DIME4ET BENZENE	*

5-Apr-1996 08:50
6015317 API BLEND 3 GASOLINE/DIPE 1GASO5
Sample 12 Injection 1

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1430	16.05	16.67	18.17	DIISOPROPYLETHER
188	0.02	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

Headspace - duplicate

Sample Name: 6015317 API BLEND 3 GASOLINE/DIPE DUP Customer: CARR
Acquisition Date: 5-Apr-1996 Acquisition Time: 11:22
Channel #: 1 Analysis: GASO5 Sample #: 13 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-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	21.55	0.29	******	******	******	21.84	20.98	0.57	******	******	******
5	27.22	6.66	0.35	******	******	34.23	5.33	21.88	******	0.35	******
6	11.54	1.88	1.08	0.85	******	31.66	1.74	9.80	******	0.94	0.14
7	3.38	0.72	0.64	2.30	******	7.03	0.41	2.97	******	0.41	0.22
8	1.93	0.10	0.29	1.56	0.04	3.93	0.10	0.73	1.10	0.21	0.08
9	0.22	0.00	0.11	0.60	0.06	1.00	0.02	0.18	0.02	0.03	0.08
10	0.07	0.00	0.00	0.15	0.04	0.26	0.00	0.06	0.01	0.00	0.00
11	0.01	0.00	0.00	0.01	0.01	0.03	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	65.94	9.65	2.47	5.47	16.47	100.00	28.62	36.19	1.13	1.95	0.53

2. BY WEIGHT

3-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	18.98	0.27	******	******	******	19.25	18.50	0.48	******	******	******
5	25.70	6.66	0.40	******	******	32.76	5.08	20.62	******	0.40	******
6	11.53	1.98	1.23	1.13	******	33.71	1.75	9.78	******	1.07	0.16
7	3.51	0.78	0.73	3.02	******	8.05	0.43	3.08	******	0.47	0.26
8	2.05	0.11	0.34	2.06	0.05	4.60	0.11	0.78	1.15	0.25	0.09
9	0.24	0.00	0.13	0.80	0.07	1.24	0.03	0.20	0.02	0.04	0.09
10	0.08	0.00	0.01	0.20	0.04	0.33	0.00	0.06	0.02	0.00	0.01
11	0.01	0.00	0.00	0.01	0.01	0.03	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	62.12	9.81	2.84	7.23	18.00	100.00	25.91	35.02	1.19	2.22	0.62

3. BY MOLAR

3-	0.03	0.00	******	******	******	0.03	0.03	******	******	******	******
4	24.74	0.37	******	******	******	25.11	24.11	0.63	******	******	******
5	26.99	7.21	0.43	******	******	34.62	5.33	21.65	******	0.43	******
6	10.13	1.79	1.11	1.10	******	29.81	1.54	8.60	******	0.96	0.15
7	2.66	0.61	0.56	2.48	******	6.31	0.33	2.33	******	0.36	0.20
8	1.36	0.07	0.23	1.47	0.03	3.16	0.07	0.52	0.77	0.17	0.06
9	0.14	0.00	0.08	0.50	0.04	0.77	0.01	0.12	0.01	0.02	0.06
10	0.04	0.00	0.00	0.11	0.02	0.18	0.00	0.03	0.01	0.00	0.00
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	66.09	10.04	2.42	5.68	15.77	100.00	31.42	33.88	0.78	1.95	0.47

GRP. TYPE, VOL %: P = 78.94, O = 11.55, N = 2.96, A = 6.55, Saturates = 81.90
DIENE CONTENT = 740. vol ppm AVG MW = 75.7 API GR. = 82.0 SP. GR. =0.6626
OCTANE NUMBER: (from pure values) RON = 89.4 MON = 84.2
(from blending values) RON = 91.6 MON = 84.9
CARBON-HYDROGEN RATIO =5.317 STOICH. AIR-FUEL RATIO =15.09 lbs air/lbs fuel
BTU/lb = 17834. NET, 19231. GROSS; BTU/gal = 98611. NET, 106339. GROSS
REID VAPOR PRESSURE =21.0 BROMINE NO. = 21.5

CHEVRON RESEARCH GASOLINE ANALYSIS
5-Apr-1996 11:22
6015317 API BLEND 3 GASOLINE/DIPE DUP 1GASO5
Sample 13 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	-44.	31.
5.	31.	31.
10.	31.	82.
15.	31.	82.
20.	31.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	88.
45.	88.	97.
50.	97.	99.
55.	101.	136.
60.	140.	140.
65.	146.	146.
70.	161.	176.
75.	187.	187.
80.	187.	187.
85.	187.	187.
90.	194.	197.
95.	231.	231.
100.	472.	325.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

5-Apr-1996 11:22
6015317 API BLEND 3 GASOLINE/DIPE DUP 1GASO5
Sample 13 Injection 1

TOTAL UNCORRECTED AREA = 11278866.

NUMBER OF PEAKS READ IN = 247

5-Apr-1996 11:22
6015317 API BLEND 3 GASOLINE/DIPE DUP 1GASO5
Sample 13 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
3	0.03	0.02	0.02	PROPANE
4	24.11	20.98	18.50	N-BUTANE
6	5.33	5.33	5.08	N-PENTANE
9	1.54	1.74	1.75	N-HEXANE
14	0.33	0.41	0.43	N-HEPTANE
23	0.07	0.10	0.11	N-OCTANE
41	0.01	0.02	0.03	N-NONANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.63	0.57	0.48	ISOBUTANE	
8	0.18	0.19	0.17	NEOPENTANE	
7	21.48	21.70	20.46	ISOPENTANE	
12	0.74	0.86	0.85	22-DIME BUTANE	
13	1.37	1.55	1.56	23-DIME BUTANE	
10	4.21	4.83	4.79	2-ME PENTANE	
11	2.27	2.56	2.59	3-ME PENTANE	
18	0.04	0.05	0.05	22-DIME PENTANE	
20	0.50	0.65	0.66	24-DIME PENTANE	
19	0.74	0.93	0.98	23-DIME PENTANE	
15	0.53	0.69	0.71	2-ME HEXANE	
16	0.51	0.65	0.68	3-ME HEXANE	
37	0.69	0.99	1.04	224-TRIME PENTANE	*
28	0.01	0.01	0.01	22-DIME HEXANE	
36	0.01	0.02	0.02	223-TRIME PENTANE	*
31	0.07	0.10	0.10	25-DIME HEXANE	
30	0.09	0.13	0.14	24-DIME HEXANE	
32	0.01	0.01	0.01	33-DIME HEXANE	
34	0.02	0.03	0.03	2-ME-3-ET PENTANE	
29	0.06	0.09	0.10	23-DIME HEXANE	*
24	0.14	0.19	0.21	2-ME HEPTANE	
26	0.06	0.08	0.08	4-ME HEPTANE	
25	0.13	0.18	0.19	3-ME HEPTANE	
51	0.01	0.02	0.02	244-TRIME HEXANE	
43	0.01	0.02	0.02	235-TRIME HEXANE	*
53	0.01	0.02	0.02	26-DIME HEPTANE	
55	0.02	0.03	0.03	35-DIME HEPTANE	
56	0.01	0.01	0.01	23-DIME HEPTANE	
62	0.02	0.02	0.03	4-ME OCTANE	
60	0.02	0.03	0.04	2-ME OCTANE	
86	0.01	0.02	0.03	4-ME NONANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.43	0.35	0.40	CYCLOPENTANE

801	0.96	0.94	1.07	ME CYCLOPENTANE
806	0.12	0.14	0.15	1C3-DIME CYCPENTANE
807	0.12	0.13	0.15	1T3-DIME CYCPENTANE
805	0.07	0.08	0.09	1T2-DIME CYCPENTANE
811	0.01	0.02	0.02	113-TRIME CPENTANE
802	0.06	0.06	0.07	ET CYCLOPENTANE
817	0.03	0.03	0.04	1T2C4TRIME CPENTANE
814	0.01	0.02	0.02	1T2C3TRIME CPENTANE
810	0.01	0.02	0.02	112-TRIME CPENTANE*
848	0.02	0.03	0.03	11C3T4-TETRME CPENT
864	0.02	0.02	0.02	1MEC3ET CYCPENTANE
865	0.01	0.02	0.02	1MET3ET CYCPENTANE
861	0.06	0.07	0.09	1ME-1ET CYCPENTANE
862	0.01	0.01	0.02	1ME-C2ET CYPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.15	0.14	0.16	CYCLOHEXANE
826	0.20	0.22	0.26	ME CYCLOHEXANE
830	0.01	0.01	0.02	1T2-DIME CYCHEXANE
832	0.02	0.02	0.03	1T3-DIME CYCHEXANE
833	0.02	0.02	0.02	1C4-DIME CYCHEXANE
827	0.01	0.01	0.02	ETHYL CYCLOHEXANE
941	0.01	0.01	0.01	1ME-C3ET CYCHEXANE
940	0.01	0.01	0.02	1ME-1-ET CYCHEXANE
943	0.01	0.01	0.02	1M-C4-ET 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	0.11	0.10	TRANS-2-BUTENE
303	0.18	0.14	0.13	C1S-2-BUTENE
310	0.17	0.15	0.15	3-METHYL-1-BUTENE
306	0.61	0.58	0.56	1-PENTENE
309	1.18	1.10	1.09	2-METHYL-1-BUTENE
509	0.03	0.03	0.03	ISOPRENE
308	1.66	1.56	1.53	TRANS-2-PENTENE
327	0.02	0.02	0.02	3,3-DIME BUTENE
307	0.91	0.85	0.84	CIS-2-PENTENE
311	2.32	2.13	2.15	2-METHYL-2-BUTENE
505	0.03	0.03	0.03	T-13-PENTADIENE
530	0.01	0.01	0.01	CYCLOPENTADIENE
504	0.01	0.01	0.01	C-13-PENTADIENE
450	0.28	0.22	0.25	CYCLOPENTENE
323	0.09	0.10	0.10	C-4ME-2-PENTENE
324	0.15	0.17	0.17	T-4ME-2-PENTENE
317	0.24	0.25	0.26	2-ME-1-PENTENE
312	0.12	0.13	0.14	1-HEXENE
315	0.31	0.33	0.34	CIS-3-HEXENE

321	0.43	0.45	0.48	C-3ME-2-PENTENE
313	0.17	0.18	0.19	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	0.26	0.24	0.29	1-ME CYLCOPENTENE
2004	0.01	0.02	0.02	24-DIME-1-PENTENE
403	0.01	0.01	0.01	HEPTENES
2003	0.01	0.02	0.02	23-DIME-1-PENTENE
2024	0.01	0.01	0.01	5-ME-1-HEXENE
2009	0.02	0.02	0.02	24-DIME-CIS2-PENTENE
403	0.01	0.01	0.01	HEPTENES
2033	0.04	0.04	0.05	2-ME-T3-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	0.05	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	0.07	2-ME-2-HEXENE
2034	0.07	0.08	0.09	3-ME-C3-HEXENE
2018	0.06	0.07	0.08	3-ET-2-PENTENE
2008	0.04	0.05	0.06	23-DIME-C2-PENTENE
2039	0.03	0.04	0.04	CIS-2-HEPTENE
4528	0.01	0.02	0.02	OCTENE D
4533	0.01	0.01	0.01	OCTENE I
4534	0.01	0.01	0.01	OCTENE J
2193	0.02	0.03	0.03	1-OCTENE
2198	0.01	0.02	0.02	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.10	0.85	1.13	BENZENE	
601	2.48	2.30	3.02	TOLUENE	
602	0.33	0.36	0.47	ETHYLBENZENE	
604	0.58	0.62	0.82	M-XYLENE	
605	0.25	0.26	0.35	P-XYLENE	
603	0.30	0.32	0.43	O-XYLENE	*
607	0.01	0.01	0.02	CUMENE	
644	0.04	0.05	0.07	N-PROPYL BENZENE	
609	0.12	0.15	0.19	1-ME-3-ET BENZENE	
610	0.05	0.06	0.08	1-ME-4-ET BENZENE	
613	0.06	0.07	0.09	135-TRIME BENZENE	
608	0.03	0.04	0.05	1-ME-2-ET BENZENE	*
612	0.15	0.18	0.24	124-TRIME BENZENE	*
611	0.03	0.03	0.04	123-TRIME BENZENE	*
650	0.01	0.02	0.02	INDAN	*
647	0.01	0.02	0.02	1-ME-3-PR BENZENE	
648	0.01	0.02	0.02	1-ME-4-PR BENZENE	
651	0.01	0.02	0.02	12-DIET BENZENE	*
654	0.01	0.01	0.02	14-DIME2ET BENZENE	*
656	0.01	0.01	0.02	12-DIME4ET BENZENE	*

