Certificate of Analysis

Report Date: 9/2/2020

Vessel/Equipment:	Chem 3213	**File Number:**	BR26799
Shore Tank:	N/A	**Lab Number:**	090220-002
Product:	Aromatic Concentrate	**Client:**	EMCC
Terminal:	Placid, Port Allen, LA	**Client Reference:**	4997409-10
Subject:	Barge After Load		

Sample Type: **Nitrogen Purged Amber Bottle** **Sample Location:** **Chem 3213**

Method	Component	Result	Units	Min	-	Max	Off-Spec
D1022M	Hydrogen Peroxide	0.4	mg/kg		-		

Sample Type: **Composite** **Sample Location:** **Chem 3213**

Method	Component	Result	Units	Min	-	Max	Off-Spec
D4052	API Gravity @ 60°F	62.2			-		
D4052	Specific Gravity @ 60°F	0.7304	g/cm3		-		
D4176	Clear and Bright	Pass			-		
D4176	Free Water	Pass			-		
D4176	Particulates	Pass			-		
D4176	Test Temperature	22.0	Deg C.		-		
D1209	Color	<5	Pt-Co Units		-	30	
D5453	Total Sulfur	<1.0	mg.kg		-	1	
D4629	Nitrogen	<0.3	mg.kg		-	1	
D7536M	Total Chlorides	<0.4	mg.kg		-	0.4	
D7011	Thiophene	<0.6	mg.kg		-	0.6	
D6730	Benzene	25.105	wt%	20	-		
D6730	Toluene	3.551	wt%		-	25	
D6730	Olefins	0.990	wt%		-	4	
D6730	Diolefins	0.029	wt%		-	0.15	
D6730	C4 & Lighter Hydrocarbons	<0.001	wt%		-	1	
D6730	C5 Hydrocarbons	0.177	wt%		-	7	
D6730	C8 Aromatics	0.016	wt%		-	4	
D6730	C9 & Heavier Hydrocarbons	0.002	wt%		-	2.5	
D6730	Benzene	20.765	vol%		-		
D6730	Toluene	2.978	vol%		-		
D6730	C8 Aromatics	0.013	vol%		-		
D7754M	MTBE	<10	mg/kg		-	100	

Kody Dauzat

Signed: Kody Dauzat
Assistant Lab Manager

Reviewed by: Glenn Hanson
VP of Laboratories

13615 River Road, Luling, LA 70070
Phone: (985) 785-0765 Email: cgi@coastalgulf.com

Detailed Hydrocarbon Analysis Summary Report -

Report Date: 9/2/2020 11:16:10 AM

RawFile: C:\Chem32\2\DATA\090220A\081920B 2020-09-02 03-23-19\103F0301.D\103F0301.CDF
Acquired: 02-Sep-20, 07:13:34
Sample: 090220-002
Analyzed: 9/2/2020 11:16:10 AM
Processed 97 Peaks
Reference File: C:\Chem32\2\References\PONA VII_MASTER.DHA
Location: DEFAULT
Normalized to 100.0000%

SUMMARY REPORT

Group Type	Total(Mass%)	Total(Vol%)	Total(Mol%)
Paraffins:	17.6987	19.3882	17.9336
I-Paraffins:	47.6183	50.9754	43.6818
Olefins:	0.9897	1.0188	0.9749
Naphthenes:	4.9723	4.8111	5.1125
Aromatics:	28.6742	23.7579	32.2538
Total C14+:	0.0000	0.0000	0.0000
Total Unknowns:	0.0468	0.0486	0.0434

Oxygenates:

Total:	0.0000(Mass%)	0.0000(Vol%)
Total Oxygen Content:	0.0000(Mass%)	

Multisubstituted Aromatics: 0.0133(Mass%) 0.0111(Vol%)

