

**Detailed Hydrocarbon Analysis Summary Report -**

Report Date: 5/19/2010 8:58:01 AM

RawFile: Z:\office\Dragon DHA\0517A\MAR10.AIA\SIGNAL01.cdf

Acquired: 01/01/00 00:00:00

Sample: Crude Front End Example

Analyzed: 5/19/2010 8:57:44 AM

Processed 62 Peaks

Reference File: C:\Program Files\DHA Application Software\References\SJV ABM Blend\_04052010.DHA

Comments: TAC Reference:

Normalized to 13.100%

**SUMMARY REPORT**

Group Type	Total(Mass%)	Total(Vol%)	Total(Mol%)
Paraffins:	5.020	5.322	5.515
I-Paraffins:	4.905	5.051	4.780
Olefins:	0.000	0.000	0.000
Napthenes:	2.666	2.335	2.327
Aromatics:	0.509	0.391	0.478
Total C14+:	0.000	0.000	0.000
Total Unknowns:	0.000	0.000	0.000

## Oxygenates:

Total: 0.000(Mass%) 0.000(Vol%)

Total Oxygen Content: 0.000(Mass%)

Multisubstituted Aromatics: 0.000(Mass%) 0.000(Vol%)

Average Molecular Weight: 82.093

Relative Density: 0.668

Reid Vapor Pressure @ 100F: 16.135

Calculated Octane Number: 73.466

	IBP	T10	T50	T90	FBP
BP by Mass (Deg F)	31.10	210.63	T50	T90	258.22
BP by Vol (Deg F)	10.90	209.16	T50	T90	258.22

Percent Carbon: 84.337

Percent Hydrogen: 15.663

Bromine Number (Calc): 0.000

**Detailed Hydrocarbon Analysis Detail Report -**

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**Oxygenates**

Compound	Mass%	Mass% Oxygen	Vol%
No Oxy Compounds Found	0.0000	0.0000	0.0000

**Molecular Weight and Relative Density Data**

Group	Avg Mw.	Avg Rel. Density
C1	0.000	0.000
C2	0.000	0.000
C3	44.097	0.500
C4	58.124	0.574
C5	72.069	0.627
C6	85.215	0.692
C7	98.390	0.731
C8	113.556	0.722
C9	0.000	0.000
C10	0.000	0.000
C11	0.000	0.000
C12	0.000	0.000
C13	0.000	0.000
Total Sample:	82.10	0.67

**Octane Number**

**Research Octane Number:** 73.50  
(Calculated from Individual Component Values)

**Contribution to Total by:**

Paraffins:	19.30
Iso-Paraffins:	33.10
Aromatics:	4.52
Napthenes:	16.50
Olefins:	0.05
Oxygenates:	0.00

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**Totals by Group Type & Carbon Number (in Mass Percent)**

	Paraffins	I-Paraffins	Olefins	Napthenes	Aromatics	Unknowns	Total
C1	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C2	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C3	0.14413	0.00000	0.00000	0.00000	0.00000	0.00000	0.14413
C4	1.01738	0.31316	0.00000	0.00000	0.00000	0.00000	1.33054
C5	1.76878	1.58894	0.00000	0.13775	0.00000	0.00000	3.49547
C6	0.99830	1.23260	0.00000	0.89724	0.15071	0.00000	3.27884
C7	0.61895	0.82916	0.00000	0.93116	0.35869	0.00000	2.73796
C8	0.47196	0.94112	0.00000	0.69997	0.00000	0.00000	2.11305
C9	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C10	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C11	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C12	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total:	5.01950	4.90499	0.00000	2.66612	0.50939	0.00000	13.10000
Oxygenates	0.00000			Total C14+:	0.00000		
Total Unknowns:	0.00000			Grand Total:	13.10000		

**Totals by Group Type & Carbon Number (in Volume Percent)**

	Paraffins	I-Paraffins	Olefins	Napthenes	Aromatics	Unknowns	Total
C1	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C2	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C3	0.19251	0.00000	0.00000	0.00000	0.00000	0.00000	0.19251
C4	1.17504	0.37571	0.00000	0.00000	0.00000	0.00000	1.55074
C5	1.88824	1.71516	0.00000	0.12354	0.00000	0.00000	3.72693
C6	1.01206	1.25351	0.00000	0.78790	0.11463	0.00000	3.16810
C7	0.60518	0.80752	0.00000	0.81567	0.27656	0.00000	2.50494
C8	0.44911	0.89933	0.00000	0.60833	0.00000	0.00000	1.95678
C9	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C10	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C11	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C12	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total:	5.32214	5.05123	0.00000	2.33544	0.39119	0.00000	13.10000
Oxygenates	0.00000			Total C14+:	0.00000		
Total Unknowns:	0.00000			Grand Total:	13.10000		

**Detailed Hydrocarbon Analysis Detail Report -**

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**Totals by Group Type & Carbon Number (in Mol Percent)**

	Paraffins	I-Paraffins	Olefins	Napthenes	Aromatics	Unknowns	Total
C1	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C2	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C3	0.26833	0.00000	0.00000	0.00000	0.00000	0.00000	0.26833
C4	1.43693	0.44230	0.00000	0.00000	0.00000	0.00000	1.87923
C5	2.01252	1.80790	0.00000	0.16124	0.00000	0.00000	3.98165
C6	0.95098	1.17418	0.00000	0.87518	0.15838	0.00000	3.15873
C7	0.50708	0.67930	0.00000	0.77852	0.31957	0.00000	2.28446
C8	0.33918	0.67634	0.00000	0.51207	0.00000	0.00000	1.52759
C9	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C10	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C11	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C12	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total:	5.51502	4.78002	0.00000	2.32702	0.47795	0.00000	13.10000
	Oxygenates	0.00000		Total C14+:	0.00000		
	Total Unknowns:	0.00000		Grand Total:	13.10000		

