Your Reference :

#### Tengizchevroil

Report No.	TR-0006-01-2016
Date of report	07-Jan-16
Vessel	Coral Palmata
Location	Habas A.S. Terminal, Yarimca
Product	LPG Mix
Outturn date	07-Jan-16

## **CONTENTS LISTING**

We have pleasure in enclosing herewith, our report for the above referenced inspection. The inspection was carried out according to the following reports:

Document Title		Pages
Contents Listing		One
Summary Of Quantities		One
Certificate Of Quantity Discharged (LPG Mix)		One
Receipt For Documents		One
Time Log		One
Vessel Ullage Report Before Discharge		One
Vessel Ullage Report After Discharge		One
Vessel Ullage Report (Loadport)		One
Vessel Experience Report		One
Vessel Tank Inspection Report		One
Sample Receipt		One
Sample Report		One
Letter Of Protest On Apparent Discrepancy (LPG Mix)		One
Shore Tank Report, Page 1 of 1		One
Analysis Report (Grade 1: LPG Mix) - Before Discharge		One
Analysis Report (Grade 1: LPG Mix) - After Discharge		One
	Total pages:	16 pages

Should you have any query, or require any additional information, please contact Mr John Smith at our London office (telephone number +44 207 123 45 67).



# SUMMARY OF QUANTITIES

Report No.	TR-0006-01-2016
Date of report	07-Jan-16
Vessel	Coral Palmata
Location	Habas A.S. Terminal, Yarimca
Product	LPG Mix

			Bill of Lading figures:			
BOL No. Product name		BOL date	Metric Tons (vac)	Metric Tons (air)	GSV at 15°C,	
DOE NO.	i roddee name	DOE date			cu m	
001	LPG Mix	07-Jan-16	2,025.071	2,000.710	3,667.942	

### Comparison of Ship's figures, Bill of Lading and Outturn quantity

Totals of the Bills Of Lading	LPG Mix	Total
Total Metric tons (vacuo)	2,025.071	2,025.071
Total Metric tons (air)	2,000.710	2,000.710
GSV at 15°C, cu m	3,667.942	3,667.942
METRIC TONS IN VACUO (GROSS	WEIGHT)	Total
Vessel after loading	2,021.457	2,021.457
Vessel before discharge	2,020.987	2,020.987
Difference	-0.470	-0.470
% Difference	-0.023%	-0.023%
Bill of Lading	2,025.071	2,025.071
Outturn quantity	1,991.699	1,991.699
Difference	-33.372	-33.372
% Difference	-1.648%	-1.648%
METRIC TONS IN AIR (GROSS WI	EIGHT)	Total
Vessel after loading	2,017.314	2,017.314
Vessel before discharge	2,016.845	2,016.845
Difference	-0.469	-0.469
% Difference	-0.023%	-0.023%
Bill of Lading	2,000.710	2,000.710
Outturn quantity	1,987.616	1,987.616
Difference	-13.094	-13.094
% Difference	-0.654%	-0.654%
CUBIC METRES AT 15°C (GROSS		Total
Vessel after loading	3,661.40	3,661.40
Vessel before discharge	3,660.55	3,660.55
Difference	-0.85	-0.85
% Difference	-0.023%	-0.023%
Bill of Lading	3,667.94	3,667.94
Outturn quantity	3,607.50	3,607.50
Difference	-60.45	-60.45
% Difference	-1.648%	-1.648%



## CERTIFICATE OF QUANTITY DISCHARGED

Report No. Date of report Vessel Location Product Outturn date TR-0006-01-2016 07-Jan-16 Coral Palmata Habas A.S. Terminal, Yarimca LPG Mix 07-Jan-16

#### Shore tank figures:

<b>GRAND TOTALS:</b>	LPG Mix	<u>Grand Totals</u>
Total Metric tons (vacuo) : Total Metric tons (air) : GSV at 15°C, cu m :	1,991.699 1,987.616 3,607.497	1,991.699 1,987.616 3,607.497
Average Density at 15°C, kg/l :	0.5521	



### **RECEIPT FOR DOCUMENTS**

Report No. Date of report Vessel Location Product Outturn date TR-0006-01-2016 07-Jan-16 Coral Palmata Habas A.S. Terminal, Yarimca LPG Mix 07-Jan-16

This is to confirm that I, undersigned Ship's Officer did receive from the undersigned Surveyor the following documents:

Document Title	Qty		
Receipt For Documents	One		
Time Log	One		
Ullage Report before Discharge	One		
Ullage Report after Discharge	One		
Ullage Report (Loadport)	One		
Vessel Experience Report	One		
Tank Inspection Report	One		
Total Pages:	7		

Instructions regarding documents:
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1 set for Vessel's own use

Should you have any query, or require any additional information, please contact Mr John Smith at our London office (telephone number +44 207 123 45 67).

Chief Officer of "Coral Palmata": V. Koshevoy



Report No.TR-000Date of report07-JanVesselCoral ILocationHabasProductLPG MOutturn date07-Jan

TR-0006-01-2016 07-Jan-16 Coral Palmata Habas A.S. Terminal, Yarimca LPG Mix 07-Jan-16

Time	Date			Operations			
11:55	06-Jan-16	Vessel ar	rived at roads	(End of Sea Passage)			
11:55	06-Jan-16	Notice of	Readiness ten	dered			
12:10	06-Jan-16	Vessel ar	nchored - await	ing berthing instructions			
13:20	06-Jan-16			ree Pratique granted			
16:10	06-Jan-16		Pilot on board				
16:15	06-Jan-16		Anchor aweigh - proceeding to berth				
17:00	06-Jan-16			irst line ashore)			
17:15	06-Jan-16		r on board				
17:45	06-Jan-16		l fast alongside	berth no. 1			
17:50	06-Jan-16		nks measured				
18:00	06-Jan-16	Hose cor					
18:15	06-Jan-16		Readiness rece	· ·			
18:25	06-Jan-16		Iculation compl				
18:30	06-Jan-16		ced Discharging	g			
04:00	07-Jan-16		Completed Discharging				
04:30	07-Jan-16	-	ROB in Vessel's tanks measured				
05:00	07-Jan-16		Hose disconnected				
05:00	07-Jan-16		Discharged quantity calculation completed				
05:10	07-Jan-16		r's documents o				
05:30	07-Jan-16		argo document				
05:35	07-Jan-16		r left the vessel				
05:50	07-Jan-16		ailed (ETS)				
		AYS		REASON			
	From		То				
11:55	06-Jan-16	16:10	06-Jan-16	Awaiting free jetty			
04:05	07-Jan-16	04:30	07-Jan-16	Blowing lines			