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6015317 API BLEND 3 GASOLINE/DIPE DUP 1GASO5
Sample 13 Injection 1

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1430	15.67	16.31	17.82	DIISOPROPYLETHER
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 Headspace

Sample Name: 6012722 API BLEND #4 GASOLINE/ETBE Customer: CARR
Acquisition Date: 3-Apr-1996 Acquisition Time: 09:35
Channel #: 1 Analysis: GASO5 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-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	22.23	0.36	******	******	******	22.60	21.64	0.59	******	******	******
5	27.57	6.73	0.36	******	******	34.65	5.39	22.18	******	0.36	******
6	11.65	2.40	1.10	0.86	******	30.12	1.77	9.89	******	0.96	0.14
7	3.48	0.81	0.66	2.37	******	7.31	0.43	3.04	******	0.42	0.24
8	2.01	0.10	0.30	1.56	0.05	4.02	0.11	0.76	1.15	0.22	0.08
9	0.21	0.00	0.12	0.57	0.06	0.96	0.02	0.17	0.02	0.03	0.09
10	0.06	0.00	0.00	0.13	0.04	0.24	0.00	0.05	0.01	0.00	0.00
11	0.01	0.00	0.00	0.01	0.01	0.02	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00
TOT	67.26	10.40	2.54	5.49	14.31	100.00	29.39	36.70	1.17	1.99	0.55

2. BY WEIGHT

3-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	19.56	0.34	******	******	******	19.91	19.05	0.50	******	******	******
5	26.00	6.72	0.40	******	******	33.13	5.13	20.87	******	0.40	******
6	11.63	2.52	1.25	1.15	******	32.32	1.77	9.86	******	1.09	0.17
7	3.61	0.88	0.75	3.11	******	8.36	0.45	3.16	******	0.48	0.28
8	2.13	0.11	0.36	2.05	0.06	4.70	0.12	0.81	1.21	0.26	0.10
9	0.23	0.00	0.14	0.75	0.07	1.19	0.02	0.19	0.02	0.04	0.10
10	0.07	0.00	0.01	0.18	0.04	0.29	0.00	0.06	0.01	0.00	0.01
11	0.01	0.00	0.00	0.01	0.01	0.03	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.00
TOT	63.26	10.56	2.91	7.24	16.02	100.00	26.56	35.46	1.24	2.27	0.65

3. BY MOLAR

3-	0.03	0.00	******	******	******	0.03	0.03	******	******	******	******
4	25.41	0.45	******	******	******	25.88	24.76	0.65	******	******	******
5	27.22	7.25	0.43	******	******	34.90	5.37	21.85	******	0.43	******
6	10.19	2.27	1.13	1.11	******	28.51	1.55	8.64	******	0.98	0.15
7	2.72	0.68	0.58	2.55	******	6.53	0.34	2.38	******	0.37	0.21
8	1.41	0.07	0.24	1.46	0.04	3.21	0.08	0.53	0.80	0.17	0.07
9	0.14	0.00	0.09	0.47	0.04	0.74	0.01	0.11	0.01	0.02	0.06
10	0.04	0.00	0.00	0.10	0.02	0.16	0.00	0.03	0.01	0.00	0.00
11	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00
TOT	67.15	10.72	2.47	5.69	13.97	100.00	32.14	34.20	0.81	1.97	0.49

GRP. TYPE, VOL %: P = 78.49, O = 12.14, N = 2.96, A = 6.41, Saturates = 81.45
DIENE CONTENT = 763. vol ppm AVG MW = 75.5 API GR. = 81.8 SP. GR. =0.6635
OCTANE NUMBER: (from pure values) RON = 91.2 MON = 85.1
(from blending values) RON = 93.5 MON = 86.0
CARBON-HYDROGEN RATIO =5.323 STOICH. AIR-FUEL RATIO =15.09 lbs air/lbs fuel
BTU/lb = 17840. NET, 19241. GROSS; BTU/gal = 98781. NET, 106536. GROSS
REID VAPOR PRESSURE =21.8 BROMINE NO. = 23.0

CHEVRON RESEARCH GASOLINE ANALYSIS
3-Apr-1996 09:35
6012722 API BLEND #4 GASOLINE/ETBE 1GASO5
Sample 6 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	-44.	31.
5.	31.	31.
10.	31.	82.
15.	31.	82.
20.	31.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	86.
45.	86.	97.
50.	97.	97.
55.	101.	122.
60.	140.	140.
65.	144.	146.
70.	156.	160.
75.	162.	162.
80.	162.	162.
85.	162.	162.
90.	194.	197.
95.	231.	231.
100.	472.	325.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

CHEVRON RESEARCH GASOLINE ANALYSIS
3-Apr-1996 09:35
6012722 API BLEND #4 GASOLINE/ETBE 1GASO5
Sample 6 Injection 1

TOTAL UNCORRECTED AREA = 10912533.

NUMBER OF PEAKS READ IN = 241

3-Apr-1996 09:35
6012722 API BLEND #4 GASOLINE/ETBE 1GASO5
Sample 6 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
3	0.03	0.02	0.02	PROPANE
4	24.76	21.64	19.05	N-BUTANE
6	5.37	5.39	5.13	N-PENTANE
9	1.55	1.77	1.77	N-HEXANE
14	0.34	0.43	0.45	N-HEPTANE
23	0.08	0.11	0.12	N-OCTANE
41	0.01	0.02	0.02	N-NONANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.65	0.59	0.50	ISOBUTANE	
8	0.18	0.19	0.17	NEOPENTANE	
7	21.67	21.99	20.70	ISOPENTANE	
12	0.76	0.87	0.86	22-DIME BUTANE	
13	1.38	1.57	1.57	23-DIME BUTANE	
10	4.23	4.87	4.82	2-ME PENTANE	
11	2.28	2.58	2.60	3-ME PENTANE	
18	0.04	0.05	0.05	22-DIME PENTANE	
20	0.52	0.67	0.69	24-DIME PENTANE	
19	0.77	0.97	1.02	23-DIME PENTANE	
15	0.53	0.68	0.70	2-ME HEXANE	
16	0.53	0.67	0.70	3-ME HEXANE	
37	0.72	1.03	1.08	224-TRIME PENTANE	*
28	0.01	0.01	0.01	22-DIME HEXANE	
36	0.01	0.02	0.02	223-TRIME PENTANE	*
31	0.07	0.10	0.10	25-DIME HEXANE	
30	0.10	0.14	0.15	24-DIME HEXANE	
32	0.01	0.01	0.01	33-DIME HEXANE	
34	0.02	0.03	0.03	2-ME-3-ET PENTANE	
29	0.07	0.09	0.10	23-DIME HEXANE	*
24	0.14	0.20	0.21	2-ME HEPTANE	
26	0.06	0.08	0.09	4-ME HEPTANE	
25	0.13	0.18	0.20	3-ME HEPTANE	
51	0.01	0.02	0.02	244-TRIME HEXANE	
43	0.01	0.02	0.02	235-TRIME HEXANE	*
53	0.01	0.02	0.02	26-DIME HEPTANE	
55	0.02	0.04	0.04	35-DIME HEPTANE	
56	0.01	0.01	0.01	23-DIME HEPTANE	
62	0.01	0.02	0.02	4-ME OCTANE	
60	0.02	0.03	0.04	2-ME OCTANE	
86	0.01	0.02	0.03	4-ME NONANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.43	0.36	0.40	CYCLOPENTANE

801	0.98	0.96	1.09	ME CYCLOPENTANE
806	0.12	0.14	0.16	1C3-DIME CYCPENTANE
807	0.12	0.14	0.16	1T3-DIME CYCPENTANE
805	0.07	0.08	0.09	1T2-DIME CYCPENTANE
811	0.01	0.02	0.02	113-TRIME CPENTANE
802	0.06	0.06	0.07	ET CYCLOPENTANE
817	0.03	0.03	0.04	1T2C4TRIME CPENTANE
814	0.01	0.02	0.02	1T2C3TRIME CPENTANE
810	0.01	0.02	0.02	112-TRIME CPENTANE*
848	0.02	0.03	0.04	11C3T4-TETRME CPENT
864	0.02	0.02	0.03	1MEC3ET CYCPENTANE
865	0.01	0.02	0.02	1MET3ET CYCPENTANE
861	0.06	0.08	0.09	1ME-1ET CYCPENTANE
862	0.01	0.01	0.02	1ME-C2ET CYPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.15	0.14	0.17	CYCLOHEXANE
826	0.21	0.24	0.28	ME CYCLOHEXANE
830	0.01	0.01	0.02	1T2-DIME CYCHEXANE
832	0.02	0.03	0.03	1T3-DIME CYCHEXANE
833	0.02	0.02	0.02	1C4-DIME CYCHEXANE
827	0.01	0.01	0.02	ETHYL CYCLOHEXANE
941	0.02	0.02	0.03	1ME-C3ET CYCHEXANE
940	0.01	0.01	0.02	1ME-1-ET CYCHEXANE
943	0.01	0.01	0.02	1M-C4-ET CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.13	0.11	0.10	1-BUTENE
304	0.14	0.11	0.10	TRANS-2-BUTENE
303	0.18	0.14	0.13	C1S-2-BUTENE
310	0.17	0.16	0.16	3-METHYL-1-BUTENE
306	0.61	0.58	0.57	1-PENTENE
309	1.19	1.12	1.10	2-METHYL-1-BUTENE
509	0.03	0.03	0.03	ISOPRENE
308	1.66	1.57	1.55	TRANS-2-PENTENE
327	0.02	0.02	0.02	3,3-DIME BUTENE
307	0.92	0.85	0.85	CIS-2-PENTENE
311	2.33	2.15	2.16	2-METHYL-2-BUTENE
505	0.03	0.03	0.03	T-13-PENTADIENE
530	0.01	0.01	0.01	CYCLOPENTADIENE
504	0.02	0.02	0.02	C-13-PENTADIENE
450	0.28	0.22	0.26	CYCLOPENTENE
323	0.09	0.10	0.10	C-4ME-2-PENTENE
324	0.16	0.17	0.17	T-4ME-2-PENTENE
317	0.24	0.26	0.27	2-ME-1-PENTENE
312	0.12	0.13	0.14	1-HEXENE
315	0.31	0.34	0.35	CIS-3-HEXENE
314	0.36	0.38	0.40	TRANS-2-HEXENE

320	0.35	0.37	0.39	2-METHYL-2-PENTENE
321	0.19	0.20	0.21	C-3ME-2-PENTENE
313	0.17	0.18	0.19	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	0.27	0.25	0.29	1-ME CYLCOPENTENE
2004	0.01	0.02	0.02	24-DIME-1-PENTENE
403	0.01	0.01	0.01	HEPTENES
2003	0.01	0.02	0.02	23-DIME-1-PENTENE
2024	0.01	0.01	0.01	5-ME-1-HEXENE
2009	0.02	0.02	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
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	0.04	0.05	0.06	T3-HEPTENE
2025	0.05	0.06	0.07	2-ME-2-HEXENE
2034	0.07	0.09	0.09	3-ME-C3-HEXENE
2018	0.07	0.08	0.09	3-ET-2-PENTENE
2040	0.04	0.05	0.05	TRANS-2-HEPTENE
2008	0.05	0.05	0.06	23-DIME-C2-PENTENE
2039	0.03	0.04	0.04	CIS-2-HEPTENE
4528	0.01	0.02	0.02	OCTENE D
4533	0.01	0.01	0.01	OCTENE I
4534	0.01	0.01	0.01	OCTENE J
2193	0.02	0.02	0.02	1-OCTENE
2198	0.01	0.02	0.02	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.11	0.86	1.15	BENZENE	
601	2.55	2.37	3.11	TOLUENE	
602	0.33	0.36	0.47	ETHYLBENZENE	
604	0.58	0.62	0.81	M-XYLENE	
605	0.24	0.26	0.34	P-XYLENE	
603	0.30	0.32	0.42	O-XYLENE	*
607	0.01	0.01	0.01	CUMENE	
644	0.04	0.05	0.06	N-PROPYL BENZENE	
609	0.11	0.14	0.18	1-ME-3-ET BENZENE	
610	0.05	0.06	0.08	1-ME-4-ET BENZENE	
613	0.05	0.06	0.08	135-TRIME BENZENE	
608	0.03	0.04	0.05	1-ME-2-ET BENZENE	*
612	0.14	0.17	0.22	124-TRIME BENZENE	*
611	0.02	0.03	0.04	123-TRIME BENZENE	*
650	0.01	0.01	0.02	INDAN	*
647	0.01	0.01	0.02	1-ME-3-PR BENZENE	
648	0.01	0.01	0.02	1-ME-4-PR BENZENE	

