

Certificate of Composition
 Part #: SD-053-080
 Reformate Product

ASTM D6730 with Helium Carrier

Summary by Group

<u>Group</u>	<u>%Wgt</u>	<u>%Vol</u>	<u>%Mol</u>	<u>Avg MW</u>	<u>Avg SG</u>
Paraffin	6.386	7.802	7.230	6.443	0.052
I-Paraffins	17.892	21.450	18.728	18.049	0.145
Aromatics	74.437	69.300	72.521	75.092	0.603
<i>Mono-Aromatics</i>	73.372	68.421	71.700	74.018	0.595
<i>Naphthalenes</i>	0.586	0.465	0.426	0.591	0.005
<i>Indanes</i>	0.150	0.137	0.115	0.152	0.001
<i>Indenes</i>	0.329	0.276	0.281	0.332	0.003
Naphthenes	0.796	0.860	0.922	0.803	0.006
<i>Mono-Naphthenes</i>	0.796	0.860	0.922	0.803	0.006
<i>Di/Bicyclo-Naphthenes</i>	0.000	0.000	0.000	0.000	0.000
Olefins	0.414	0.497	0.499	0.417	0.003
<i>n-Olefins</i>	0.002	0.002	0.003	0.002	0.000
<i>Iso-Olefins</i>	0.412	0.495	0.496	0.415	0.003
<i>Naphtheno-Olefins</i>	0.000	0.000	0.000	0.000	0.000
<i>Di-Olefins</i>	0.000	0.000	0.000	0.000	0.000
Oxygenates	0.000	0.000	0.000	0.000	0.000
Unidentified	0.076	0.092	0.099	0.076	0.001
Plus	0.000	0.000	0.000	0.000	0.000
	100.000	100.000	100.000	100.880	0.811

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Component List

<u>Pk#</u>	<u>Time</u>	<u>C#</u>	<u>Component</u>	<u>%Wgt</u>	<u>%Vol</u>	<u>%Mol</u>
1	7.968	?	Unidentified	0.022	0.035	0.053
2	9.112	4	i-Butane	0.366	0.532	0.635
3	9.852	4	Butene-1	0.001	0.001	0.001
4	9.852	4	Isobutene	0.001	0.001	0.001
5	10.197	4	n-Butane	0.492	0.689	0.854
6	13.963	5	i-Pentane	1.540	2.015	2.153
7	15.470	5	2-Methylbutene-1	0.005	0.006	0.007
8	15.745	5	n-Pentane	0.875	1.133	1.223
9	17.253	5	2-Methylbutene-2	0.010	0.012	0.015
10	18.298	6	2,2-Dimethylbutane	0.359	0.448	0.420
11	20.463	5	Cyclopentane	0.078	0.084	0.112
12	20.652	6	2,3-Dimethylbutane	0.386	0.472	0.451
13	21.052	6	2-Methylpentane	1.482	1.839	1.735
14	21.052	6	4-Methyl-c-pentene-2	0.362	0.435	0.433
15	22.245	6	3-Methylpentane	1.471	1.795	1.722
16	23.813	6	n-Hexane	1.770	2.176	2.072
17	24.542	6	2-Methylpentene-2	0.014	0.017	0.017
18	25.778	7	3,3-Dimethyl-1-Pentene	0.012	0.014	0.014
19	26.100	7	2,2-Dimethylpentane	0.295	0.355	0.297
20	26.320	6	Methylcyclopentane	0.402	0.435	0.482
21	26.748	7	2,4-Dimethylpentane	0.366	0.440	0.368
22	27.248	7	2,2,3-Trimethylbutane	0.034	0.040	0.034
23	28.973	6	Benzene	4.230	3.902	5.463
24	29.462	7	3,3-Dimethylpentane	0.298	0.349	0.300
25	29.927	6	Cyclohexane	0.035	0.036	0.042
26	30.873	7	4-Methyl-t/c-hexene-2	0.009	0.011	0.009
27	31.042	7	2-Methylhexane	2.180	2.604	2.195
28	31.238	7	2,3-Dimethylpentane	0.846	0.986	0.852
29	31.597	?	Unidentified	0.030	0.032	0.031
30	32.152	7	3-Methylhexane	2.732	3.223	2.750
31	33.015	7	1t,3-Dimethylcyclopentane	0.059	0.064	0.061
32	33.397	7	1c,3-Dimethylcyclopentane	0.056	0.061	0.058
33	33.533	7	3-Ethylpentane	0.262	0.304	0.264
34	33.770	7	1t,2-Dimethylcyclopentane	0.079	0.085	0.081
35	35.607	7	n-Heptane	2.041	2.420	2.055
36	38.758	7	1c,2-Dimethylcyclopentane	0.018	0.020	0.019
37	38.912	7	Methylcyclohexane	0.051	0.054	0.053
38	39.260	8	2,2-Dimethylhexane	0.106	0.123	0.093
39	41.135	8	2,5-Dimethylhexane	0.269	0.315	0.238
40	41.510	8	2,4-Dimethylhexane	0.409	0.473	0.361
41	42.682	8	1c,2t,4-Trimethylcyclopentane	0.018	0.019	0.016
42	42.907	8	3,3-Dimethylhexane	0.138	0.158	0.122
43	46.025	7	Toluene	21.610	20.205	23.659
44	47.235	8	2,3-Dimethylhexane	0.271	0.308	0.239