(\*) - As per information received from the Master of the vessel

Sea water temperature, °C
3.5

Remarks:

General weather condition Calm

Product Name	Pumping time hours minutes	Outturn figure Mt air	Pumping rate Mt air / hour	
LPG Mix	9 hours 30 minutes	1987.616	209.223	

Chief Officer of "Coral Palmata": V. Koshevoy

For and on behalf of Global Survey Solutions Ltd.: A. Sezer

TIME LOG

Report No.TR-0006-01-2016Date of report07-Jan-16VesselCoral PalmataLocationHabas A.S. Terminal, YarimcaProductLPG MixOutturn date07-Jan-16

### VESSEL ULLAGE REPORT BEFORE DISCHARGE

VCF calculated by API Standard 2540, MPMS Ch 11.2 dated 2007

UNITS: Volume: cu.m			p: °C	Pressure:	bar			
Tank No.	1P	1S	2P	25	3P	3S		
Cargo	LPG Mix	LPG Mix	LPG Mix	LPG Mix	LPG Mix	LPG Mix		
.00% capacity of tanks:	1,079.130	1,078.520	1,253.350	1,252.750	1,250.460	1,249.850		
Observed Liquid Innage, m	5.222	5.230	8.282	8.270				
iquid Temperature, °C	-2.20	-2.00	-1.40	-1.10				
/apour Temperature, °C	-1.10	-1.00	-0.80	-1.40	-2.90	-2.30		
/apour Pressure, bar	1.58	1.58	1.60	1.60	0.02	0.02		
nert gases, %								
iquid Phase	Density @ 15	oC (in vacuo)	calculated from	n GC composi	tion	Total:	2,008.026	MT (vacuo
Correction for <i>Trim / List, m</i>	0.008	0.008	-0.002	-0.002				
Correction for Float Buoy., m	0.007	0.007	0.007	0.007				
Correction for Tape, m	0.001	0.001						
Corrected Liquid Innage, m	5.238	5.246	8.287	8.275				
₋iquid Volume, m <sup>3</sup>	608.708	609.450	1,148.076	1,146.120				
Shrinking Factor	0.999346	0.999350	0.999368	0.999379				
/olume corrected, m <sup>3</sup>	608.310	609.054	1,147.350	1,145.408				
Density at 15°C	0.5521	0.5521	0.5521	0.5521				
/CF by Table 54E	1.0376	1.0371	1.0359	1.0352				
iquid Volume at 15°C, m <sup>3</sup>	631.158	631.668	1,188.494	1,185.749				
iquid Metric tons (vac)	348.462	348.744	656.168	654.652				
/apour Phase				-	•	Total:	12,961	MT (vacuo
Iol.Mass	52.504	52.504	52.504	52.504	52.504	52.504	12.501	
/apour Volume, m <sup>3</sup>	470.422	469.070	105.274	106.630	1,250.460	1,249.850		
Corr.Vap.Vol. for <i>In.Gas.</i>	470.422	469.070	105.274	106.630	1,250.460	1,249.850		
Shrinking Factor	0.999377	0.999380	0.999386	0.999368	0.999323	0.999340		
/olume corrected, m <sup>3</sup>	470.129	468.779	105.209	106.563	1,249.613	1,249.025		
/apour Density, (kg/m <sup>3</sup> )	6.0193	6.0171	6.0591	6.0725	2.4143	2.4090		
/apour Metric tons (vac)	2.830	2.821	0.637	0.647	3.017	3.009		
	351.292	351.565	656.805		3.017			
Total Metric tons (vac)				655.299		3.009		
Correction Factor to air	0.99795	0.99795	0.99795	0.99795	0.99795	0.99795		
Fotal Metric tons (air) GSV at 15°C, cu m	350.572 636.283	350.844 636.778	655.459 1,189.649	653.956 1,186.921	3.011 5.465	3.003 5.450		
	030.203	030.776	1,109.049	1,100.921	5.405	5.450		
Before discharge: Total Metric tons (vac)	351.292	351.565	656.805	655.299	3.017	3.009		
Total Metric tons (vac)	350.572	350.844	655.459	653.956		3.009		
GSV at 15°C, cu m	636.283	636.778	1,189.649	1,186.921	3.011 5.465	5.450		
Fotal quantity before		Mix	1,109.049	1,100.921	5.405	3.430	То	tal
discharge:	<u></u>						<u>10</u>	<u>car</u>
Metric Tons (vacuo)	2.0	20.987					2.02	20.987
Metric Tons (air)		16.845						16.845
Cubic Metres at 15°C		60.546						50.546
Sea Condition :	Calm		Remarks :				,	
Draft FWD :				0C (in	oploulated for		ion	
			-			n GC composit	ION	
AFT :			Vessel calcula	itions based u	pon calibration	tables		
TRIM :	0.50 m							
LIST :	Nil							
Chief Officer of "Coral Pal	mata": V. Ko	oshevov						



Report No.	TR-0006-01-2016
Date of report	07-Jan-16
Vessel	Coral Palmata
Location	Habas A.S. Terminal, Yarimca
Product	LPG Mix
Outturn date	07-Jan-16