651	0.01	0.01	0.02	12-DIET BENZENE *
654	0.01	0.01	0.01	14-DIME2ET BENZENE *
656	0.01	0.01	0.02	12-DIME4ET BENZENE *

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1009	0.02	0.01	0.01	2-ME 2-PROPANOL
1450	13.82	14.10	15.77	2-ME-2ETHOXYPROPANE
188	0.02	0.03	0.03	UNCLASS. H.C. C- 8
189	0.01	0.02	0.02	UNCLASS. H.C. C- 9
193	0.02	0.04	0.06	UNCLASSIFIED C-13

CHEVRON RESEARCH GASOLINE ANALYSIS Headspace - duplicate

Sample Name: 6012722 API BLEND #4 GASOLINE/ETBE DUP Customer: CARR
Acquisition Date: 3-Apr-1996 Acquisition Time: 15:03
Channel #: 1 Analysis: GASO5 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-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	22.29	0.37	******	******	******	22.65	21.69	0.59	******	******	******
5	28.05	6.86	0.36	******	******	35.28	5.50	22.55	******	0.36	******
6	11.90	2.45	1.12	0.87	******	30.69	1.80	10.10	******	0.97	0.14
7	3.45	0.77	0.64	2.17	******	7.03	0.41	3.05	******	0.41	0.23
8	1.84	0.09	0.26	1.21	0.04	3.44	0.09	0.66	1.09	0.19	0.07
9	0.16	0.00	0.09	0.39	0.05	0.69	0.02	0.13	0.01	0.03	0.06
10	0.04	0.00	0.00	0.09	0.02	0.15	0.00	0.03	0.01	0.00	0.00
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	67.77	10.54	2.47	4.74	14.48	100.00	29.53	37.12	1.11	1.97	0.50

2. BY WEIGHT

3-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	19.67	0.34	******	******	******	20.01	19.16	0.50	******	******	******
5	26.54	6.88	0.41	******	******	33.84	5.25	21.29	******	0.41	******
6	11.91	2.57	1.28	1.16	******	33.03	1.81	10.10	******	1.11	0.17
7	3.59	0.84	0.73	2.86	******	8.03	0.42	3.17	******	0.47	0.27
8	1.95	0.10	0.31	1.59	0.05	4.00	0.09	0.70	1.15	0.23	0.08
9	0.18	0.00	0.11	0.52	0.05	0.86	0.02	0.15	0.02	0.03	0.07
10	0.04	0.00	0.00	0.12	0.03	0.19	0.00	0.04	0.01	0.00	0.00
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	63.91	10.74	2.84	6.27	16.24	100.00	26.77	35.96	1.18	2.25	0.59

3. BY MOLAR

3-	0.03	0.00	******	******	******	0.03	0.03	******	******	******	******
4	25.43	0.46	******	******	******	25.89	24.78	0.65	******	******	******
5	27.65	7.39	0.44	******	******	35.48	5.47	22.18	******	0.44	******
6	10.39	2.31	1.14	1.12	******	29.00	1.58	8.81	******	0.99	0.15
7	2.70	0.64	0.56	2.34	******	6.24	0.32	2.38	******	0.36	0.20
8	1.28	0.07	0.21	1.13	0.03	2.72	0.06	0.46	0.76	0.15	0.05
9	0.10	0.00	0.06	0.33	0.03	0.53	0.01	0.09	0.01	0.02	0.04
10	0.02	0.00	0.00	0.07	0.01	0.11	0.00	0.02	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.01	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	67.61	10.86	2.42	4.98	14.13	100.00	32.25	34.59	0.77	1.96	0.45

GRP. TYPE, VOL %: P = 79.24, O = 12.33, N = 2.89, A = 5.55, Saturates = 82.13
DIENE CONTENT = 864. vol ppm AVG MW = 75.2 API GR. = 82.4 SP. GR. =0.6615
OCTANE NUMBER: (from pure values) RON = 91.2 MON = 85.2
(from blending values) RON = 93.6 MON = 86.1
CARBON-HYDROGEN RATIO =5.294 STOICH. AIR-FUEL RATIO =15.10 lbs air/lbs fuel
BTU/lb = 18030. NET, 19445. GROSS; BTU/gal = 99529. NET, 107341. GROSS
REID VAPOR PRESSURE =21.9 BROMINE NO. = 23.4

* DISTILLATION CURVES

VOL %	TBP	D86
0.	-127	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.	97.
50.	97.	97.
55.	99.	112.
60.	136.	140.
65.	140.	146.
70.	154.	156.
75.	162.	162.
80.	162.	162.
85.	162.	162.
90.	194.	194.
95.	231.	231.
100.	472.	315.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

3-Apr-1996 15:03
6012722 API BLEND #4 GASOLINE/ETBE DUP 1GASO5
Sample 7 Injection 1

TOTAL UNCORRECTED AREA = 12305339.

NUMBER OF PEAKS READ IN = 236

3-Apr-1996 15:03
6012722 API BLEND #4 GASOLINE/ETBE DUP 1GASO5
Sample 7 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
3	0.03	0.02	0.02	PROPANE
4	24.78	21.69	19.16	N-BUTANE
6	5.47	5.50	5.25	N-PENTANE
9	1.58	1.80	1.81	N-HEXANE
14	0.32	0.41	0.42	N-HEPTANE
23	0.06	0.09	0.09	N-OCTANE
41	0.01	0.02	0.02	N-NONANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.65	0.59	0.50	ISOBUTANE	
8	0.18	0.19	0.17	NEOPENTANE	
7	22.00	22.36	21.12	ISOPENTANE	
12	0.77	0.89	0.88	22-DIME BUTANE	
13	1.41	1.60	1.61	23-DIME BUTANE	
10	4.31	4.97	4.94	2-ME PENTANE	
11	2.32	2.63	2.66	3-ME PENTANE	
18	0.04	0.05	0.05	22-DIME PENTANE	
20	0.52	0.68	0.69	24-DIME PENTANE	
19	0.76	0.96	1.02	23-DIME PENTANE	
15	0.54	0.69	0.71	2-ME HEXANE	
16	0.52	0.66	0.69	3-ME HEXANE	
37	0.69	0.99	1.04	224-TRIME PENTANE	*
28	0.01	0.01	0.01	22-DIME HEXANE	
36	0.01	0.02	0.02	223-TRIME PENTANE	*
31	0.06	0.09	0.09	25-DIME HEXANE	
30	0.09	0.13	0.14	24-DIME HEXANE	
34	0.02	0.03	0.03	2-ME-3-ET PENTANE	
29	0.06	0.08	0.09	23-DIME HEXANE	*
24	0.12	0.17	0.18	2-ME HEPTANE	
26	0.05	0.07	0.07	4-ME HEPTANE	
25	0.11	0.16	0.17	3-ME HEPTANE	
51	0.01	0.02	0.02	244-TRIME HEXANE	
43	0.01	0.01	0.02	235-TRIME HEXANE	*
53	0.01	0.01	0.01	26-DIME HEPTANE	
55	0.02	0.03	0.03	35-DIME HEPTANE	
62	0.01	0.02	0.02	4-ME OCTANE	
60	0.02	0.02	0.03	2-ME OCTANE	
86	0.01	0.02	0.02	4-ME NONANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.44	0.36	0.41	CYCLOPENTANE
801	0.99	0.97	1.11	ME CYCLOPENTANE

806	0.12	0.13	0.15	1C3-DIME CYCPENTANE
807	0.12	0.14	0.15	1T3-DIME CYCPENTANE
805	0.07	0.08	0.09	1T2-DIME CYCPENTANE
811	0.01	0.02	0.02	113-TRIME CPENTANE
802	0.05	0.06	0.07	ET CYCLOPENTANE
817	0.02	0.03	0.04	1T2C4TRIME CPENTANE
814	0.01	0.01	0.02	1T2C3TRIME CPENTANE
810	0.01	0.01	0.02	112-TRIME CPENTANE*
848	0.02	0.03	0.03	11C3T4-TETRME CPENT
864	0.01	0.02	0.02	1MEC3ET CYCPENTANE
865	0.01	0.02	0.02	1MET3ET CYCPENTANE
861	0.05	0.06	0.08	1ME-1ET CYCPENTANE
862	0.01	0.01	0.01	1ME-C2ET CYPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.15	0.14	0.17	CYCLOHEXANE
826	0.20	0.23	0.27	ME CYCLOHEXANE
830	0.01	0.01	0.01	1T2-DIME CYCHEXANE
832	0.02	0.02	0.02	1T3-DIME CYCHEXANE
833	0.01	0.02	0.02	1C4-DIME CYCHEXANE
827	0.01	0.01	0.01	ETHYL CYCLOHEXANE
941	0.01	0.01	0.02	1ME-C3ET CYCHEXANE
940	0.01	0.01	0.01	1ME-1-ET CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.13	0.11	0.10	1-BUTENE
304	0.14	0.12	0.11	TRANS-2-BUTENE
303	0.18	0.14	0.14	C1S-2-BUTENE
310	0.17	0.16	0.16	3-METHYL-1-BUTENE
306	0.62	0.59	0.58	1-PENTENE
309	1.21	1.14	1.13	2-METHYL-1-BUTENE
509	0.03	0.03	0.03	ISOPRENE
308	1.69	1.60	1.58	TRANS-2-PENTENE
327	0.02	0.02	0.02	3,3-DIME BUTENE
307	0.93	0.87	0.87	CIS-2-PENTENE
311	2.37	2.20	2.22	2-METHYL-2-BUTENE
505	0.03	0.03	0.03	T-13-PENTADIENE
530	0.02	0.02	0.02	CYCLOPENTADIENE
504	0.02	0.02	0.02	C-13-PENTADIENE
450	0.29	0.22	0.26	CYCLOPENTENE
323	0.09	0.10	0.10	C-4ME-2-PENTENE
324	0.16	0.17	0.18	T-4ME-2-PENTENE
317	0.24	0.26	0.27	2-ME-1-PENTENE
312	0.13	0.14	0.14	1-HEXENE
315	0.32	0.34	0.36	CIS-3-HEXENE
314	0.36	0.39	0.40	TRANS-2-HEXENE
320	0.35	0.38	0.39	2-METHYL-2-PENTENE
321	0.19	0.21	0.22	C-3ME-2-PENTENE