Average Molecular Weight: 89.5700

Relative Density: 0.7270

Reid Vapor Pressure @ 100F: 0.8865psi - 6.1120kPa

Calculated Octane Number: 66.3

Motor Octane Number (Jenkins Calculation): 62.0

	IBP	T10	T50	T90	FBP
BP by Mass (Deg F)	136.36	155.71		197.33	231.13
BP by Vol (Deg F)	136.36	155.71	176.16	197.33	231.13

Percent Carbon: 86.1281
Percent Hydrogen: 13.8719

Bromine Number (D1169): 0.0000

Bromine Index (D2710): 0.0000
MAV (IFP9407): 5.3367

Diene Value (DV UOP326): 2.7626

Detailed Hydrocarbon Analysis Detail Report - Report Date: 9/2/2020 11:16:10 AM

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Comments:
Normalized to 100.0000%

Oxygenates

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

Octane Number

Research Octane Number: 66.3

Motor Octane Number: 62.0

(Calculated from Individual Component Values)

Detailed Hydrocarbon Analysis Detail Report -

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Comments:
Normalized to 100.0000%

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

	Paraffins	I-Paraffins	Olefins	Naphthenes	Aromatics	Unknowns	Total
C1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C4	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008
C5	0.0673	0.0258	0.0034	0.0802	0.0000	0.0000	0.1767
C6	14.3652	7.9423	0.4380	3.6121	25.1049	0.0072	51.4697
C7	3.2592	39.2207	0.5484	1.2645	3.5512	0.0110	47.8549
C8	0.0062	0.4295	0.0000	0.0154	0.0159	0.0286	0.4957
C9	0.0000	0.0000	0.0000	0.0000	0.0022	0.0000	0.0022
C10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total:	17.6987	47.6183	0.9897	4.9723	28.6742	0.0468	99.9532

Oxygenates 0.0000
Total C14+: 0.0000
Total Unknowns: 0.0468
Grand Total: 100.0000

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

	Paraffins	I-Paraffins	Olefins	Naphthenes	Aromatics	Unknowns	Total
C1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C4	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011
C5	0.0781	0.0303	0.0036	0.0783	0.0000	0.0000	0.1902
C6	15.8372	8.7563	0.4508	3.4913	20.7651	0.0075	49.3082
C7	3.4654	41.7424	0.5644	1.2269	2.9776	0.0114	49.9881
C8	0.0064	0.4465	0.0000	0.0146	0.0133	0.0297	0.5106
C9	0.0000	0.0000	0.0000	0.0000	0.0018	0.0000	0.0018
C10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total:	19.3882	50.9754	1.0188	4.8111	23.7579	0.0486	99.9514

Oxygenates 0.0000
Total C14+: 0.0000
Total Unknowns: 0.0486
Grand Total: 100.0000

Detailed Hydrocarbon Analysis - Dienes (Di-Olefins) Detail Report -

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Hold

Diene Components Listed in Chromatographic Order

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
8.224	508.110	O5	2-methylbutadiene-1,3	0.0005	0.0006	0.0007
11.142	579.470	O6	2-methyl-1,4-pentadiene	0.0003	0.0004	0.0004
14.311	640.440	O7	cyclic diolefin or triolefin-[2]	0.0063	0.0064	0.0068
14.584	645.290	O6	diolefin	0.0233	0.0242	0.0254
15.589	662.160	O6	diolefin (hexadiene)	0.0055	0.0057	0.0050

Detailed Hydrocarbon Analysis Detail Report - Report Date: 9/2/2020 11:16:10 AM

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Comments:
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Hold