### VESSEL ULLAGE REPORT AFTER DISCHARGE

VCF calculated by API Standard 2540, MPMS Ch 11.2 dated 2007

Tank No.         1P         1S         2P         2S         3P         3S         1000%           Cargo         LPG Mix	UNITS: Volume: cu.m			p: °C	Pressure:	bar			
University         University         University         University         University           00% capacity of tanks:         1,079.130         1,078.520         1,253.350         1,252.750         1,249.850           iquid Temperature, °C         -3.90         -3.90         -3.60         -4.4         -2.90         -2.30           apour Temperature, °C         -3.90         -3.60         -4.4         -2.90         -2.30         -           apour Temperature, °C         -3.90         -3.60         -4.4         -2.90         -2.30         -           apour Temperature, °C         -3.97         1.13         1.13         0.02         0.02         -           apour Temperature, °C         -3.90         -3.60         -4.4         -2.90         -2.30         -           apour Temperature, °C         -0.87         1.13         1.13         0.02         -         <	Tank No.	1P	1S	2P	2S	3P	3S		
Deserved Liquid Innage, m iquid Temperature, °C         -3.90         -3.60         -4.40         -2.90         -2.30           apour Temperature, °C         0.87         0.87         1.13         1.02         0.02         -           apour Temperature, °C         0.87         0.87         1.13         0.02         0.02         -           apour Temperature, °C         0.87         0.87         1.13         0.02         0.02         -           apour Temperature, °C         0.87         0.87         0.87         0.02         -         -           apour Temperature, °C         0.87         0.87         1.13         0.02         0.02         -           apour Temperature, °C         0.87         0.87         1.13         0.02         0.02         -<	Cargo	LPG Mix	LPG Mix	LPG Mix	LPG Mix	LPG Mix	LPG Mix		
liquid Temperature, °C         -3.90         -3.60         -4.40         -2.90         -2.30           apour Temperature, °C         -3.90         -3.60         -4.40         -2.90         -2.30         -           apour Pressure, bar         0.87         0.13         1.13         1.02         0.02         -           incret gases, %	.00% capacity of tanks:	1,079.130	1,078.520	1,253.350	1,252.750	1,250.460	1,249.850		
'apour Pressure, Par         -3.90         -3.90         -3.90         -2.30									
Japour Pressure, bar nert gases, %         0.87         0.87         1.13         1.13         0.02         0.02           Liquid Phase         Density @ 150C (in vacuo) calculated from GC composition         Total, Mt vac:         MT (vacuo)           Correction for <i>Tim / List, m</i> Image, m         Image, m         Image, m         Image, m           Correction for <i>Tape, m</i> Image, m         Image, m         Image, m         Image, m         Image, m           Corrected Liquid Innage, m         Image, m         Image, m         Image, m         Image, m         Image, m           Corrected, m <sup>21</sup> Image, m         Image, m         Image, m         Image, m         Image, m         Image, m           Jajoud Yolume, m <sup>1</sup> Image, m         Image, m         Image, m         Image, m         Image, m         Image, m           Jajoud Yolume, m <sup>1</sup> Image, m         Image, m <tdi< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tdi<>									
nert gases, %									
Liquid Phase         Density @ 15oC (in vacuo) calculated from GC composition         Total, Mt vac:         MT (vacuo)           Correction for <i>Tape, m</i>	•	0.87	0.87	1.13	1.13	0.02	0.02		
Correction for <i>Trim /List, m</i>	nert gases, %								
Correction for <i>Faat Buoy., m</i> Corrected Liquid Innage, m         Corrected Liquid Volume, m <sup>3</sup> Jensity at 15°C         C <td></td> <td>Density @ 15</td> <td>oC (in vacuo)</td> <td>calculated from</td> <td>m GC composi</td> <td>ition T</td> <td>otal, Mt vac:</td> <td>1</td> <td>MT (vacuo)</td>		Density @ 15	oC (in vacuo)	calculated from	m GC composi	ition T	otal, Mt vac:	1	MT (vacuo)
Correction for Tape, m         Correction for Tape, m         Corrected liquid Innage, m           Corrected liquid Innage, m         Corrected liquid Nnage, m         Corrected liquid Nnage, m         Corrected liquid Nnage, m           Shrinking Factor         Corrected, m <sup>3</sup> Corrected, m         Corrected, m <sup>3</sup> Corrected, m           Shrinking Factor         Corrected, m <sup>3</sup> Corrected, m         Corrected, m <sup>3</sup> Corrected, m           Liquid Netric tors (vac)         Corrected, m <sup>3</sup> Corrected, m <sup>3</sup> Corrected, m         Corrected, m <sup>3</sup> Liquid Metric tors (vac)         Corrected, m <sup>3</sup> Corrected, m <sup>3</sup> Corrected, m <sup>3</sup> Corrected, m <sup>3</sup> Algour Phase         S2.504         S2.504         S2.504         S2.504         S2.504           Vapour Vharse         S2.504         S2.504         S2.504         S2.504         S2.504           Algour Volume, m <sup>3</sup> 1,079.130         1,078.520         1,253.350         1,250.460         1,249.850           Orrected, m <sup>3</sup> 1,079.757         1,252.476         1,251.852         1,249.850         Corrected, m <sup>3</sup> Algour Metric tors (vac)         4.763         4.760         6.289         6.304         3.017         3.009         Corrector air         0.99795									
Corrected Liquid Innage, m lquid Volume, m <sup>3</sup> Image: Corrector of the second seco									
iquid Volume, m³	•								
Shrinking Factor /olume corrected, m <sup>3</sup> Image: Correct of a correct o									
/olume corrected, m³       Image: Corrected, m³       Image: Corrected, m³       Image: Corrected, m³         Jquid Metric tons (vac)       Image: Corrected, m3       Image: Correc	•						ļ ļ		
Density at 15°C         Image: Cross of the second sec	-			ļ			ļ ļ		
VCF by Table 54E       Image: Constraint of the second secon	-						ļ ļ		
iquid Volume at 15°C, m³               iquid Volume at 15°C, m³							ļ ļ		
Liquid Metric tons (vac)         28.142         MT (vacuo)           Vapour Phase         28.142         MT (vacuo)           Yapour Volume, m³         1,079.130         1,078.520         1,253.350         1,252.750         1,250.460         1,249.850           Corr.Vap.Vol. for <i>In.Gas.</i> 1,079.130         1,078.520         1,253.350         1,252.750         1,250.460         1,249.850	,						ļ ļ		
Vapour Phase         28.142 MT (vacuo           Mol.Mass         52.504									
Mol.Mass         52.504         52.50	_iquid Metric tons (vac)								
Mol.Mass         52.504         52.50	/apour Phase							28.142	MT (vacuo)
apour Volume, m³       1,079.130       1,078.520       1,253.350       1,252.750       1,250.460       1,249.850         Corr.Vap.Vol. for <i>In.Gas.</i> 1,079.130       1,078.520       1,253.350       1,252.750       1,250.460       1,249.850         Shrinking Factor       0.999294       0.999203       0.999283       0.999283       0.999303       0.999304         /olume corrected, m³       1,078.368       1,077.757       1,252.476       1,251.852       1,249.051       1,249.025         /apour Density, (kg/m³)       4.4168       5.0210       5.0359       2.4143       2.4090       2.4143         /apour Metric tons (vac)       4.763       4.760       6.289       6.304       3.017       3.009       3.009         After discharge:	-	52.504	52.504	52.504	52.504	52.504	52.504		(