313	0.17	0.19	0.19	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	0.27	0.25	0.30	1-ME CYLCOPENTENE
2004	0.01	0.02	0.02	24-DIME-1-PENTENE
403	0.01	0.01	0.01	HEPTENES
2003	0.01	0.02	0.02	23-DIME-1-PENTENE
2024	0.01	0.01	0.01	5-ME-1-HEXENE
2009	0.02	0.02	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
2010	0.01	0.01	0.02	34-DIME-C2-PENTENE
2038	0.04	0.05	0.05	1-HEPTENE
2035	0.02	0.02	0.03	3-ME-T3-HEXENE
5370	0.05	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	0.07	2-ME-2-HEXENE
2034	0.07	0.08	0.09	3-ME-C3-HEXENE
2018	0.07	0.08	0.09	3-ET-2-PENTENE
2040	0.03	0.04	0.05	TRANS-2-HEPTENE
2008	0.04	0.05	0.06	23-DIME-C2-PENTENE
2039	0.03	0.03	0.03	CIS-2-HEPTENE
4528	0.01	0.02	0.02	OCTENE D
4533	0.01	0.01	0.01	OCTENE I
4534	0.01	0.01	0.01	OCTENE J
2193	0.02	0.02	0.02	1-OCTENE
2198	0.01	0.01	0.02	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.12	0.87	1.16	BENZENE	
601	2.34	2.17	2.86	TOLUENE	
602	0.26	0.28	0.37	ETHYLBENZENE	
604	0.45	0.48	0.63	M-XYLENE	
605	0.19	0.21	0.27	P-XYLENE	
603	0.23	0.24	0.32	O-XYLENE	*
644	0.03	0.03	0.04	N-PROPYL BENZENE	
609	0.08	0.10	0.13	1-ME-3-ET BENZENE	
610	0.03	0.04	0.05	1-ME-4-ET BENZENE	
613	0.04	0.04	0.06	135-TRIME BENZENE	
608	0.02	0.03	0.03	1-ME-2-ET BENZENE	*
612	0.10	0.12	0.15	124-TRIME BENZENE	*
611	0.02	0.02	0.02	123-TRIME BENZENE	*
647	0.01	0.01	0.01	1-ME-3-PR BENZENE	
651	0.01	0.01	0.01	12-DIET BENZENE	*

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME

1450	14.05	14.36	16.10	2-ME-2ETHOXYPROPANE
188	0.02	0.03	0.03	UNCLASS. H.C. C- 8
189	0.01	0.01	0.02	UNCLASS. H.C. C- 9

CHEVRON RESEARCH GASOLINE ANALYSIS

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Acquisition Date: 4-Apr-1996 Acquisition Time: 14:54
Sample Name: 6012774 API BLEND 5 GASOLINE/ETHANOL Customer: CARR
Channel #: 1 Analysis: GASO5 Sample #: 10 Injection #: 1

*** DETAILED COMPOSITION, PERCENT ***

1. BY VOLUME

C NO.	PARA	OLEF	NAPH	AROM	UNCL	TOTALS HC	NON-NORMAL BY C #	ALKYL PARA	ALKYL I-PARA	CYCLO- I-PARA	CYCLO- PENT	HEX
3-	0.02	0.00	******	******	******	13.51	0.02	******	******	******	******	
4	21.86	0.29	******	******	******	22.15	21.29	0.58	******	******	******	
5	27.84	6.68	0.38	******	******	34.89	5.64	22.20	******	0.38	******	
6	12.75	2.56	1.18	0.87	******	17.36	1.91	10.85	******	1.02	0.16	
7	3.81	0.64	0.70	2.26	******	7.41	0.51	3.29	******	0.42	0.28	
8	2.01	0.10	0.29	1.26	0.03	3.69	0.10	0.74	1.18	0.21	0.08	
9	0.18	0.00	0.10	0.43	0.05	0.77	0.02	0.15	0.02	0.03	0.07	
10	0.05	0.00	0.00	0.11	0.02	0.19	0.00	0.04	0.01	0.00	0.00	
11	0.01	0.00	0.00	0.01	0.01	0.02	0.00	0.01	0.00	0.00	0.00	
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	
TOT	68.54	10.26	2.65	4.95	13.60	100.00	29.48	37.86	1.20	2.06	0.59	

2. BY WEIGHT

3-	0.02	0.00	******	******	******	15.87	0.02	******	******	******	******	
4	19.12	0.26	******	******	******	19.38	18.63	0.49	******	******	******	
5	26.09	6.59	0.42	******	******	33.11	5.33	20.77	******	0.42	******	
6	12.64	2.67	1.33	1.15	******	17.80	1.90	10.75	******	1.15	0.18	
7	3.93	0.70	0.80	2.95	******	8.38	0.53	3.40	******	0.48	0.32	
8	2.11	0.10	0.34	1.65	0.03	4.23	0.10	0.78	1.23	0.24	0.10	
9	0.20	0.00	0.12	0.57	0.05	0.94	0.02	0.16	0.02	0.04	0.09	
10	0.06	0.00	0.00	0.15	0.03	0.24	0.00	0.05	0.01	0.00	0.00	
11	0.01	0.00	0.00	0.01	0.01	0.03	0.00	0.01	0.00	0.00	0.00	
12+	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	
TOT	64.17	10.32	3.02	6.49	15.99	100.00	26.52	36.40	1.26	2.33	0.69	

3. BY MOLAR

3-	0.02	0.00	******	******	******	31.66	0.02	******	******	******	******
4	19.73	0.28	******	******	******	20.02	19.23	0.50	******	******	******
5	21.70	5.64	0.36	******	******	27.71	4.43	17.27	******	0.36	******
6	8.80	1.91	0.95	0.89	******	12.55	1.32	7.48	******	0.82	0.13
7	2.35	0.43	0.49	1.92	******	5.19	0.32	2.04	******	0.29	0.20
8	1.11	0.06	0.18	0.93	0.02	2.29	0.05	0.41	0.65	0.13	0.05
9	0.09	0.00	0.06	0.28	0.03	0.46	0.01	0.08	0.01	0.02	0.04
10	0.02	0.00	0.00	0.07	0.01	0.11	0.00	0.02	0.00	0.00	0.00
11	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	53.84	8.31	2.04	4.10	31.70	100.00	25.39	27.80	0.66	1.62	0.42

GRP. TYPE, VOL %: P = 79.33, O = 11.87, N = 3.07, A = 5.73, Saturates = 82.40
DIENE CONTENT = 1153. vol ppm AVG MW = 60.0 API GR. = 80.4 SP. GR. =0.6676
OCTANE NUMBER: (from pure values) RON = 91.5 MON = 84.3
(from blending values) RON = 93.9 MON = 85.2
CARBON-HYDROGEN RATIO =5.073 STOICH. AIR-FUEL RATIO =15.23 lbs air/lbs fuel
BTU/lb = 18015. NET, 19459. GROSS; BTU/gal =100374. NET, 108414. GROSS
REID VAPOR PRESSURE =17.3 BROMINE NO. = 22.6

4-Apr-1996 14:54
6012774 API BLEND 5 GASOLINE/ETHANOL 1GASO5
Sample 10 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	-127.	31.
5.	31.	31.
10.	31.	82.
15.	31.	82.
20.	31.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	86.

45.	86.	97.
50.	97.	97.
55.	101.	122.
60.	136.	140.
65.	140.	146.
70.	154.	156.
75.	173.	173.
80.	173.	173.
85.	173.	173.
90.	194.	197.
95.	231.	231.
100	472	319.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

6012774 API BLEND 5 GASOLINE/ETHANOL 1GASO5
Sample 10 Injection 1

TOTAL UNCORRECTED AREA = 13483773

NUMBER OF PEAKS READ IN = 238

6012774 API BLEND 5 GASOLINE/ETHANOL 1GASO5
Sample 10 Injection 1

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
3	0.02	0.02	0.02	PROPANE
4	19.23	21.29	18.63	N-BUTANE
6	4.43	5.64	5.33	N-PENTANE
9	1.32	1.91	1.90	N-HEXANE
14	0.32	0.51	0.53	N-HEPTANE
23	0.05	0.10	0.10	N-OCTANE
41	0.01	0.02	0.02	N-NONANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
5	0.50	0.58	0.49	ISOBUTANE
8	0.14	0.19	0.17	NEOPENTANE
7	17.13	22.01	20.60	ISOPENTANE
12	0.82	1.21	1.18	22-DIME BUTANE
13	1.16	1.67	1.67	23-DIME BUTANE
10	3.57	5.21	5.13	2-ME PENTANE
11	1.93	2.76	2.77	3-ME PENTANE
18	0.03	0.06	0.06	22-DIME PENTANE
20	0.43	0.72	0.73	24-DIME PENTANE
19	0.66	1.06	1.11	23-DIME PENTANE
15	0.44	0.72	0.73	2-ME HEXANE
16	0.46	0.75	0.77	3-ME HEXANE
37	0.59	1.07	1.12	224-TRIME PENTANE *
28	0.01	0.01	0.01	22-DIME HEXANE
36	0.01	0.02	0.02	223-TRIME PENTANE *
31	0.06	0.10	0.11	25-DIME HEXANE
30	0.08	0.14	0.14	24-DIME HEXANE
32	0.01	0.01	0.01	33-DIME HEXANE
34	0.02	0.03	0.03	2-ME-3-ET PENTANE
29	0.05	0.09	0.10	23-DIME HEXANE *
24	0.15	0.27	0.29	2-ME HEPTANE
25	0.10	0.17	0.18	3-ME HEPTANE
73	0.01	0.01	0.01	224-TRIME HEXANE
51	0.01	0.02	0.02	244-TRIME HEXANE
43	0.01	0.02	0.02	235-TRIME HEXANE *
53	0.01	0.01	0.02	26-DIME HEPTANE
55	0.02	0.03	0.04	35-DIME HEPTANE
56	0.01	0.01	0.01	23-DIME HEPTANE
62	0.01	0.02	0.02	4-ME OCTANE
60	0.01	0.03	0.03	2-ME OCTANE

86	0.01	0.02	0.02	4-ME NONANE

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME

800	0.36	0.38	0.42	CYCLOPENTANE
801	0.82	1.02	1.15	ME CYCLOPENTANE
806	0.09	0.12	0.14	1C3-DIME CYCPENTANE
807	0.10	0.15	0.16	1T3-DIME CYCPENTANE
805	0.06	0.09	0.10	1T2-DIME CYCPENTANE
811	0.01	0.02	0.02	113-TRIME CPENTANE
802	0.05	0.07	0.08	ET CYCLOPENTANE
817	0.02	0.03	0.04	1T2C4TRIME CPENTANE
814	0.01	0.02	0.02	1T2C3TRIME CPENTANE
810	0.01	0.02	0.02	112-TRIME CPENTANE*
848	0.02	0.03	0.03	11C3T4-TETRME CPENT
864	0.01	0.02	0.02	1MEC3ET CYCPENTANE
865	0.01	0.02	0.02	1MET3ET CYCPENTANE
861	0.04	0.07	0.08	1ME-1ET CYCPENTANE
862	0.01	0.01	0.01	1ME-C2ET CYPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.13	0.16	0.18	CYCLOHEXANE
826	0.20	0.28	0.32	ME CYCLOHEXANE
830	0.01	0.01	0.02	1T2-DIME CYCHEXANE
832	0.02	0.03	0.04	1T3-DIME CYCHEXANE
833	0.01	0.02	0.02	1C4-DIME CYCHEXANE
827	0.01	0.01	0.02	ETHYL CYCLOHEXANE
941	0.01	0.02	0.02	1ME-C3ET CYCHEXANE
940	0.01	0.01	0.01	1ME-1-ET CYCHEXANE
943	0.01	0.01	0.02	1M-C4-ET CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.02	0.02	0.02	1-BUTENE
305	0.02	0.02	0.02	ISO-BUTENE
304	0.11	0.11	0.10	TRANS-2-BUTENE
303	0.14	0.14	0.13	C1S-2-BUTENE
310	0.13	0.16	0.15	3-METHYL-1-BUTENE
306	0.49	0.59	0.57	1-PENTENE
309	0.93	1.10	1.08	2-METHYL-1-BUTENE
509	0.05	0.06	0.06	ISOPRENE
308	1.36	1.62	1.59	TRANS-2-PENTENE
327	0.02	0.03	0.03	3,3-DIME BUTENE
307	0.75	0.88	0.87	CIS-2-PENTENE
311	1.89	2.21	2.21	2-METHYL-2-BUTENE
505	0.05	0.06	0.06	T-13-PENTADIENE
323	0.08	0.11	0.11	C-4ME-2-PENTENE
324	0.13	0.18	0.18	T-4ME-2-PENTENE
317	0.20	0.28	0.28	2-ME-1-PENTENE
312	0.10	0.14	0.14	1-HEXENE
315	0.26	0.36	0.37	CIS-3-HEXENE
314	0.30	0.41	0.42	TRANS-2-HEXENE
320	0.44	0.60	0.62	2-METHYL-2-PENTENE