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45	47.525	8	2-Methyl-3-ethylpentane	0.051	0.058	0.045
46	48.683	8	2-Methylheptane	0.943	1.095	0.833
47	49.055	8	4-Methylheptane	0.463	0.533	0.409
48	49.482	8	3,4-Dimethylhexane	0.173	0.195	0.153
49	50.595	8	3-Methylheptane	1.150	1.321	1.016
50	50.875	8	3-Ethylhexane	0.266	0.302	0.235
51	58.345	8	n-Octane	0.913	1.053	0.806
52	66.782	9	2,4-Dimethylheptane	0.036	0.040	0.028
53	71.888	9	2,5-Dimethylheptane	0.139	0.158	0.109
54	75.563	8	Ethylbenzene	5.063	4.734	4.811
55	78.438	8	m-Xylene	11.415	10.707	10.846
56	78.720	8	p-Xylene	4.887	4.601	4.643
57	80.280	9	4-Ethylheptane	0.023	0.025	0.018
58	81.192	9	4-Methyloctane	0.212	0.238	0.166
59	81.498	9	2-Methyloctane	0.232	0.264	0.183
60	82.953	9	Heptane, 3-ethyl-	0.050	0.056	0.039
61	83.330	9	3,4-Dimethylheptane	0.287	0.318	0.226
62	84.742	8	o-Xylene	6.318	5.819	6.003
63	90.533	9	n-Nonane	0.228	0.258	0.180
64	92.915	9	i-Propylbenzene	0.317	0.298	0.266
65	99.235	9	n-Propylbenzene	1.202	1.130	1.009
66	100.812	9	1-Methyl-3-ethylbenzene	3.398	3.187	2.852
67	101.170	9	1-Methyl-4-ethylbenzene	1.514	1.425	1.271
68	102.292	9	1,3,5-Trimethylbenzene	1.712	1.604	1.437
69	103.628	10	4-Methylnonane	0.016	0.018	0.012
70	104.072	9	1-Methyl-2-ethylbenzene	1.209	1.113	1.015
71	105.275	10	3-Methylnonane	0.023	0.025	0.016
72	106.850	9	1,2,4-Trimethylbenzene	5.735	5.308	4.813
73	109.543	10	i-Butylbenzene	0.049	0.047	0.037
74	109.997	10	sec-Butylbenzene	0.045	0.042	0.034
75	110.203	10	n-Decane	0.024	0.027	0.017
76	111.448	9	1,2,3-Trimethylbenzene	1.120	1.015	0.940
77	111.758	10	1-Methyl-3-i-propylbenzene	0.098	0.092	0.074
78	112.297	10	1-Methyl-4-i-propylbenzene	0.008	0.008	0.006
79	113.277	10	2,3-Dihydroindene	0.329	0.276	0.281
80	116.018	10	1,3-Diethylbenzene	0.123	0.116	0.093
81	116.397	10	1-Methyl-3-n-propylbenzene	0.412	0.388	0.310
82	116.975	10	1-Methyl-4-n-propylbenzene	0.221	0.209	0.166
83	117.137	10	n-Butylbenzene	0.094	0.089	0.071
84	117.413	10	1,3-Dimethyl-5-ethylbenzene	0.408	0.376	0.307
85	118.708	10	1-Methyl-2-n-propylbenzene	0.156	0.145	0.117
86	120.177	10	1,4-Dimethyl-2-ethylbenzene	0.246	0.227	0.185
87	120.437	10	1,3-Dimethyl-4-ethylbenzene	0.245	0.226	0.184
88	121.288	10	1,2-Dimethyl-4-ethylbenzene	0.450	0.417	0.338

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89	124.132	10	1,2-Dimethyl-3-ethylbenzene	0.163	0.148	0.122
90	125.730	11	1-Ethyl-4-i-propylbenzene	0.296	0.270	0.201
91	126.202	11	1-Methyl-1-n-butylbenzene	0.408	0.371	0.278
92	128.508	10	5-Methylindan	0.070	0.063	0.053
93	129.052	11	C11 - Aromatic - 2b	0.011	0.010	0.008
94	129.410	11	1-methyl-4-(1-methylpropyl)be	0.028	0.025	0.019
95	129.828	10	2-Methylindan	0.081	0.074	0.062
96	130.317	11	C11 - Aromatic - 4	0.126	0.115	0.086
97	132.088	11	C11 - Aromatic - 7	0.032	0.030	0.022
98	132.290	?	Unidentified	0.007	0.007	0.004
99	132.290	?	Unidentified	0.007	0.006	0.005
100	133.162	12	C12 - IsoParaffin - 8	0.019	0.021	0.011
101	133.615	10	Naphthalene	0.168	0.133	0.132
102	135.962	11	1-ethyl-2,4,5-trimethylbenzen	0.023	0.022	0.015
103	136.178	?	Unidentified	0.010	0.011	0.007
104	146.530	11	2-Methylnaphthalene	0.404	0.321	0.285
105	148.272	13	n-Tridecane	0.043	0.046	0.023
106	159.317	12	Dimethylnaphthalene - 6	0.013	0.011	0.009

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Sample Chromatogram