Corr. Vap. Vol. for In. Gas.         1,079.130         1,078.520         1,253.350         1,252.750         1,250.460         1,249.850           Adjourne corrected, m³         0.999294         0.999293         0.999203         0.999283         0.999323         0.99935         0.99795         0.99795         0.99795         0.99795         0.99795         0.99795         0.99795         0.99795         0.99795         0.99795         0.99795         0.99795         0		1 079 130	1 078 520	-	1 252 750				
Shrinking Factor       0.999294       0.999293       0.999303       0.999283       0.999323       0.999340         /olume corrected, m³       4.4168       1,077.757       1,252.476       1,251.852       1,249.613       1,249.025         /apour Density, (kg/m³)       4.763       4.760       6.289       6.304       3.017       3.009         /apour Metric tons (vac)       4.763       4.760       6.289       6.304       3.017       3.009         /arcor to air       0.99795       0.99795       0.99795       0.99795       0.99795       0.99795         /otal Metric tons (vac)       4.763       4.760       6.289       6.304       3.017       3.009       3.009         Correction Factor to air       0.99795       0.99795       0.99795       0.99795       0.99795       0.99795       0.99795         fotal Metric tons (air)       4.753       4.750       6.276       6.291       3.011       3.003       3.013         SSV at 15°C, cu m       8.627       8.622       11.391       11.418       5.465       5.450       1.076.34         Otal Metric tons (air)       346.529       346.805       650.516       648.995       1.011       1.011         Solv at 15°C, cu m       627.	•	· · ·							
/olume corrected, m³       1,078.368       1,077.757       1,252.476       1,251.852       1,249.613       1,249.025	•			1					
/apour Density, (kg/m³)       4.4168       4.4168       5.0210       5.0359       2.4143       2.4090	-					-			
Vapour Metric tons (vac)       4.763       4.760       6.289       6.304       3.017       3.009         After discharge:       Fotal Metric tons (vac)       4.763       4.760       6.289       6.304       3.017       3.009         Correction Factor to air       0.99795       0.99795       0.99795       0.99795       0.99795       0.99795         Total Metric tons (air)       4.753       4.750       6.276       6.291       3.011       3.003       3.003         SSV at 15°C, cu m       8.627       8.622       11.391       11.418       5.465       5.450       5.450         Quantity Discharged:	-	· · ·							
After discharge:         Image:         Image: <thimage:< th=""> <thimage:< th=""> <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<></thimage:<></thimage:<>									
Total Metric tons (vac)         4.763         4.760         6.289         6.304         3.017         3.009           Correction Factor to air         0.99795         0.9753         0.9753         0.9753         0.9753         0.9753         0.9753         0.992.845         1,992.845         1,992.845         1,992.84				0.200	0.001	0.017	0.000		
Correction Factor to air         0.99795         0.99785         0.99785         0.99785         0.99785         0.99785         0.99785         0.99785         0.99785         0.99785         0.99785         0.99785         0.9978		4 763	4 760	6 280	6 304	3 017	3 000		
Total Metric tons (air)         4.753         4.750         6.276         6.291         3.011         3.003           SSV at 15°C, cu m         8.627         8.622         11.391         11.418         5.465         5.450           Quantity Discharged:         Image: Constraint of the state of	· /								
SSV at 15°C, cu m         8.627         8.622         11.391         11.418         5.465         5.450           Quantity Discharged:         Image: Composition									
Quantity Discharged:         Image: Control of the system of the sys	, , ,								
Total Metric tons (vac)       346.529       346.805       650.516       648.995       Image: Constraint of the second seco	•	0.027	0.022	11.551	11.110	5.105	5.150		
Total Metric tons (air)         345.819         346.094         649.183         647.665         Image: Constraint of the state of th		246 520	246 905	650 516	649 00E		г	T	
GSV at 15°C, cu m         627.656         628.156         1,178.258         1,175.503           Total Quantity         LPG Mix         Total           Discharged:         1,992.845         1,992.845           Metric Tons (vacuo)         1,988.761         1,988.761           Cubic Metres at 15°C         3,609.573         3,609.573           Sea Condition :         Calm         Remarks :           Draft FWD :         3.30 m         Density @ 15°C (in vacuo) calculated from GC composition           AFT :         5.60 m         Vessel calculations based upon calibration tables           TRIM :         2.30 m         LIST :         Nil									
Total QuantityLPG MixTotalDischarged: Metric Tons (vacuo)1,992.8451,992.845Metric Tons (air)1,988.7611,988.761Cubic Metres at 15°C3,609.5733,609.573Sea Condition :CalmRemarks : Density @ 15°C (in vacuo) calculated from GC compositionAFT :5.60 mVessel calculations based upon calibration tablesTRIM :2.30 mLIST :NilNil									
Discharged:Metric Tons (vacuo)1,992.845Metric Tons (air)1,988.761Cubic Metres at 15°C3,609.573Sea Condition :CalmDraft FWD :3.30 mAFT :5.60 mTRIM :2.30 mLIST :Nil			•	1,170.230	1,175.505			T_+	- 1
Metric Tons (vacuo)1,992.8451,992.845Metric Tons (air)1,988.7611,988.761Cubic Metres at 15°C3,609.5733,609.573Sea Condition :CalmRemarks : Density @ 15°C (in vacuo) calculated from GC compositionMetric Tons (air)3.30 mDensity @ 15°C (in vacuo) calculated from GC compositionAFT :5.60 mVessel calculations based upon calibration tablesTRIM :2.30 mLIST :NilNil		LPG	MIX					<u>10t</u>	<u>ai</u>
Metric Tons (air)1,988.7611,988.761Cubic Metres at 15°C3,609.5733,609.573Sea Condition :CalmRemarks :Draft FWD :3.30 mDensity @ 15°C (in vacuo) calculated from GC compositionAFT :5.60 mVessel calculations based upon calibration tablesTRIM :2.30 mLIST :NilVessel calculations based upon calibration tables		1.0	02 845					1 007	Q15
Cubic Metres at 15°C       3,609.573       3,609.573         Sea Condition :       Calm       Remarks :         Draft FWD :       3.30 m       Density @ 15°C (in vacuo) calculated from GC composition         AFT :       5.60 m       Vessel calculations based upon calibration tables         TRIM :       2.30 m       LIST :									
Sea Condition : CalmRemarks :Draft FWD : 3.30 mDensity @ 15°C (in vacuo) calculated from GC compositionAFT : 5.60 mVessel calculations based upon calibration tablesTRIM : 2.30 mLIST : Nil		•						•	
Draft FWD : 3.30 m       Density @ 15°C (in vacuo) calculated from GC composition         AFT : 5.60 m       Vessel calculations based upon calibration tables         TRIM : 2.30 m       LIST : Nil			5,5,5	_				5,005	
AFT : 5.60 m Vessel calculations based upon calibration tables TRIM : 2.30 m LIST : Nil				<u>Remarks :</u>					
TRIM : 2.30 m LIST : Nil	Draft FWD :	3.30 m		Density @ 15	°C (in vacuo)	calculated from	n GC compositio	on	
TRIM : 2.30 m LIST : Nil	AFT :	5.60 m		Vessel calcula	ations based u	pon calibratior	1 tables		
LIST : Nil	TRIM :	2.30 m							
			<b>b</b>						