313	0.14	0.19	0.20	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	0.24	0.27	0.32	1-ME CYLCOPENTENE
403	0.01	0.01	0.01	HEPTENES
2003	0.02	0.03	0.03	23-DIME-1-PENTENE
2009	0.02	0.03	0.03	24-DIME-CIS2-PENTENE
403	0.01	0.01	0.01	HEPTENES
2033	0.03	0.05	0.05	2-ME-T3-HEXENE
2010	0.01	0.01	0.02	34-DIME-C2-PENTENE
2038	0.03	0.05	0.06	1-HEPTENE
5370	0.06	0.08	0.09	C-7 CYCLOPENTENE A
5371	0.03	0.05	0.06	C-7 CYCLOPENTENE B
2025	0.04	0.07	0.07	2-ME-2-HEXENE
2034	0.06	0.09	0.10	3-ME-C3-HEXENE
2018	0.05	0.08	0.08	3-ET-2-PENTENE
2008	0.04	0.06	0.06	23-DIME-C2-PENTENE

4532	0.00	0.01	0.01	OCTENE H
4528	0.01	0.02	0.02	OCTENE D
4533	0.01	0.01	0.01	OCTENE I
4534	0.01	0.01	0.01	OCTENE J
2193	0.01	0.02	0.03	1-OCTENE
2198	0.01	0.01	0.01	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME
600	0.89	0.87	1.15	BENZENE
601	1.92	2.26	2.95	TOLUENE
602	0.22	0.30	0.39	ETHYLBENZENE
604	0.39	0.53	0.69	M-XYLENE
605	0.14	0.19	0.25	P-XYLENE
603	0.19	0.25	0.33	O-XYLENE *
644	0.02	0.04	0.05	N-PROPYL BENZENE
609	0.07	0.10	0.13	1-ME-3-ET BENZENE
610	0.03	0.05	0.06	1-ME-4-ET BENZENE
613	0.03	0.05	0.06	135-TRIME BENZENE
608	0.02	0.03	0.04	1-ME-2-ET BENZENE *
612	0.08	0.13	0.17	124-TRIME BENZENE *
611	0.02	0.02	0.03	123-TRIME BENZENE *
650	0.01	0.01	0.02	INDAN *
647	0.01	0.01	0.02	1-ME-3-PR BENZENE
648	0.01	0.01	0.01	1-ME-4-PR BENZENE
651	0.01	0.01	0.02	12-DIET BENZENE *
656	0.01	0.01	0.01	12-DIME4ET BENZENE *

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1003	0.80	0.34	0.40	ETHANOL
1003	7.16	3.05	3.59	ETHANOL

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6012774 API BLEND 5 GASOLINE/ETHANOL 1GASO5
Sample 10 Injection 1

1003	0.78	0.33	0.39	ETHANOL
1003	0.88	0.38	0.44	ETHANOL
1003	3.44	1.47	1.72	ETHANOL

1003	2.72	1.16	1.36	ETHANOL
1003	1.95	0.83	0.98	ETHANOL
1003	2.32	0.99	1.16	ETHANOL
1003	2.81	1.20	1.41	ETHANOL
1003	3.87	1.65	1.94	ETHANOL
1003	1.43	0.61	0.71	ETHANOL
1003	2.80	1.19	1.41	ETHANOL
1003	0.67	0.28	0.33	ETHANOL
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

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Acquisition Date: 4-Apr-1996 Acquisition Time: 17:31
Sample Name: 6012774 API BLEND 5 GASOLINE/ETHANOLDUP Customer: CARR
Channel #: 1 Analysis: GASO5 Sample #: 11 Injection #: 1

*** DETAILED COMPOSITION, PERCENT ***

1. BY VOLUME

C NO.	PARA	OLEF	NAPH	AROM	UNCL	TOTALS HC	NON-NORMAL BY C #	ALKYL PARA	ALKYL I-PARA	CYCLO- I-PARA	CYCLO- PENT	HEX
3-	0.02	0.00	******	******	******	11.25	0.02	******	******	******	******	
4	22.76	0.30	******	******	******	23.06	22.16	0.60	******	******	******	
5	28.81	6.87	0.37	******	******	36.05	5.61	23.21	******	0.37	******	
6	12.12	2.48	1.14	0.85	******	16.60	1.85	10.27	******	1.00	0.15	
7	3.69	0.77	0.69	2.42	******	7.57	0.46	3.24	******	0.44	0.25	
8	2.13	0.11	0.33	1.61	0.04	4.21	0.12	0.81	1.21	0.23	0.09	
9	0.23	0.00	0.12	0.57	0.06	0.99	0.02	0.19	0.02	0.04	0.09	
10	0.07	0.00	0.00	0.13	0.04	0.24	0.00	0.06	0.01	0.00	0.00	
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00	
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	
TOT	69.85	10.52	2.65	5.59	11.38	100.00	30.23	38.38	1.24	2.07	0.58	

2. BY WEIGHT

3-	0.02	0.00	******	******	******	13.26	0.02	******	******	******	******	
4	19.96	0.28	******	******	******	20.24	19.45	0.51	******	******	******	
5	27.09	6.84	0.41	******	******	34.35	5.32	21.77	******	0.41	******	
6	12.06	2.59	1.30	1.13	******	17.08	1.85	10.21	******	1.13	0.17	
7	3.82	0.83	0.79	3.17	******	8.61	0.47	3.35	******	0.50	0.29	
8	2.25	0.12	0.38	2.11	0.04	4.90	0.12	0.86	1.27	0.27	0.11	
9	0.25	0.00	0.14	0.75	0.07	1.22	0.03	0.20	0.02	0.04	0.10	
10	0.07	0.00	0.01	0.18	0.05	0.30	0.00	0.06	0.01	0.00	0.01	
11	0.01	0.00	0.00	0.01	0.01	0.03	0.00	0.01	0.00	0.00	0.00	
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	
TOT	65.53	10.66	3.03	7.35	13.42	100.00	27.25	36.98	1.30	2.35	0.68	

3. BY MOLAR

3-	0.03	0.00	******	******	******	27.30	0.03	******	******	******	******
4	21.27	0.30	******	******	******	21.57	20.72	0.55	******	******	******
5	23.25	6.05	0.36	******	******	29.67	4.56	18.69	******	0.36	******
6	8.67	1.91	0.96	0.90	******	12.43	1.33	7.34	******	0.83	0.13
7	2.36	0.53	0.50	2.13	******	5.52	0.29	2.07	******	0.31	0.18
8	1.22	0.06	0.21	1.23	0.02	2.75	0.07	0.46	0.69	0.15	0.06
9	0.12	0.00	0.07	0.39	0.04	0.61	0.01	0.10	0.01	0.02	0.05
10	0.03	0.00	0.00	0.08	0.02	0.14	0.00	0.03	0.01	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.01	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	56.95	8.86	2.10	4.73	27.36	100.00	27.01	29.23	0.70	1.68	0.42

GRP. TYPE, VOL %: P = 78.82, O = 11.88, N = 2.99, A = 6.31, Saturates = 81.81

DIENE CONTENT = 966. vol ppm AVG MW = 61.9 API GR. = 81.1 SP. GR. =0.6655

OCTANE NUMBER: (from pure values) RON = 91.0 MON = 84.2
(from blending values) RON = 93.4 MON = 85.1

CARBON-HYDROGEN RATIO =5.133 STOICH. AIR-FUEL RATIO =15.20 lbs air/lbs fuel

BTU/lb = 17858. NET, 19288. GROSS; BTU/gal = 99181. NET, 107126. GROSS

REID VAPOR PRESSURE =18.4 BROMINE NO. = 23.3

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6012774 API BLEND 5 GASOLINE/ETHANOLDUP 1GASO5

Sample 11 Injection 1

* DISTILLATION CURVES

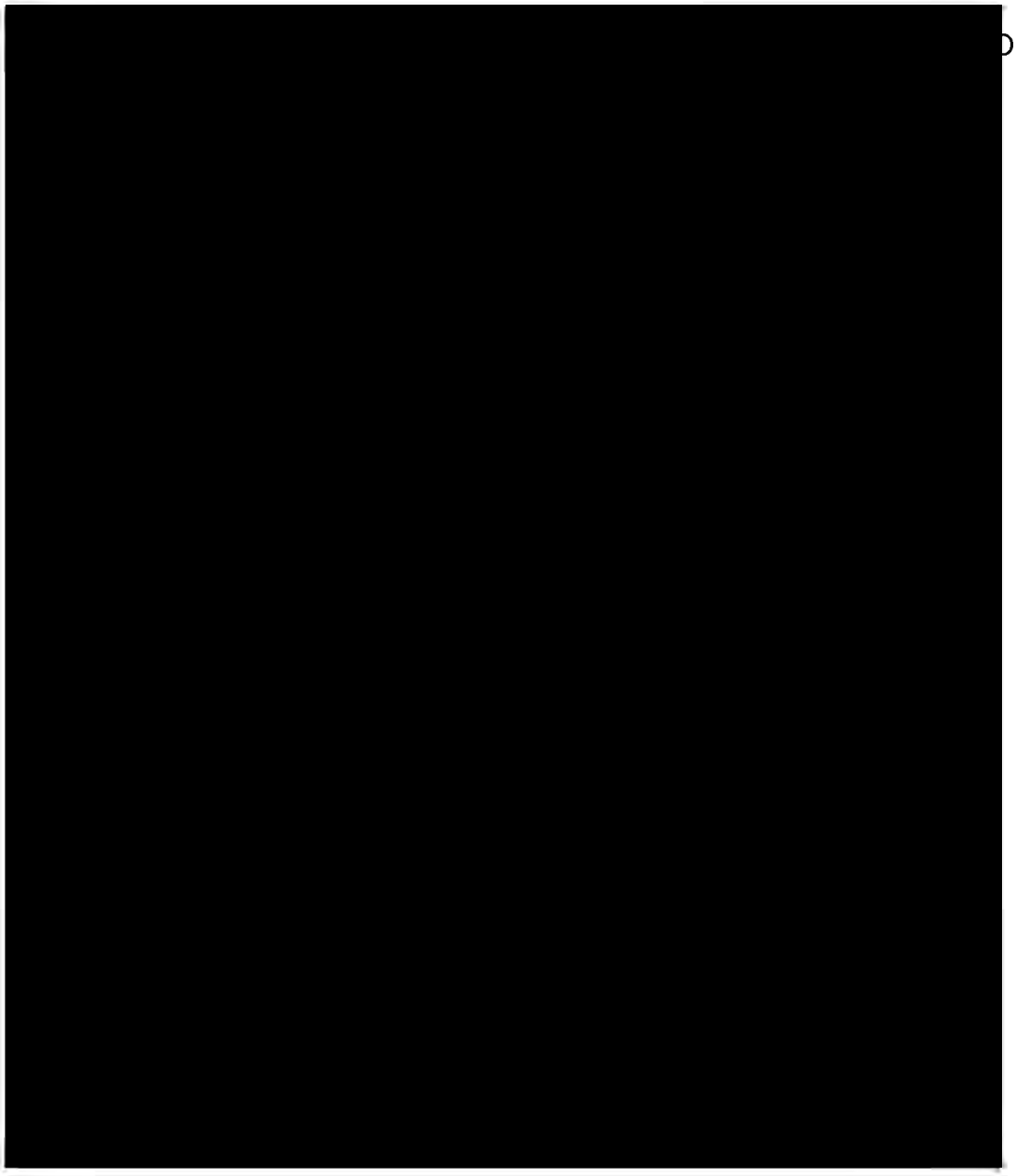
VOL %	TBP	D86
0.	-127.	31.
5.	31.	31.
10.	31.	39.
15.	31.	82.
20.	31.	82.
25.	82.	82.
30.	82.	82.
35.	82.	82.
40.	82.	82.