## Detailed Hydrocarbon Analysis Detail Report -

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Processed 62 Peaks

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Comments: TAC Reference:

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**NOTE: Components with a Weight % of Less Than 0.01 Not Reported.**

Components Listed in Chromatographic Order							Page: 5
Minutes	Index	Group	Component	Mass %	Volume %	Mol %	
7.390	300.000	P3	propane	0.144	0.193	0.268	
7.807	365.970	I4	i-butane	0.313	0.376	0.442	
8.164	400.000	P4	n-butane	1.017	1.175	1.437	
8.344	414.200	I5	2,2-dimethylpropane	0.016	0.018	0.018	
9.473	474.830	I5	i-pentane	1.573	1.697	1.790	
10.181	500.000	P5	n-pentane	1.769	1.888	2.013	
11.522	537.370	I6	2,2-dimethylbutane	0.041	0.042	0.039	
12.943	566.480	N5	cyclopentane	0.138	0.124	0.161	
13.020	567.840	I6	2,3-dimethylbutane	0.102	0.103	0.097	
13.244	571.750	I6	2-methylpentane	0.680	0.696	0.648	
14.071	585.000	I6	3-methylpentane	0.410	0.412	0.390	
15.138	600.000	P6	n-hexane	0.998	1.012	0.951	
16.968	624.740	I7	2,2-dimethylpentane	0.019	0.018	0.015	
17.180	627.310	N6	methylcyclopentane	0.509	0.454	0.496	
17.477	630.830	I7	2,4-dimethylpentane	0.038	0.037	0.031	
19.297	650.380	A6	benzene	0.151	0.115	0.158	
19.846	655.710	I7	3,3-dimethylpentane	0.011	0.011	0.009	
20.241	659.420	N6	cyclohexane	0.388	0.334	0.379	
21.195	667.910	I7	2-methylhexane	0.237	0.233	0.194	
21.396	669.620	I7	2,3-dimethylpentane	0.097	0.093	0.079	
21.727	672.410	N7	1,1-dimethylcyclopentane	0.049	0.043	0.041	
22.212	676.360	I7	3-methylhexane	0.296	0.288	0.243	
23.006	682.580	N7	1t,3-dimethylcyclopentane	0.144	0.129	0.121	
23.361	685.260	I7	3-ethylpentane	0.132	0.127	0.108	
23.500	686.290	N7	1t,2-dimethylcyclopentane	0.026	0.023	0.022	
23.711	687.840	I8	2,2,4-trimethylpentane	0.257	0.248	0.185	
25.458	700.000	P7	n-heptane	0.619	0.605	0.507	
28.399	721.180	N7	1c,2-dimethylcyclopentane	0.035	0.032	0.029	
28.537	722.100	N7	methylcyclohexane	0.603	0.524	0.504	
29.070	725.610	I8	2,2-dimethylhexane	0.062	0.059	0.044	
30.543	734.870	N7	ethylcyclopentane	0.073	0.064	0.061	
30.790	736.360	I8	2,5-dimethylhexane	0.029	0.028	0.021	
31.130	738.390	I8	2,4-dimethylhexane	0.038	0.036	0.027	
32.115	744.130	N8	1c,2t,4-trimethylcyclopentane	0.089	0.078	0.065	
32.372	745.590	I8	3,3-dimethylhexane	0.010	0.010	0.007	
33.438	751.490	N8	1t,2c,3-trimethylcyclopentane	0.114	0.099	0.083	
34.632	757.820	A7	toluene	0.359	0.277	0.320	
36.085	765.170	I8	2,3-dimethylhexane	0.053	0.050	0.038	

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Minutes	Index	Group	Component	Mass %	Volume %	Mol %
36.293	766.190	I8	2-methyl-3-ethylpentane	0.020	0.019	0.014
37.268	770.880	I8	2-methylheptane	0.232	0.222	0.167
37.550	772.210	I8	4-methylheptane	0.068	0.065	0.049
37.837	773.550	I8	3,4-dimethylhexane	0.013	0.012	0.009
38.312	775.740	N8	1c,3-dimethylcyclohexane	0.014	0.012	0.010
38.726	777.630	I8	3-methylheptane	0.131	0.124	0.094
38.916	778.480	N8	1c,2t,3-trimethylcyclopentane	0.182	0.158	0.133
39.069	779.170	I8	3-ethylhexane	0.028	0.026	0.020
39.288	780.150	N8	1t,4-dimethylcyclohexane	0.061	0.053	0.045
40.345	784.770	N8	1,1-dimethylcyclohexane	0.026	0.022	0.019
41.103	787.990	N8	3c-ethylmethylcyclopentane	0.036	0.031	0.026
41.526	789.760	N8	3t-ethylmethylcyclopentane	0.031	0.027	0.023
41.774	790.780	N8	2t-ethylmethylcyclopentane	0.069	0.060	0.051
42.716	794.610	N8	1t,2-dimethylcyclohexane	0.078	0.067	0.057
44.082	800.000	P8	n-octane	0.472	0.449	0.339