Report No. Date of report Vessel Loadport Product Bill of Lading date

TR-0006-01-2016 07-Jan-16 Coral Palmata Odessa, Ukraine LPG Mix 07-Jan-16

### VESSEL ULLAGE REPORT (LOADPORT)

VCF calculated by API Standard 2540, MPMS Ch 11.2 dated 2007

UNITS: Volume: cu.m	. Linear:	m. Tem	o: °C	Pressure:	bar			
Tank No.	1P	1S	2P	2S	3P	35		
Cargo	LPG Mix	LPG Mix	LPG Mix	LPG Mix	LPG Mix	LPG Mix		
100% capacity of tanks:	1,079.130	1,078.520	1,253.350	1,252.750	1,250.460	1,249.850		
Observed Liquid Innage, m	5.220	5.230	8.281	8.272				
Liquid Temperature, °C	-2.10	-2.00	-1.40	-1.10				
Vapour Temperature, °C	-1.10	-1.00	-0.80	-1.40	-3.10	-2.70		
Vapour Pressure, bar	1.59	1.59	1.60	1.60	0.02	0.02		
Inert gases, %								
Liquid Phase	Density @ 15	oC (in vacuo)	calculated from	n GC composi	tion	Total:	2,008.473	MT (vacuo)
Correction for Trim / List, m	0.008	0.008	-0.002	-0.002				
Correction for <i>Float Buoy., m</i>	0.007	0.007	0.007	0.007				
Correction for Tape, m	0.001	0.001						
Corrected Liquid Innage, m	5.236	5.246	8.286	8.277				
Liquid Volume, m <sup>3</sup>	608.982	609.870	1,148.543	1,145.874				
Shrinking Factor	0.999335	0.999350	0.999368	0.999379				
Volume corrected, m <sup>3</sup>	608.577	609.474	1,147.817	1,145.162				
Density at 15°C	0.5521	0.5521	0.5521	0.5521				
VCF by Table 54E	1.0373	1.0371	1.0359	1.0352				
Liquid Volume at 15°C, m <sup>3</sup>	631.301	632.104	1,188.978	1,185.495				
Liquid Metric tons (vac)	348.541	348.985	656.435	654.512				
Vapour Phase					<u> </u>	Total:	12 984	MT (vacuo)
Mol.Mass	52.504	52.504	52.504	52.504	52.504	52.504	12.501	
Vapour Volume, m <sup>3</sup>	470.148	468.650	104.807	106.876	1,250.460	1,249.850		
Corr.Vap.Vol. for In.Gas.	470.148	468.650	104.807	106.876	1,250.460	1,249.850		
Shrinking Factor	0.999377	0.999380	0.999386	0.999368	0.999323	0.999340		
Volume corrected, m <sup>3</sup>	469.855	468.359	104.743	106.808	1,249.613	1,249.025		
Vapour Density, (kg/m <sup>3</sup> )	6.0426	6.0403	6.0591	6.0725	2.4161	2.4125		
Vapour Metric tons (vac)	2.839	2.829	0.635	0.649	3.019	3.013		
Total Metric tons (vac)	351.380	351.814	657.070	655.161	3.019	3.013		
Correction Factor to air	0.99795	0.99795	0.99795	0.99795	0.99795	0.99795		
Total Metric tons (air)	350.660	351.093	655.723	653.818	3.013	3.007		
GSV at 15°C, cu m	636.443	637.229	1,190.129	1,186.671	5.468	5.457		
	•	•		•	-	•		
Total Metric tons (vac)	351.380	351.814	657.070	655.161	3.019	3.013		
Total Metric tons (air)	350.660	351.093	655.723	653.818	3.013	3.007		
GSV at 15°C, cu m	636.443	637.229	1,190.129	1,186.671	5.468	5.457		
	LPG	<u>Mix</u>					<u>To</u>	<u>tal</u>
Metric Tons (vacuo)	2 02	1.457					ر ک ک	1.457
Metric Tons (air)		7.314						7.314
Cubic Metres at 15°C	•	1.397						1.397
		1.557					5,00.	1.557
Sea Condition :	Calm		<u>Remarks :</u>					
Draft FWD :			Density @ 15	°C (in vacuo)	calculated from	n GC composit	tion	
AFT :			Vessel calcula	ations based u	pon calibration	is tables		
TRIM :								
LIST :	Nil							
Chief Officer of "Coral Pa								
For and on behalf of Glob		lutions I td ·	A Sezer					
	ai Suivey 30	TULIONS LLU.:	A. JE2EI					



### **VESSEL EXPERIENCE REPORT**

TR-0006-01-2016
07-Jan-16
Coral Palmata
Habas A.S. Terminal, Yarimca
LPG Mix
07-Jan-16

Voyage	Bill of Lading date	Cargo	Loadport	Vessel's figure Mt	Bill of Lading Mt	Vessel Load Ratio	Quali- fying
Last	01-Jan-16	LPG Mix	Midia	2,049.060	2,086.624	0.98179	Yes
2nd last	23-Nov-15	Propane	Constanta	2,429.700	2,472.350	0.98301	Yes
3rd last	12-Oct-15	Butane	Odessa	2,471.430	2,500.718	0.98800	No
4th last	26-Sep-15	LPG Mix	Odessa	2,560.350	2,600.794	0.98424	Yes
5th last	15-Aug-15	LPG Mix	Midia	2,618.850	2,664.228	0.98311	Yes
6th last	07-Aug-15	Propane	Constanta	2,616.120	2,661.076	0.98309	Yes
7th last	23-Jul-15	Butane	Botas	2,477.670	2,517.660	0.98411	Yes
8th last	12-Jul-15	Propane	Szczecin	2,308.020	2,345.088	0.98422	Yes
9th last	23-Jun-15	Propane	Amsterdam	2,549.820	2,591.338	0.98418	Yes
10th last	15-Jun-15	LPG Mix	Odessa	2,239.380	2,269.440	0.98678	Yes
Voyages exclu	ded :		Total	24,320.400	24,709.316		
When Bill Of Lad	ling is based o	on shipboard	Total Qualifying	21,848.970	22,208.598		
measurements.			First average		0.98426		
Voyages prior to	any structura	al cargo tank		+ 0.3 %	0.98721		
modifications.				- 0.3 %	0.98131		
Lighterings.			Second Average		0.98381		
				+ 0.3 %	0.98676		
First voyage afte	er dry dock.			- 0.3 %	0.98086		
Ship's figures this	voyage (Exclud	ing ROB)	1,992.845	Vessel Expe	rience Factor	]	
Bill of Lading this v			2,025.071	-	based on 2nd average		
Vessel loaded ratio			0.98409		838		
						J	

The above mentioned quantities are for the last 0 voyages as obtained from ship's record and cannot be guaranteed as accurate by the surveyor. No liability can be assumed for errors resulting from improper information supplied by the vessel.