45	82.	97.
50	97.	97.
55	97.	101.
60.	122.	140.
65.	140.	140.
70.	146.	154.
75.	173.	173.
80.	173.	173.
85.	173.	175.
90.	197.	204.
95.	231.	233.
100	472.	325

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

6012774 API BLEND 5 GASOLINE/ETHANOLDUP 1GASO5
Sample 11 Injection 1



DDE

TOTAL UNCORRECTED AREA = 13024258

NUMBER OF PEAKS READ IN = 263

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
3	0.02	0.02	0.02	PROPANE
4	20.72	22.16	19.45	N-BUTANE
6	4.56	5.61	5.32	N-PENTANE
9	1.33	1.85	1.85	N-HEXANE
14	0.29	0.46	0.47	N-HEPTANE
23	0.07	0.12	0.12	N-OCTANE
41	0.01	0.02	0.03	N-NONANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
5	0.55	0.60	0.51	ISOBUTANE
8	0.15	0.20	0.18	NEOPENTANE
7	18.54	23.01	21.60	ISOPENTANE
12	0.63	0.90	0.88	22-DIME BUTANE
13	1.17	1.62	1.63	23-DIME BUTANE
10	3.60	5.06	5.00	2-ME PENTANE
11	1.94	2.69	2.70	3-ME PENTANE
18	0.04	0.06	0.06	22-DIME PENTANE
20	0.44	0.70	0.71	24-DIME PENTANE
19	0.66	1.01	1.07	23-DIME PENTANE
15	0.47	0.75	0.77	2-ME HEXANE
16	0.46	0.72	0.75	3-ME HEXANE
37	0.62	1.09	1.13	224-TRIME PENTANE *
28	0.01	0.01	0.01	22-DIME HEXANE
36	0.01	0.02	0.02	223-TRIME PENTANE *
31	0.06	0.11	0.11	25-DIME HEXANE
30	0.08	0.15	0.16	24-DIME HEXANE
32	0.01	0.01	0.01	33-DIME HEXANE
34	0.02	0.03	0.04	2-ME-3-ET PENTANE
29	0.06	0.10	0.11	23-DIME HEXANE *
24	0.12	0.21	0.22	2-ME HEPTANE
26	0.05	0.09	0.10	4-ME HEPTANE
25	0.11	0.20	0.21	3-ME HEPTANE
51	0.01	0.02	0.03	244-TRIME HEXANE
43	0.01	0.02	0.02	235-TRIME HEXANE *

53	0.01	0.02	0.02	26-DIME HEPTANE
55	0.02	0.04	0.04	35-DIME HEPTANE
56	0.01	0.01	0.01	23-DIME HEPTANE
62	0.01	0.02	0.03	4-ME OCTANE
60	0.02	0.04	0.04	2-ME OCTANE
86	0.01	0.02	0.03	4-ME NONANE

CYCLOPENTANES

CODE MOL. VOL. WT. NAME

800	0.36	0.37	0.41	CYCLOPENTANE
801	0.83	1.00	1.13	ME CYCLOPENTANE
806	0.10	0.14	0.16	1C3-DIME CYCPENTANE
807	0.10	0.14	0.16	1T3-DIME CYCPENTANE
805	0.06	0.09	0.10	1T2-DIME CYCPENTANE
811	0.01	0.02	0.02	113-TRIME CPENTANE
802	0.05	0.07	0.08	ET CYCLOPENTANE
817	0.02	0.04	0.04	1T2C4TRIME CPENTANE
814	0.01	0.02	0.02	1T2C3TRIME CPENTANE
810	0.01	0.02	0.02	112-TRIME CPENTANE*
848	0.02	0.03	0.04	11C3T4-TETRME CPENT
864	0.01	0.02	0.03	1MEC3ET CYCPENTANE
865	0.01	0.02	0.02	1MET3ET CYCPENTANE
861	0.05	0.08	0.10	1ME-1ET CYCPENTANE
862	0.01	0.01	0.02	1ME-C2ET CYPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.13	0.15	0.17	CYCLOHEXANE
826	0.18	0.25	0.29	ME CYCLOHEXANE
830	0.01	0.02	0.02	1T2-DIME CYCHEXANE
832	0.02	0.03	0.04	1T3-DIME CYCHEXANE
833	0.01	0.02	0.02	1C4-DIME CYCHEXANE
827	0.01	0.02	0.02	ETHYL CYCLOHEXANE
941	0.01	0.02	0.03	1ME-C3ET CYCHEXANE
940	0.01	0.01	0.02	1ME-1-ET CYCHEXANE

943	0.01	0.01	0.02	1M-C4-ET CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.02	0.02	0.02	1-BUTENE
305	0.02	0.02	0.02	ISO-BUTENE
304	0.12	0.11	0.10	TRANS-2-BUTENE
303	0.15	0.14	0.13	C1S-2-BUTENE
310	0.14	0.16	0.16	3-METHYL-1-BUTENE
306	0.53	0.62	0.60	1-PENTENE
309	0.98	1.13	1.11	2-METHYL-1-BUTENE
509	0.04	0.05	0.05	ISOPRENE
308	1.39	1.60	1.58	TRANS-2-PENTENE
327	0.01	0.02	0.02	3,3-DIME BUTENE
307	0.76	0.87	0.86	CIS-2-PENTENE
311	1.93	2.18	2.19	2-METHYL-2-BUTENE
505	0.03	0.03	0.03	T-13-PENTADIENE
530	0.01	0.01	0.01	CYCLOPENTADIENE
504	0.01	0.01	0.01	C-13-PENTADIENE
450	0.23	0.22	0.26	CYCLOPENTENE
323	0.08	0.10	0.10	C-4ME-2-PENTENE
324	0.13	0.17	0.18	T-4ME-2-PENTENE
317	0.20	0.26	0.27	2-ME-1-PENTENE
312	0.10	0.14	0.14	1-HEXENE

315	0.26	0.35	0.36	CIS-3-HEXENE
314	0.30	0.40	0.41	TRANS-2-HEXENE
320	0.30	0.39	0.40	2-METHYL-2-PENTENE
321	0.16	0.20	0.21	C-3ME-2-PENTENE
313	0.14	0.19	0.20	CIS-2-HEXENE
2005	0.01	0.01	0.01	33-DIME-1-PENTENE
4500	0.00	0.01	0.01	HEPTENE A
2011	0.01	0.01	0.01	44-DIME-C2-PENTENE
451	0.23	0.25	0.30	1-ME CYLCOPENTENE
2004	0.01	0.02	0.02	24-DIME-1-PENTENE
403	0.01	0.01	0.01	HEPTENES
2003	0.01	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	0.03	0.05	0.05	2-ME-T3-HEXENE
2010	0.01	0.02	0.02	34-DIME-C2-PENTENE
2038	0.04	0.05	0.06	1-HEPTENE
2035	0.02	0.02	0.03	3-ME-T3-HEXENE
5370	0.04	0.05	0.07	C-7 CYCLOPENTENE A
5371	0.04	0.05	0.06	C-7 CYCLOPENTENE B
2042	0.04	0.06	0.06	T3-HEPTENE
2025	0.05	0.07	0.07	2-ME-2-HEXENE
2034	0.06	0.09	0.10	3-ME-C3-HEXENE
2018	0.05	0.08	0.08	3-ET-2-PENTENE
2008	0.04	0.06	0.06	23-DIME-C2-PENTENE
2039	0.03	0.04	0.04	CIS-2-HEPTENE
4532	0.00	0.01	0.01	OCTENE H
4528	0.01	0.02	0.02	OCTENE D
4533	0.01	0.01	0.01	OCTENE I
4534	0.01	0.01	0.01	OCTENE J
2193	0.01	0.02	0.03	1-OCTENE
2198	0.01	0.02	0.02	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME
600	0.90	0.85	1.13	BENZENE
601	2.13	2.42	3.17	TOLUENE
602	0.28	0.37	0.48	ETHYLBENZENE
604	0.49	0.64	0.83	M-XYLENE
605	0.21	0.27	0.36	P-XYLENE
603	0.25	0.33	0.44	O-XYLENE *
607	0.01	0.01	0.01	CUMENE
644	0.03	0.05	0.07	N-PROPYL BENZENE
609	0.09	0.14	0.18	1-ME-3-ET BENZENE
610	0.04	0.06	0.08	1-ME-4-ET BENZENE
613	0.04	0.06	0.08	135-TRIME BENZENE
608	0.03	0.04	0.05	1-ME-2-ET BENZENE *
612	0.11	0.17	0.22	124-TRIME BENZENE *
611	0.02	0.03	0.04	123-TRIME BENZENE *
650	0.01	0.01	0.02	INDAN *
647	0.01	0.01	0.02	1-ME-3-PR BENZENE

648	0.01	0.01	0.02	1-ME-4-PR BENZENE
651	0.01	0.01	0.02	12-DIET BENZENE *
654	0.01	0.01	0.01	14-DIME2ET BENZENE *
656	0.01	0.01	0.02	12-DIME4ET BENZENE *

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1003	0.86	0.35	0.42	ETHANOL
1003	5.19	2.14	2.52	ETHANOL
1003	1.68	0.69	0.82	ETHANOL
1003	0.48	0.20	0.23	ETHANOL
1003	1.82	0.75	0.88	ETHANOL
1003	1.00	0.41	0.49	ETHANOL
1003	1.47	0.61	0.71	ETHANOL
1003	1.98	0.82	0.96	ETHANOL
1003	1.59	0.65	0.77	ETHANOL
1003	1.66	0.68	0.81	ETHANOL
1003	1.26	0.52	0.61	ETHANOL
1003	2.94	1.21	1.43	ETHANOL
1003	1.35	0.56	0.66	ETHANOL
1003	3.71	1.53	1.80	ETHANOL
1003	0.28	0.11	0.13	ETHANOL
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 Headspace

Sample Name: 6015318 API BLEND 6 GASOLINE/TBA Customer: CARR
Acquisition Date: 4-Apr-1996 Acquisition Time: 10:41
Channel #: 1 Analysis: GASO5 Sample #: 8 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-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	23.28	0.30	******	******	******	23.59	22.67	0.61	******	******	******
5	30.06	9.89	0.35	******	******	40.29	5.93	24.12	******	0.35	******
6	14.31	3.57	1.27	0.96	******	20.11	2.04	12.27	******	1.10	0.17
7	4.18	1.99	0.78	2.82	******	9.77	0.52	3.65	******	0.50	0.29
8	2.46	0.12	0.39	1.83	0.04	4.85	0.14	0.94	1.39	0.28	0.11
9	0.26	0.00	0.15	0.62	0.07	1.10	0.03	0.22	0.02	0.04	0.10
10	0.07	0.00	0.01	0.13	0.04	0.24	0.00	0.06	0.01	0.00	0.01
11	0.01	0.00	0.00	0.01	0.01	0.02	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	74.66	15.87	2.94	6.37	0.16	100.00	31.36	41.88	1.42	2.27	0.67

2. BY WEIGHT

3-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	20.71	0.29	******	******	******	21.00	20.19	0.52	******	******	******
5	28.67	10.37	0.39	******	******	39.43	5.71	22.96	******	0.39	******
6	14.43	3.75	1.46	1.30	******	20.94	2.07	12.36	******	1.27	0.20
7	4.38	2.13	0.91	3.75	******	11.18	0.55	3.84	******	0.57	0.34
8	2.64	0.14	0.46	2.43	0.05	5.71	0.15	1.01	1.48	0.33	0.13
9	0.29	0.00	0.18	0.82	0.08	1.37	0.03	0.24	0.02	0.05	0.13
10	0.08	0.00	0.01	0.17	0.04	0.30	0.00	0.07	0.01	0.00	0.01
11	0.01	0.00	0.00	0.01	0.01	0.03	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	71.23	16.68	3.41	8.49	0.19	100.00	28.71	41.01	1.51	2.61	0.80

3. BY MOLAR

3-	0.03	0.00	******	******	******	0.03	0.03	******	******	******	******
4	26.57	0.38	******	******	******	26.95	25.90	0.67	******	******	******
5	29.62	11.14	0.42	******	******	41.18	5.90	23.73	******	0.42	******
6	12.48	3.33	1.30	1.24	******	18.35	1.79	10.69	******	1.12	0.18
7	3.26	1.62	0.69	3.04	******	8.61	0.41	2.85	******	0.44	0.26
8	1.72	0.09	0.31	1.71	0.03	3.85	0.10	0.66	0.96	0.22	0.09
9	0.17	0.00	0.10	0.51	0.05	0.83	0.02	0.14	0.01	0.03	0.07
10	0.04	0.00	0.00	0.10	0.02	0.16	0.00	0.03	0.01	0.00	0.00
11	0.01	0.00	0.00	0.01	0.00	0.01	0.00	0.01	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	73.91	16.56	2.82	6.60	0.11	100.00	34.14	38.78	0.98	2.22	0.60

GRP. TYPE, VOL %: P = 74.78, O = 15.89, N = 2.94, A = 6.38, Saturates = 77.72
DIENE CONTENT = 7717. vol ppm AVG MW = 74.6 API GR. = 84.2 SP. GR. =0.6561
OCTANE NUMBER: (from pure values) RON = 87.6 MON = 82.7
(from blending values) RON = 91.3 MON = 83.9
CARBON-HYDROGEN RATIO =5.441 STOICH. AIR-FUEL RATIO =15.02 lbs air/lbs fuel
BTU/lb = 17803. NET, 19201. GROSS; BTU/gal = 97478. NET, 105130. GROSS
REID VAPOR PRESSURE =22.9 BROMINE NO. = 38.2

* DISTILLATION CURVES

VOL %	TBP	D86
0.	-127.	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.	88.
50.	97.	97.
55.	97.	99.
60.	101.	112.
65.	122.	130.
70.	140.	140.
75.	146.	146.
80.	156.	156.
85.	176.	177.
90.	207.	210.
95.	231.	243.
100.	472.	325.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

TOTAL UNCORRECTED AREA = 12788083.