Components Listed in Chromatographic Order **Page: 5**

Minutes	Index	Group	Component	Mass %	Volume %	Mol %	BP(F)	BP(C)	CAS
5.1114	397.7500	P4	n-butane	0.0008	0.0011	0.0013	31.100	-0.500	
6.9776	475.2200	I5	i-pentane	0.0258	0.0303	0.0320	82.112	27.840	
7.7558	495.0900	O5	2-methylbutene-1	0.0003	0.0003	0.0004	88.070	31.150	
7.9031	498.4200	P5	n-pentane	0.0673	0.0781	0.0835	96.908	36.060	
8.2240	508.1100	O5	2-methylbutadiene-1,3	0.0005	0.0006	0.0007	93.308	34.060	
8.5153	517.0400	O5	3,3-dimethylbutene-1	0.0003	0.0003	0.0004	106.232	41.240	
8.7006	522.4500	O5	2-methylbutene-2	0.0017	0.0019	0.0022	101.408	38.560	
9.2749	538.0300	I6	2,2-dimethylbutane	0.1650	0.1848	0.1715	121.514	49.730	
9.9933	555.4100	O5	cyclopentene	0.0005	0.0005	0.0006	111.614	44.230	
10.1956	559.9500		unknown	0.0009	0.0009	0.0012	111.614	44.230	
10.2365	560.8500	O6	4-methylpentene-1	0.0015	0.0016	0.0016	128.948	53.860	
10.4392	565.2300	N5	cyclopentane	0.0802	0.0783	0.1025	120.650	49.250	
10.5441	567.4500	I6	2,3-dimethylbutane	0.4910	0.5395	0.5103	136.364	57.980	
10.6244	569.1200		unknown	0.0042	0.0044	0.0044	136.364	57.980	
10.7766	572.2500	I6	2-methylpentane	3.1111	3.4630	3.2335	140.468	60.260	
10.8353	573.4300	O6	2,3-dimethylbutene-1	0.0290	0.0309	0.0309	132.098	55.610	
11.1417	579.4700	O6	2-methyl-1,4-pentadiene	0.0003	0.0004	0.0004	132.800	56.000	
11.3901	584.1900	I6	3-methylpentane	4.1752	4.5691	4.3395	145.886	63.270	
11.5750	587.6000		unknown	0.0007	0.0008	0.0008	145.886	63.270	
11.6116	588.2600	O6	2-methylpentene-1	0.0207	0.0220	0.0220	143.780	62.100	
11.6588	589.1200	O6	hexene-1	0.0106	0.0114	0.0113	146.246	63.470	
11.7867	591.4100		unknown	0.0006	0.0006	0.0006	146.246	63.470	
11.8200	592.0000		unknown	0.0008	0.0008	0.0008	146.246	63.470	
12.2723	599.7900	P6	n-hexane	14.3652	15.8372	14.9306	155.714	68.730	
12.3159	600.6900	O6	t-hexene-3	0.0397	0.0423	0.0423	152.744	67.080	
12.3497	601.4400	O6	c-hexene-3	0.0258	0.0274	0.0274	151.592	66.440	
12.4275	603.1500	O6	t-hexene-2	0.0694	0.0739	0.0738	154.184	67.880	
12.5372	605.5300	O6	2-methylpentene-2	0.0915	0.0963	0.0974	153.140	67.300	
12.6693	608.3600	O6	4-methylcyclopentene	0.0575	0.0548	0.0627	148.820	64.900	
12.7306	609.6600	O6	O6-[1]	0.0091	0.0095	0.0097	148.820	64.900	
12.8669	612.5200	O6	3-methylcyclopentene	0.0342	0.0326	0.0372	149.000	65.000	