Remarks:

For receipt, Chief Officer of "Coral Palmata": V. Koshevoy For and on behalf of Global Survey Solutions Ltd. Surveyor's name: A. Sezer



### **VESSEL TANK INSPECTION REPORT**

Report No. Date of report Vessel Location Product Outturn quantity

TR-0006-01-2016 07-Jan-16 Coral Palmata Habas A.S. Terminal, Yarimca LPG Mix 07-Jan-16

	Time:	Date:
Tank inspection was carried out:	04:30	07-Jan-16

Inspection of "Coral Palmata" at on the January 7, 2016.

#### **GENERAL INFORMATION**

Name of Vessel: Loading Place: Installation: Date: Cargoes to be loaded: Coral Palmata Habas A.S. Terminal, Yarimca LPG Terminal, berth No. 1 07-Jan-16 LPG Mix

#### **INFORMATION OBTAINED ON BOARD**

Previous cargoes:

LPG mix

in cargo tanks: 1, 2, 3 P/S

Quantity remaining on board:28.084 Metric Tons (air)Method of cleaning, if any:none

#### TEST RESULTS ON VAPOURS AFTER PURGING WITH NITROGEN

Oxygen Content, % by volume: Less than 0.3

#### **CONCLUSION**

As the oxygen content was below the limit of 0.3% by volume and previous cargo being compatible with cargoes to be loaded, all ships cargo tanks were found to be in a satisfactory condition to receive designated cargoes.

For receipt, Chief Officer of "Coral Palmata": V. Koshevoy For and on behalf of Global Survey Solutions Ltd. Surveyor's name: A. Sezer



SAMPLE RECEIPT

Report No.TR-0006-01-2016Date of report07-Jan-16VesselCoral PalmataLocationHabas A.S. Terminal, YarimcaProductLPG MixOutturn date07-Jan-16

Product	Sample source	Size	Sample description	Seal No.	Sample Distribution
LPG mix	In-line autosampler	1 Ltr.	Taken during discharge	12345	For Receiver
LPG mix	Single ship's tank composite	1 Ltr.	Multiple ship's tank composite	12346	For Receiver
LPG mix	In-line autosampler	1 Ltr.	Taken during loading at Odessa	12347	For testing

Date:

07-Jan-16

Receipt acknowledged

Chief Officer of "Coral Palmata": V. Koshevoy

Surveyor's name: A. Sezer



SAMPLE REPORT

Report No.TR-0006-01-2016Date of report07-Jan-16VesselCoral PalmataLocationHabas A.S. Terminal, YarimcaProductLPG MixOutturn date07-Jan-16

Product	Sample source	Size	Sample description	Seal No.	Sample Distribution
LPG mix	In-line autosampler	1 Ltr.	Taken during loading at Odessa	12345	For Receiver
LPG mix	Single ship's tank composite	1 Ltr.	Multiple ship's tank composite	12346	For Receiver
LPG mix	In-line autosampler	1 Ltr.	Taken during loading at Odessa	12347	For testing
LPG mix	In-line autosampler	1 Ltr.	Taken during discharge	Open	For testing

Date:

I

Surveyor's name



## LETTER OF PROTEST ON APPARENT DISCREPANCY

Report No.	TR-0006-01-2016
Date of report	07-Jan-16
Vessel	Coral Palmata
Location	Habas A.S. Terminal, Yarimca
Product	LPG Mix
Outturn date	07-Jan-16

To:

To Whom It May Concern

At the Port of:

Dear Sir,

On behalf of our principal(s), we hereby notify you that on the day of the following occurrence was noted:

#### **APPARENT DISCREPANCY:**

Grade 1	LPG Mix
Including OBQ/ROB	Metric Tons in vacuo (Gross Weight)
Vessel after loading	2,021.457
Vessel before discharge	2,020.987
Difference	-0.470
% Difference	-0.023%
Bill of Lading	2,025.071
Outturn quantity	1,991.699
Difference	-33.372
% Difference	-1.648%
Including OBQ/ROB	Metric Tons in air (Gross Weight)
Vessel after loading	2,017.314
Vessel before discharge	2,016.845
Difference	-0.469
% Difference	-0.023%
Bill of Lading	2,000.710
Outturn quantity	1,987.616
Difference	-13.094
% Difference	-0.654%

Accordingly, we are holding you responsible for the loss and damage thereby sustained, as well as any consequential arising therefrom.

Please direct any written correspondence on this matter to:

Mr. John Smith Global Survey Solutions Ltd.

Tel: +44 207 123 45 67 Email: ops@surveycalc.com Email: info@surveycalc.com

Very truly yours:

Receipt acknowledged:

Date: Signed by: For: Surveyor Date: Signed by: For: Ship

Report No. Date of report Vessel Location Outturn date TR-0006-01-2016 07-Jan-16 Coral Palmata Habas A.S. Terminal, Yarimca 07-Jan-16