NUMBER OF PEAKS READ IN = 251

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
3	0.03	0.02	0.02	PROPANE
4	25.90	22.67	20.19	N-BUTANE
6	5.90	5.93	5.71	N-PENTANE
9	1.79	2.04	2.07	N-HEXANE
14	0.41	0.52	0.55	N-HEPTANE
23	0.10	0.14	0.15	N-OCTANE
41	0.02	0.03	0.03	N-NONANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.67	0.61	0.52	ISOBUTANE	
8	0.19	0.21	0.19	NEOPENTANE	
7	23.53	23.92	22.77	ISOPENTANE	
12	1.72	1.99	1.98	22-DIME BUTANE	
13	1.56	1.78	1.81	23-DIME BUTANE	
10	4.81	5.55	5.56	2-ME PENTANE	
11	2.60	2.95	3.01	3-ME PENTANE	
18	0.05	0.06	0.06	22-DIME PENTANE	
20	0.60	0.78	0.81	24-DIME PENTANE	
19	0.92	1.15	1.23	23-DIME PENTANE	
15	0.65	0.84	0.87	2-ME HEXANE	
16	0.64	0.82	0.86	3-ME HEXANE	
37	0.86	1.24	1.32	224-TRIME PENTANE	*
28	0.01	0.01	0.02	22-DIME HEXANE	
36	0.02	0.02	0.02	223-TRIME PENTANE	*
31	0.09	0.12	0.13	25-DIME HEXANE	
30	0.12	0.17	0.18	24-DIME HEXANE	
32	0.01	0.01	0.01	33-DIME HEXANE	
34	0.03	0.04	0.04	2-ME-3-ET PENTANE	
29	0.08	0.12	0.13	23-DIME HEXANE	*
24	0.17	0.25	0.27	2-ME HEPTANE	
26	0.07	0.10	0.11	4-ME HEPTANE	
25	0.16	0.23	0.25	3-ME HEPTANE	
51	0.02	0.03	0.03	244-TRIME HEXANE	
43	0.01	0.02	0.02	235-TRIME HEXANE	*
53	0.01	0.02	0.02	26-DIME HEPTANE	
55	0.03	0.04	0.04	35-DIME HEPTANE	
56	0.01	0.02	0.02	23-DIME HEPTANE	
62	0.02	0.03	0.03	4-ME OCTANE	
60	0.03	0.04	0.04	2-ME OCTANE	
86	0.02	0.03	0.03	4-ME NONANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME

800	0.42	0.35	0.39	CYCLOPENTANE
801	1.12	1.10	1.27	ME CYCLOPENTANE
806	0.14	0.16	0.18	1C3-DIME CYCPENTANE
807	0.14	0.16	0.19	1T3-DIME CYCPENTANE
805	0.09	0.10	0.11	1T2-DIME CYCPENTANE
811	0.02	0.02	0.03	113-TRIME CPENTANE
802	0.07	0.07	0.09	ET CYCLOPENTANE
817	0.03	0.04	0.05	1T2C4TRIME CPENTANE
814	0.02	0.02	0.02	1T2C3TRIME CPENTANE
810	0.02	0.02	0.03	112-TRIME CPENTANE*
848	0.03	0.04	0.04	11C3T4-TETRME CPENT
864	0.02	0.03	0.03	1MEC3ET CYCPENTANE
865	0.02	0.02	0.03	1MET3ET CYCPENTANE
861	0.07	0.09	0.11	1ME-1ET CYCPENTANE
862	0.01	0.02	0.02	1ME-C2ET CYPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.18	0.17	0.20	CYCLOHEXANE
826	0.26	0.29	0.34	ME CYCLOHEXANE
830	0.01	0.02	0.02	1T2-DIME CYCHEXANE
832	0.03	0.04	0.05	1T3-DIME CYCHEXANE
833	0.02	0.02	0.03	1C4-DIME CYCHEXANE
829	0.01	0.01	0.01	1C2-DIME CYCHEXANE
827	0.01	0.02	0.02	ETHYL CYCLOHEXANE
946	0.01	0.01	0.01	113-TRIME CYCHEXANE
956	0.01	0.01	0.01	1C3T5-TRIME CYCHEX
941	0.02	0.03	0.03	1ME-C3ET CYCHEXANE
940	0.01	0.02	0.02	1ME-1-ET CYCHEXANE
943	0.01	0.02	0.02	1M-C4-ET CYCHEXANE

OLEFINS, DIENES

CODE	MOL.	VOL.	WT.	NAME
302	0.02	0.02	0.02	1-BUTENE
305	0.03	0.03	0.02	ISO-BUTENE
304	0.14	0.11	0.11	TRANS-2-BUTENE
303	0.19	0.15	0.14	C1S-2-BUTENE
310	0.18	0.17	0.17	3-METHYL-1-BUTENE
306	0.66	0.63	0.62	1-PENTENE
309	1.27	1.20	1.20	2-METHYL-1-BUTENE
509	0.03	0.03	0.03	ISOPRENE
308	1.81	1.71	1.70	TRANS-2-PENTENE
327	0.02	0.02	0.02	3,3-DIME BUTENE
307	0.99	0.93	0.93	CIS-2-PENTENE
311	2.53	2.34	2.38	2-METHYL-2-BUTENE
505	0.04	0.03	0.04	T-13-PENTADIENE
530	0.14	0.11	0.12	CYCLOPENTADIENE
504	0.70	0.60	0.64	C-13-PENTADIENE
403	0.55	0.69	0.73	HEPTENES
450	2.79	2.15	2.55	CYCLOPENTENE

403	0.33	0.41	0.43	HEPTENES
318	0.75	0.83	0.85	3-METHYL-1-PENTENE
323	0.10	0.11	0.12	C-4ME-2-PENTENE
324	0.17	0.19	0.20	T-4ME-2-PENTENE
317	0.27	0.29	0.30	2-ME-1-PENTENE
312	0.14	0.15	0.16	1-HEXENE
315	0.35	0.38	0.40	CIS-3-HEXENE
314	0.41	0.44	0.46	TRANS-2-HEXENE
320	0.40	0.43	0.45	2-METHYL-2-PENTENE
321	0.21	0.23	0.24	C-3ME-2-PENTENE
313	0.20	0.21	0.22	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	0.31	0.28	0.34	1-ME CYLCOPENTENE
2004	0.02	0.02	0.02	24-DIME-1-PENTENE
2017	0.00	0.01	0.01	3-ET 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	0.06	2-ME-T3-HEXENE
2010	0.01	0.02	0.02	34-DIME-C2-PENTENE
2038	0.05	0.06	0.07	1-HEPTENE
2035	0.03	0.03	0.04	3-ME-T3-HEXENE
5370	0.05	0.06	0.07	C-7 CYCLOPENTENE A
5371	0.05	0.05	0.07	C-7 CYCLOPENTENE B
2042	0.06	0.07	0.08	T3-HEPTENE
2025	0.06	0.08	0.08	2-ME-2-HEXENE
2034	0.09	0.10	0.11	3-ME-C3-HEXENE
2018	0.08	0.09	0.10	3-ET-2-PENTENE
2008	0.06	0.07	0.07	23-DIME-C2-PENTENE
2039	0.04	0.04	0.05	CIS-2-HEPTENE
4532	0.00	0.01	0.01	OCTENE H
4528	0.02	0.02	0.02	OCTENE D
4533	0.01	0.01	0.01	OCTENE I
4534	0.01	0.01	0.01	OCTENE J
2193	0.02	0.03	0.03	1-OCTENE
2198	0.02	0.02	0.02	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME	
600	1.24	0.96	1.30	BENZENE	
601	3.04	2.82	3.75	TOLUENE	
602	0.40	0.42	0.56	ETHYLBENZENE	
604	0.68	0.73	0.97	M-XYLENE	
605	0.28	0.30	0.40	P-XYLENE	
603	0.35	0.37	0.50	O-XYLENE	*
607	0.01	0.01	0.02	CUMENE	
644	0.04	0.05	0.07	N-PROPYL BENZENE	
609	0.12	0.15	0.20	1-ME-3-ET BENZENE	

610	0.05	0.06	0.09	1-ME-4-ET BENZENE
613	0.06	0.07	0.09	135-TRIME BENZENE
608	0.03	0.04	0.06	1-ME-2-ET BENZENE *
612	0.15	0.18	0.24	124-TRIME BENZENE *
611	0.03	0.03	0.05	123-TRIME BENZENE *
650	0.01	0.01	0.02	INDAN *
647	0.01	0.01	0.02	1-ME-3-PR BENZENE
648	0.01	0.01	0.02	1-ME-4-PR BENZENE
651	0.01	0.01	0.02	12-DIET BENZENE *
656	0.01	0.01	0.02	12-DIME4ET BENZENE *

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
188	0.02	0.02	0.03	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

CHEVRON RESEARCH GASOLINE ANALYSIS Headspace - duplicate

Sample Name: 6015318 API BLEND 6 GASOLINE/TBA DUP Customer: CARR
Acquisition Date: 4-Apr-1996 Acquisition Time: 12:33
Channel #: 1 Analysis: GASO5 Sample #: 9 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-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	22.96	0.30	******	******	******	24.07	22.36	0.60	******	******	******
5	29.67	8.98	0.42	******	******	39.07	5.86	23.81	******	0.42	******
6	13.83	2.72	1.26	0.96	******	18.76	2.03	11.80	******	1.09	0.17
7	4.16	4.15	0.79	2.81	******	11.90	0.52	3.64	******	0.50	0.28
8	2.45	0.13	0.38	1.82	0.04	4.81	0.13	0.94	1.38	0.27	0.11
9	0.26	0.00	0.13	0.62	0.08	1.09	0.03	0.22	0.02	0.04	0.09
10	0.07	0.00	0.01	0.14	0.04	0.25	0.00	0.06	0.01	0.00	0.01
11	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	73.44	16.27	2.98	6.34	0.98	100.00	30.95	41.07	1.41	2.32	0.65

2. BY WEIGHT

3-	0.02	0.00	******	******	******	0.02	0.02	******	******	******	******
4	20.40	0.28	******	******	******	21.66	19.88	0.52	******	******	******
5	28.26	9.31	0.48	******	******	38.04	5.63	22.63	******	0.48	******
6	13.92	2.88	1.45	1.29	******	19.54	2.05	11.87	******	1.26	0.20
7	4.36	4.40	0.91	3.72	******	13.39	0.55	3.81	******	0.58	0.33
8	2.61	0.14	0.44	2.41	0.04	5.65	0.14	1.00	1.47	0.31	0.13
9	0.29	0.00	0.16	0.82	0.09	1.35	0.03	0.24	0.02	0.05	0.11
10	0.08	0.00	0.01	0.18	0.05	0.32	0.00	0.07	0.02	0.00	0.01
11	0.01	0.00	0.00	0.01	0.00	0.03	0.00	0.01	0.00	0.00	0.00
12+	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
TOT	69.94	17.01	3.45	8.43	1.17	100.00	28.29	40.14	1.51	2.67	0.78