Detailed Hydrocarbon Analysis Detail Report - Report Date: 9/2/2020 11:16:10 AM

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Processed 97 Peaks
Reference File: C:\Chem32\2\References\PONA VII_MASTER.DHA
Comments: Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Minutes	Index	Group	Component	Mass %	Volume %	Mol %	BP(F)	BP(C)	CAS
13.1843	619.0100	O7	3,3-dimethylpentene-1	0.1051	0.1088	0.0959	171.446	77.470	
13.3723	622.7600	I7	2,2-dimethylpentane	2.5122	2.7104	2.2455	174.542	79.190	
13.4852	624.9700	N6	methylcyclopentane	3.1721	3.0804	3.3759	161.240	71.800	
13.7229	629.5500	I7	2,4-dimethylpentane	3.1104	3.3613	2.7803	176.882	80.490	
13.8533	632.0200		unknown	0.0013	0.0013	0.0012	176.882	80.490	
13.8675	632.2900		unknown	0.0022	0.0023	0.0020	176.882	80.490	
13.8720	632.3700	O7	2,2,3-trimethylbutene-1	0.0007	0.0008	0.0007	172.202	77.890	
13.9300	633.4600	I7	2,2,3-trimethylbutane	0.3617	0.3811	0.3233	177.584	80.880	
14.1050	636.7000		unknown	0.0075	0.0078	0.0067	177.584	80.880	
14.3108	640.4400	O7	cyclic diolefin or triolefin-[2]	0.0063	0.0064	0.0068	32.000	0.000	
14.3547	641.2200	O7	O7-[1]	0.0026	0.0027	0.0028	32.000	0.000	
14.5842	645.2900	O6	diolefin	0.0233	0.0242	0.0254	32.000	0.000	
14.7127	647.5300	O7	2,4-dimethylpentene-1	0.0420	0.0437	0.0383	178.880	81.600	
14.9712	651.9700	A6	benzene	25.1049	20.7651	28.7867	176.162	80.090	
15.1152	654.3900	I7	3,3-dimethylpentane	2.3624	2.4775	2.1117	186.908	86.060	
15.3194	657.7800	N6	cyclohexane	0.4401	0.4109	0.4684	177.296	80.720	
15.4742	660.3000	O7	2-methyl-t-hexene-3	0.0547	0.0572	0.0499	186.620	85.900	
15.5892	662.1600	O6	diolefin (hexadiene)	0.0055	0.0057	0.0050	158.000	70.000	
15.6589	663.2800	O7	2-ethyl-3-methylbutene-1	0.0230	0.0234	0.0210	187.448	86.360	
16.0396	669.2600	I7	2-methylhexane	14.7334	15.7835	13.1697	194.090	90.050	
16.0990	670.1800	I7	2,3-dimethylpentane	2.6881	2.8113	2.4028	193.604	89.780	
16.2292	672.1800	N7	1,1-dimethylcyclopentane	0.2713	0.2614	0.2475	189.464	87.480	
16.3431	673.9100	O6	cyclohexene	0.0200	0.0179	0.0218	181.346	82.970	
16.5751	677.3800	I7	3-methylhexane	12.5033	13.2288	11.1763	197.330	91.850	
16.6928	679.1200	O7	3,4-dimethyl-c-pentene-2	0.0671	0.0679	0.0612	192.650	89.250	
16.8767	681.8000	N7	1c,3-dimethylcyclopentane	0.3101	0.3027	0.2829	195.386	90.770	
17.0379	684.1300	N7	1t,3-dimethylcyclopentane	0.2715	0.2636	0.2476	197.096	91.720	
17.1333	685.4900	I7	3-ethylpentane	0.9493	0.9886	0.8486	200.246	93.470	
17.2280	686.8300	N7	1t,2-dimethylcyclopentane	0.3270	0.3164	0.2983	197.366	91.870	
17.3130	688.0300	I8	2,2,4-trimethylpentane	0.0481	0.0505	0.0377	210.632	99.240	
17.3568	688.6400	O7	heptene-1	0.0310	0.0323	0.0283	200.552	93.640	