#### SHORE TANK REPORT Page 1 of 1

VCF calculated by API Standard 2540, MPMS Ch 11.2 dated 2007

	07-341-10						1
		Tank No.		Tank No.		Tank No.	
LIQUID PHASE		Before	After	Before	After	Before	After
Product		LPG Mix	LPG Mix				
Date	dd-mm-yy	06-Jan-16	07-Jan-16				
Time	0000	18:30	04:00				
Total Tank Volume	cu m	4,998.449	4,998.449				
Shrinkage Factor for Total	Volume	0.99933	0.99929				
Total Volume Corrected	cu m	4,995.100	4,994.900				
Liquid level corrected	m		13.430				
Liquid Volume	cu m		3,516.071				
Liquid Temperature	°C		-1.1				
Shrinkage Factor for Liquid	Volume		0.99958				
Liquid Volume Corrected	cu m		3,514.594				
Density at 15°C	kg/l	0.5521	0.5521				
Volume Correction Factor	Table 54E		1.03522				
Liquid Volume at 15°C	cu m		3,638.378				
Liquid Mass	Mt		2,008.748				
VAPOUR PHASE						•	
Vapour Vol. Corrected	cu m	4,995.100	1,480.306				
Vapour Temperature	°C	0	-0.5				
Vapour Pressure	bar	2.1	4.5				
Molecular Mass	g/mole	52.504	52.504				
Vapour Density	kg/m <sup>3</sup>	7.1972	12.769				
Vapour Mass	Mt	35.951	18.902				
Total Mass	Mt	35.951	2,027.650				
	Mt	1,991					
Difference, Mass	Mt Mt	35.877					
Total Weight in Air		35.877					
Difference, Weight in Air	Mt			I			
GSV at 15°C	cu m	65.117 3,607	3,672.614				
Difference, GSV at 15°C	cu m	3,007	/.49/				
		Tank No.		Tank No.		Tank No.	
LIQUID PHASE		Before	After	Before	After	Before	After
Product							
Date	dd-mm-yy						
Time							
rime	0000						
Time Total Tank Volume	0000 cu m						
Total Tank Volume	cu m						
Total Tank Volume Shrinkage Factor for Total	cu m Volume						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected	cu m Volume cu m						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected	cu m Volume cu m m						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume	cu m Volume cu m m cu m						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Liquid Temperature	cu m Volume cu m m cu m °C						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Liquid Temperature Shrinkage Factor for Liquid	cu m Volume cu m m cu m °C Volume						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected	cu m Volume cu m m cu m °C Volume cu m						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C	cu m Volume cu m m cu m °C Volume cu m kg/l						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor	cu m Volume cu m cu m °C Volume cu m kg/I Table 54E						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C	cu m Volume cu m cu m °C Volume cu m kg/I Table 54E cu m						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Mass	cu m Volume cu m cu m °C Volume cu m kg/I Table 54E						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Mass VAPOUR PHASE	cu m Volume cu m °C Volume cu m kg/I Table 54E cu m Mt						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Mass VAPOUR PHASE Vapour Vol. Corrected	cu m Volume cu m °C Volume cu m kg/I Table 54E cu m Mt						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Mass <b>VAPOUR PHASE</b> Vapour Vol. Corrected Vapour Temperature	cu m Volume cu m °C Volume cu m kg/I Table 54E cu m Mt						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Mass <b>VAPOUR PHASE</b> Vapour Vol. Corrected Vapour Temperature Vapour Pressure	cu m Volume cu m °C Volume cu m kg/I Table 54E cu m Mt cu m °C bar						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Mass <b>VAPOUR PHASE</b> Vapour Vol. Corrected Vapour Temperature Vapour Pressure Molecular Mass	cu m Volume cu m °C Volume cu m kg/l Table 54E cu m Mt cu m °C bar g/mole						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Mass <b>VAPOUR PHASE</b> Vapour Vol. Corrected Vapour Temperature Vapour Temperature Vapour Pressure Molecular Mass Vapour Density	cu m Volume cu m °C Volume cu m kg/I Table 54E cu m Mt cu m °C bar g/mole kg/m <sup>3</sup>						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Mass <b>VAPOUR PHASE</b> Vapour Vol. Corrected Vapour Temperature Vapour Temperature Vapour Pressure Molecular Mass Vapour Density Vapour Mass	cu m Volume cu m °C Volume cu m kg/I Table 54E cu m Mt cu m °C bar g/mole kg/m <sup>3</sup> Mt						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Mass <b>VAPOUR PHASE</b> Vapour Vol. Corrected Vapour Temperature Vapour Temperature Vapour Pressure Molecular Mass Vapour Density Vapour Mass Total Mass	cu m Volume cu m °C Volume cu m kg/I Table 54E cu m Mt cu m °C bar g/mole kg/m <sup>3</sup>						
Total Tank VolumeShrinkage Factor for TotalTotal Volume CorrectedLiquid level correctedLiquid TemperatureShrinkage Factor for LiquidLiquid Volume CorrectedDensity at 15°CVolume Correction FactorLiquid Volume at 15°CLiquid MassVAPOUR PHASEVapour Vol. CorrectedVapour TemperatureVapour PressureMolecular MassVapour DensityVapour MassTotal MassDifference	cu m Volume cu m °C Volume cu m kg/l Table 54E cu m Mt cu m °C bar g/mole kg/m <sup>3</sup> Mt Mt						
Total Tank VolumeShrinkage Factor for TotalTotal Volume CorrectedLiquid level correctedLiquid TemperatureShrinkage Factor for LiquidLiquid Volume CorrectedDensity at 15°CVolume Correction FactorLiquid Volume at 15°CLiquid MassVAPOUR PHASEVapour Vol. CorrectedVapour TemperatureVapour PressureMolecular MassVapour DensityVapour MassTotal MassDifferenceTotal Weight in Air	cu m Volume cu m °C Volume cu m kg/l Table 54E cu m Mt cu m °C bar g/mole kg/m <sup>3</sup> Mt Mt						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Mass <b>VAPOUR PHASE</b> Vapour Vol. Corrected Vapour Temperature Vapour Temperature Vapour Pressure Molecular Mass Vapour Density Vapour Mass Total Mass Difference Total Weight in Air	cu m Volume cu m °C Volume cu m kg/l Table 54E cu m Mt cu m °C bar g/mole kg/m <sup>3</sup> Mt Mt						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Mass <b>VAPOUR PHASE</b> Vapour Vol. Corrected Vapour Temperature Vapour Temperature Vapour Pressure Molecular Mass Vapour Density Vapour Mass Total Mass Difference Total Weight in Air Difference, Weight in Air GSV at 15°C	cu m Volume cu m °C Volume cu m kg/l Table 54E cu m Mt cu m °C bar g/mole kg/m <sup>3</sup> Mt Mt						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Volume Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Mass <b>VAPOUR PHASE</b> Vapour Vol. Corrected Vapour Temperature Vapour Temperature Vapour Pressure Molecular Mass Vapour Density Vapour Mass Total Mass Difference Total Weight in Air	cu m Volume cu m °C Volume cu m kg/l Table 54E cu m Mt Cu m °C bar g/mole kg/m <sup>3</sup> Mt Mt Mt Mt						
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Volume at 15°C Liquid Mass <b>VAPOUR PHASE</b> Vapour Vol. Corrected Vapour Vol. Corrected Vapour Pressure Molecular Mass Vapour Density Vapour Density Vapour Mass Total Mass Difference Total Weight in Air Difference, Weight in Air GSV at 15°C Difference, GSV at 15°C	cu m Volume cu m °C Volume cu m kg/l Table 54E cu m Mt cu m °C bar g/mole kg/m <sup>3</sup> Mt Mt Mt Mt Mt Cu m cu m					Sub Totals	
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Volume at 15°C Liquid Mass <b>VAPOUR PHASE</b> Vapour Vol. Corrected Vapour Vol. Corrected Vapour Pressure Molecular Mass Vapour Density Vapour Density Vapour Density Vapour Mass Total Mass Difference Total Weight in Air Difference, Weight in Air GSV at 15°C Difference, GSV at 15°C	cu m Volume cu m °C Volume cu m kg/l Table 54E cu m Mt Cu m °C bar g/mole kg/m <sup>3</sup> Mt Mt Mt Mt Mt Mt Cu m cu m		LPG Mix 1 991 699			Sub Totals 1 991 699	
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Volume at 15°C Liquid Mass <b>VAPOUR PHASE</b> Vapour Vol. Corrected Vapour Vol. Corrected Vapour Temperature Vapour Pressure Molecular Mass Vapour Density Vapour Mass Total Mass Difference Total Weight in Air Difference, Weight in Air GSV at 15°C Difference, GSV at 15°C <b>SUB TOTALS:</b> Total Metric tons (vacuo	cu m Volume cu m °C Volume cu m kg/l Table 54E cu m Mt Cu m °C bar g/mole kg/m <sup>3</sup> Mt Mt Mt Mt Mt Mt Cu m cu m		1,991.699			1,991.699	
Total Tank Volume Shrinkage Factor for Total Total Volume Corrected Liquid level corrected Liquid Temperature Shrinkage Factor for Liquid Liquid Volume Corrected Density at 15°C Volume Correction Factor Liquid Volume at 15°C Liquid Volume at 15°C Liquid Mass <b>VAPOUR PHASE</b> Vapour Vol. Corrected Vapour Vol. Corrected Vapour Pressure Molecular Mass Vapour Density Vapour Density Vapour Density Vapour Mass Total Mass Difference Total Weight in Air Difference, Weight in Air GSV at 15°C Difference, GSV at 15°C	cu m Volume cu m °C Volume cu m kg/l Table 54E cu m Mt Cu m °C bar g/mole kg/m <sup>3</sup> Mt Mt Mt Mt Mt Mt Cu m cu m						