3. BY MOLAR

3-	0.03	0.00	******	******	******	0.03	0.03	******	******	******	******
4	26.23	0.37	******	******	******	27.87	25.57	0.67	******	******	******
5	29.28	10.00	0.51	******	******	39.79	5.83	23.44	******	0.51	******
6	12.08	2.56	1.29	1.23	******	17.16	1.78	10.30	******	1.11	0.17
7	3.25	3.35	0.69	3.02	******	10.32	0.41	2.84	******	0.44	0.25
8	1.71	0.10	0.30	1.70	0.03	3.83	0.09	0.66	0.96	0.21	0.09
9	0.17	0.00	0.09	0.51	0.05	0.82	0.02	0.14	0.01	0.03	0.06
10	0.04	0.00	0.00	0.10	0.02	0.17	0.00	0.03	0.01	0.00	0.00
11	0.01	0.00	0.00	0.01	0.00	0.01	0.00	0.01	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	72.79	16.39	2.89	6.57	1.37	100.00	33.73	38.08	0.98	2.30	0.58

GRP. TYPE, VOL %: P = 74.16, O = 16.43, N = 3.01, A = 6.40, Saturates = 77.17
DIENE CONTENT = 7527. vol ppm AVG MW = 74.8 API GR. = 83.8 SP. GR. =0.6572
OCTANE NUMBER: (from pure values) RON = 88.0 MON = 82.9
(from blending values) RON = 91.6 MON = 84.0
CARBON-HYDROGEN RATIO =5.430 STOICH. AIR-FUEL RATIO =15.03 lbs air/lbs fuel
BTU/lb = 17803. NET, 19200. GROSS; BTU/gal = 97632. NET, 105295. GROSS
REID VAPOR PRESSURE =22.5 BROMINE NO. = 37.7

4-Apr-1996 12:33
6015318 API BLEND 6 GASOLINE/TBA DUP 1GASO5
Sample 9 Injection 1

* DISTILLATION CURVES

VOL %	TBP	D86
0.	-44.	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.	88.
50.	97.	97.
55.	97.	99.
60.	104.	121.
65.	136.	140.
70.	140.	140.
75.	152.	154.
80.	170.	170.
85.	177.	181.
90.	205.	210.
95.	231.	243.
100.	472.	325.

* COMPOUND DICTIONARY NUMBERS AND AREAS AS READ IN

[redacted]

CHEVRON RESEARCH GASOLINE ANALYSIS
4-Apr-1996 12:33
6015318 API BLEND 6 GASOLINE/TBA DUP 1GASO5
Sample 9 Injection 1

TOTAL UNCORRECTED AREA = 11434624.

NUMBER OF PEAKS READ IN = 244

* DETAILED HYDROCARBON ANALYSIS, EXCLUDING COMPOUNDS BELOW 0.01 VOLUME PERCENT

NORMAL PARAFFINS

CODE	MOL.	VOL.	WT.	NAME
3	0.03	0.02	0.02	PROPANE
4	25.57	22.36	19.88	N-BUTANE
6	5.83	5.86	5.63	N-PENTANE
9	1.78	2.03	2.05	N-HEXANE
14	0.41	0.52	0.55	N-HEPTANE
23	0.09	0.13	0.14	N-OCTANE
41	0.02	0.03	0.03	N-NONANE

ISO-PARAFFINS

CODE	MOL.	VOL.	WT.	NAME	
5	0.67	0.60	0.52	ISOBUTANE	
8	0.19	0.20	0.18	NEOPENTANE	
7	23.25	23.61	22.44	ISOPENTANE	
12	1.41	1.63	1.62	22-DIME BUTANE	
13	1.55	1.76	1.78	23-DIME BUTANE	
10	4.77	5.49	5.49	2-ME PENTANE	
11	2.58	2.92	2.97	3-ME PENTANE	
18	0.05	0.06	0.06	22-DIME PENTANE	
20	0.60	0.78	0.80	24-DIME PENTANE	
19	0.91	1.14	1.22	23-DIME PENTANE	
15	0.65	0.84	0.87	2-ME HEXANE	
16	0.64	0.81	0.85	3-ME HEXANE	
37	0.86	1.24	1.31	224-TRIME PENTANE	*
28	0.01	0.01	0.02	22-DIME HEXANE	
36	0.02	0.02	0.02	223-TRIME PENTANE	*
31	0.08	0.12	0.13	25-DIME HEXANE	
30	0.12	0.17	0.18	24-DIME HEXANE	
32	0.01	0.01	0.01	33-DIME HEXANE	
34	0.03	0.04	0.04	2-ME-3-ET PENTANE	
29	0.08	0.11	0.12	23-DIME HEXANE	*
24	0.17	0.25	0.26	2-ME HEPTANE	
26	0.07	0.10	0.11	4-ME HEPTANE	
25	0.16	0.23	0.24	3-ME HEPTANE	
51	0.02	0.03	0.03	244-TRIME HEXANE	
43	0.01	0.02	0.02	235-TRIME HEXANE	*
53	0.01	0.02	0.02	26-DIME HEPTANE	
55	0.03	0.05	0.05	35-DIME HEPTANE	
56	0.01	0.02	0.02	23-DIME HEPTANE	
62	0.02	0.03	0.03	4-ME OCTANE	
60	0.03	0.04	0.04	2-ME OCTANE	
86	0.02	0.03	0.03	4-ME NONANE	

CYCLOPENTANES

CODE	MOL.	VOL.	WT.	NAME
800	0.51	0.42	0.48	CYCLOPENTANE

801	1.11	1.09	1.26	ME CYCLOPENTANE
806	0.14	0.16	0.19	1C3-DIME CYCPENTANE
807	0.14	0.16	0.19	1T3-DIME CYCPENTANE
805	0.09	0.10	0.11	1T2-DIME CYCPENTANE
811	0.02	0.02	0.03	113-TRIME CPENTANE
802	0.07	0.08	0.09	ET CYCLOPENTANE
817	0.03	0.04	0.05	1T2C4TRIME CPENTANE
814	0.02	0.02	0.02	1T2C3TRIME CPENTANE
810	0.01	0.02	0.02	112-TRIME CPENTANE*
848	0.03	0.04	0.04	11C3T4-TETRME CPENT
864	0.02	0.03	0.03	1MEC3ET CYCPENTANE
865	0.02	0.02	0.03	1MET3ET CYCPENTANE
861	0.07	0.09	0.11	1ME-1ET CYCPENTANE
862	0.01	0.02	0.02	1ME-C2ET CYPENTANE

CYCLOHEXANES

CODE	MOL.	VOL.	WT.	NAME
825	0.17	0.17	0.20	CYCLOHEXANE
826	0.25	0.28	0.33	ME CYCLOHEXANE
830	0.01	0.02	0.02	1T2-DIME CYCHEXANE
832	0.03	0.04	0.05	1T3-DIME CYCHEXANE
833	0.02	0.02	0.03	1C4-DIME CYCHEXANE
829	0.01	0.01	0.01	1C2-DIME CYCHEXANE
827	0.01	0.02	0.02	ETHYL CYCLOHEXANE
946	0.01	0.01	0.01	113-TRIME CYCHEXANE
956	0.01	0.01	0.01	1C3T5-TRIME CYCHEX
941	0.01	0.02	0.02	1ME-C3ET CYCHEXANE
940	0.01	0.01	0.02	1ME-1-ET CYCHEXANE
943	0.01	0.01	0.02	1M-C4-ET 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	0.11	0.10	TRANS-2-BUTENE
303	0.18	0.15	0.14	C1S-2-BUTENE
310	0.18	0.17	0.16	3-METHYL-1-BUTENE
306	0.65	0.62	0.61	1-PENTENE
309	1.26	1.18	1.18	2-METHYL-1-BUTENE
509	0.03	0.03	0.03	ISOPRENE
308	1.79	1.69	1.68	TRANS-2-PENTENE
327	0.02	0.02	0.02	3,3-DIME BUTENE
307	0.98	0.92	0.92	CIS-2-PENTENE
311	2.50	2.31	2.35	2-METHYL-2-BUTENE
505	0.03	0.03	0.03	T-13-PENTADIENE
530	0.22	0.16	0.19	CYCLOPENTADIENE
504	0.61	0.53	0.56	C-13-PENTADIENE
403	0.25	0.32	0.33	HEPTENES
403	1.27	1.59	1.67	HEPTENES
450	1.75	1.35	1.59	CYCLOPENTENE

403	1.09	1.36	1.43	HEPTENES
323	0.10	0.11	0.11	C-4ME-2-PENTENE
324	0.17	0.19	0.19	T-4ME-2-PENTENE
317	0.27	0.29	0.30	2-ME-1-PENTENE
312	0.14	0.15	0.16	1-HEXENE
315	0.35	0.38	0.40	CIS-3-HEXENE
314	0.40	0.44	0.45	TRANS-2-HEXENE
320	0.39	0.42	0.44	2-METHYL-2-PENTENE
321	0.22	0.23	0.24	C-3ME-2-PENTENE
313	0.19	0.21	0.22	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	0.31	0.28	0.34	1-ME CYLCOPENTENE
2004	0.02	0.02	0.02	24-DIME-1-PENTENE
2017	0.00	0.01	0.01	3-ET 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-PENTENI
403	0.01	0.01	0.01	HEPTENES
2033	0.04	0.05	0.06	2-ME-T3-HEXENE
2010	0.01	0.02	0.02	34-DIME-C2-PENTENE
2038	0.05	0.06	0.07	1-HEPTENE
2035	0.03	0.03	0.03	3-ME-T3-HEXENE
5370	0.06	0.06	0.07	C-7 CYCLOPENTENE A
5371	0.05	0.05	0.07	C-7 CYCLOPENTENE B
2042	0.06	0.07	0.08	T3-HEPTENE
2025	0.06	0.08	0.09	2-ME-2-HEXENE
2034	0.09	0.10	0.11	3-ME-C3-HEXENE
2018	0.08	0.09	0.10	3-ET-2-PENTENE
2008	0.06	0.06	0.07	23-DIME-C2-PENTENE
2039	0.04	0.05	0.05	CIS-2-HEPTENE
4532	0.00	0.01	0.01	OCTENE H
4528	0.02	0.02	0.03	OCTENE D
4533	0.01	0.01	0.01	OCTENE I
4534	0.01	0.01	0.01	OCTENE J
404	0.00	0.01	0.01	OCTENES
2193	0.02	0.03	0.03	1-OCTENE
2198	0.01	0.02	0.02	C4-OCTENE

AROMATIC HCS

CODE	MOL.	VOL.	WT.	NAME
600	1.23	0.96	1.29	BENZENE
601	3.02	2.81	3.72	TOLUENE
602	0.39	0.42	0.56	ETHYLBENZENE
604	0.67	0.72	0.96	M-XYLENE
605	0.28	0.31	0.40	P-XYLENE
603	0.35	0.37	0.49	O-XYLENE *
607	0.01	0.01	0.02	CUMENE
644	0.04	0.05	0.07	N-PROPYL BENZENE
609	0.12	0.15	0.20	1-ME-3-ET BENZENE

610	0.05	0.07	0.09	1-ME-4-ET BENZENE	
613	0.06	0.07	0.09	135-TRIME BENZENE	
608	0.03	0.04	0.06	1-ME-2-ET BENZENE	*
612	0.15	0.18	0.24	124-TRIME BENZENE	*
611	0.02	0.03	0.04	123-TRIME BENZENE	*
650	0.01	0.01	0.02	INDAN	*
647	0.01	0.02	0.02	1-ME-3-PR BENZENE	
648	0.01	0.01	0.02	1-ME-4-PR BENZENE	
651	0.01	0.02	0.02	12-DIET BENZENE	*
654	0.01	0.01	0.01	14-DIME2ET BENZENE	*
656	0.01	0.01	0.02	12-DIME4ET BENZENE	*

UNCLASSIFIED HCS

CODE	MOL.	VOL.	WT.	NAME
1009	0.37	0.24	0.29	2-ME 2-PROPANOL
1009	0.89	0.57	0.69	2-ME 2-PROPANOL
188	0.02	0.02	0.03	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