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Hold

Components Listed in Chromatographic Order **Page: 7**

Minutes	Index	Group	Component	Mass %	Volume %	Mol %	BP(F)	BP(C)	CAS
17.7443	693.9900	O7	3-methyl-c-hexene-3	0.0235	0.0238	0.0214	203.720	95.400	
18.0348	697.9000	O7	t-heptene-3	0.0242	0.0250	0.0221	204.206	95.670	
18.1926	700.0000	P7	n-heptane	3.2592	3.4654	2.9133	209.156	98.420	
18.2931	701.2300	O7	c-heptene-3	0.0615	0.0636	0.0561	204.350	95.750	
18.3751	702.2200	O7	3-methyl-c-hexene-2	0.0303	0.0309	0.0276	203.738	95.410	
18.5054	703.8000	O7	t-heptene-2	0.0156	0.0161	0.0143	208.310	97.950	
18.6317	705.3100	O7	3-ethylpentene-2	0.0155	0.0155	0.0141	204.818	96.010	
18.8678	708.1100	O7	3-methyl-t-hexene-2	0.0271	0.0275	0.0248	203.324	95.180	
19.1850	711.7900	O7	c-heptene-2	0.0177	0.0181	0.0162	209.138	98.410	
19.4983	715.3600	O7	O7-[2]	0.0006	0.0006	0.0005	209.138	98.410	
19.6330	716.8700		unknown	0.0266	0.0276	0.0243	209.138	98.410	
19.7017	717.6400	N7	1c,2-dimethylcyclopentane	0.0603	0.0599	0.0550	211.154	99.530	
19.8963	719.7900	I8	2,2-dimethylhexane	0.0686	0.0717	0.0538	224.312	106.840	
20.7344	728.7800	N7	ethylcyclopentane	0.0243	0.0230	0.0221	218.246	103.470	
20.8100	729.5700	I8	2,5-dimethylhexane	0.0668	0.0700	0.0524	228.398	109.110	
20.9911	731.4500	I8	2,4-dimethylhexane	0.1056	0.1096	0.0828	228.974	109.430	
21.5382	737.0000	N8	1c,2t,4-trimethylcyclopentane	0.0055	0.0052	0.0044	242.132	116.740	
21.6553	738.1700	I8	3,3-dimethylhexane	0.0232	0.0238	0.0182	233.546	111.970	
22.2700	744.1700	N8	1t,2c,3-trimethylcyclopentane	0.0019	0.0018	0.0015	230.738	110.410	
22.5446	746.7800	I8	2,3,4-trimethylpentane	0.0032	0.0032	0.0025	236.246	113.470	
22.6661	747.9300		unknown	0.0021	0.0021	0.0016	236.246	113.470	
23.2053	752.9200	A7	toluene	3.5512	2.9776	3.4520	231.134	110.630	
23.7590	757.9100	I8	2,3-dimethylhexane	0.0179	0.0183	0.0140	240.098	115.610	
23.8977	759.1400	I8	2-methyl-3-ethylpentane	0.0029	0.0029	0.0023	240.098	115.610	
24.4683	764.1100	I8	2-methylheptane	0.0359	0.0374	0.0282	243.770	117.650	
24.6439	765.6100	I8	4-methylheptane	0.0173	0.0179	0.0136	243.878	117.710	
24.8425	767.2900	I8	3,4-dimethylhexane	0.0073	0.0074	0.0058	243.914	117.730	
25.3779	771.7500	I8	3-methylheptane	0.0326	0.0336	0.0256	246.074	118.930	
25.5149	772.8700	N8	1c,2t,3-trimethylcyclopentane	0.0080	0.0075	0.0064	243.500	117.500	
29.0987	800.0000	P8	n-octane	0.0062	0.0064	0.0049	258.224	125.680	
37.9258	847.7000	A8	ethylbenzene	0.0048	0.0040	0.0041	277.160	136.200	

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Comments: Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order **Page: 8**

Minutes	Index	Group	Component	Mass %	Volume %	Mol %	BP(F)	BP(C)	CAS
39.8823	856.5900	A8	1,3-dimethylbenzene	0.0075	0.0063	0.0063	282.416	139.120	
40.1325	857.6900	A8	1,4-dimethylbenzene	0.0035	0.0030	0.0030	281.048	138.360	
58.2158	953.3400	A9	1,3-methylethylbenzene	0.0009	0.0007	0.0006	322.394	161.330	
62.4054	981.8400	A9	1,2,4-trimethylbenzene	0.0013	0.0011	0.0010	336.884	169.380	