**Terminal Representative: M. Olmez** 

Surveyor's name: A. Sezer



Report No. Date of report Vessel Location Product Outturn date Sample submitted as: Sample drawn: Sample description: Received on: Testing performed by: TR-0006-01-2016 07-Jan-16 Coral Palmata Habas A.S. Terminal, Yarimca LPG Mix 07-Jan-16 LPG Mix by In-line autosampler In-line autosample taken during loading 06-Jan-16 Third-party laboratory

**ANALYSIS REPORT** (Grade 1: LPG Mix)

07-Jan-16

On the:

**Before Discharge** 

Test	Units	Method	Specification		Result	1
Composition liquid	UTILS	ASTM D 2163	Specification	Units	Units	Units
composition inquid		ASTM D 2105 ASTM D 2421		mass %	volume %	molar %
		ASTM D 2421		111d55 %	volume %	
Ethane				0.36%	0.56%	0.63%
Propane				32.67%	35.55%	38.90%
Propene (propylene)				0.09%	0.10%	0.11%
n-Butane				48.42%	45.75%	43.74%
Methyl propane (isobutane)				17.86%	17.51%	16.13%
1-Butene				0.02%	0.02%	0.02%
trans-2-Butene				0.04%	0.04%	0.04%
cis-2-Butene				0.14%	0.12%	0.13%
2-Methyl propene (isobutylene)				0.05%	0.05%	0.05%
n-Pentane				0.06%	0.05%	0.04%
2-Methyl butane (isopentane)				0.29%	0.26%	0.21%
Molecular Weight		Calculated			52.503	
Relative Density 60/60°F (in vacuo)		Calculated			0.5520	
Density @ 15°C (in vacuo)	kg/l	Calculated			0.5521	
Copper strip corrosion	Ng/1	ASTM D 1838			No. 1A	
Hydrogen Sulphide	ppm	ASTM D 2420			Nil	
Sulphur content	ppm	ASTM D 3246			25.2	
Vapour pressure at 37.8 deg C	Мра	ASTM D 1267			0.647	
Hydrogen Sulphide (H2S)	ppm	UOP 212			Nil	
Mercaptan Sulphur	ppm	UOP 212			6.74	
Free water content	ppm	ASTM D 1835			None	
Residue on evaporation	volume %	ASTM D 2158			< 0.05	
Methanol	ppm	ISO 8174			Nil	

Chemist: S. Aksu



Report No. Date of report Vessel Location Product Outturn date Sample submitted as: Sample drawn: Sample description: Received on: Testing performed by: TR-0006-01-2016 07-Jan-16 Coral Palmata Habas A.S. Terminal, Yarimca LPG Mix 07-Jan-16 LPG Mix by In-line autosampler In-line autosampler In-line autosample taken during discharge 06-Jan-16 Third-party laboratory

#### ANALYSIS REPORT (Grade 1: LPG Mix) After Discharge

07-Jan-16

On the:

Test	Units	Method	Specification	Result		
Composition liquid		ASTM D 2163		Units	Units	Units
		ASTM D 2421		mass %	volume %	molar %
Ethane				0.36%	0.56%	0.63%
Propane				32.67%	35.55%	38.90%
Propene (propylene)				0.09%	0.10%	0.11%
n-Butane				48.42%	45.75%	43.74%
Methyl propane (isobutane)				17.86%	17.51%	16.13%
1-Butene				0.02%	0.02%	0.02%
trans-2-Butene				0.04%	0.04%	0.04%
cis-2-Butene				0.14%	0.12%	0.13%
2-Methyl propene (isobutylene)				0.05%	0.05%	0.05%
n-Pentane				0.06%	0.05%	0.04%
2-Methyl butane (isopentane)				0.29%	0.26%	0.21%
Molecular Weight		Calculated			52,503	
Relative Density 60/60°F (in vacuo)		Calculated			0.5520	
Density @ 15°C (in vacuo)	kg/l	Calculated			0.5521	
Copper strip corrosion	Ng/1	ASTM D 1838			No. 1A	
Hydrogen Sulphide	ppm	ASTM D 2420			Nil	
Sulphur content	ppm	ASTM D 3246			25.2	
Vapour pressure at 37.8 deg C	Мра	ASTM D 1267			0.647	
Hydrogen Sulphide (H2S)	ppm	UOP 212			Nil	
Mercaptan Sulphur	ppm	UOP 212			6.74	
Free water content	ppm	ASTM D 1835			None	
Residue on evaporation	volume %	ASTM D 2158			< 0.05	
Methanol	ppm	ISO 8174			Nil	

Chemist: S. Aksu