



Report No. ES-0143-09-2016
 Date of report 22-Sep-16
 Vessel Ramagas
 Location Pantalan de Repsol, Tarragona, Spain
 Product ethylene, propylene

SUMMARY OF QUANTITIES

BOL No.	Product name	BOL date	Bill of Lading figures:	
			Metric Tons (vac)	Metric Tons (air)
900/2-E	ethylene	22-Sep-16	2,993.933	2,984.710
900/1-P	propylene	22-Sep-16	1,826.055	1,822.141

Comparison of Ship's figures and Bill of Lading

Totals of the Bills Of Lading	ethylene	propylene	Total
Total Metric tons (vacuo)	2,993.933	1,826.055	4,819.988
Total Metric tons (air)	2,984.710	1,822.141	4,806.851
GSV at 15°C, cu m	8,063.380	3,492.169	11,555.549

METRIC TONS IN VACUO (GROSS WEIGHT)

			Total
Bill of Lading	2,993.933	1,826.055	4,819.988
Vessel's loaded quantity	2,978.755	1,816.213	4,794.968
Difference	-15.178	-9.842	-9.842
% Difference	-0.507%	-0.539%	-0.539%
Bill of Lading	2,993.933	1,826.055	4,819.988
Vessel adjusted by VEF	2,991.619	1,824.056	4,815.675
Difference	-2.314	-1.999	-4.313
% Difference	-0.077%	-0.109%	-0.089%

METRIC TONS IN AIR (GROSS WEIGHT)

			Total
Bill of Lading	2,984.710	1,822.141	4,806.851
Vessel's loaded quantity	2,969.578	1,812.320	4,781.898
Difference	-15.132	-9.821	-24.953
% Difference	-0.507%	-0.539%	-0.519%
Bill of Lading	2,984.710	1,822.141	4,806.851
Vessel adjusted by VEF	2,982.402	1,820.147	4,802.549
Difference	-2.308	-1.994	-4.302
% Difference	-0.077%	-0.109%	-0.089%

CUBIC METRES AT 15°C (GROSS STANDARD VOLUME)

			Total
Bill of Lading	8,063.38	3,492.17	11,555.55
Vessel's loaded quantity	8,022.50	3,473.35	11,495.85
Difference	-40.88	-18.82	-18.82
% Difference	-0.507%	-0.539%	-0.539%
Bill of Lading	8,063.38	3,492.17	11,555.55
Vessel adjusted by VEF	8,057.15	3,488.35	11,545.49
Difference	-6.23	-3.82	-10.06
% Difference	-0.077%	-0.109%	-0.087%

Remarks:

Liquid and vapour densities of ethylene calculated as per NBS 1045-1981 by R.D. McCarty and R.T. Jacobsen

Liquid and vapour densities of propylene calculated as per IUPAC, Propylene (Propene), International Thermodynamic Tables of Fluid State - 7, by S. Angus, B. Armstrong, K. M. de Reuck, published by Pergamon Press in 1980



**CERTIFICATE OF QUANTITY
LOADED**

Report No.	ES-0143-09-2016
Date of report	22-Sep-16
Vessel	Ramagas
Location	Pantalan de Repsol, Tarragona, Spain
Product	ethylene, propylene
Bill of Lading date	22-Sep-16

Shore tank figures:

<u>GRAND TOTALS:</u>	<u>ethylene</u>	<u>propylene</u>	<u>Grand Totals</u>
Total Metric tons in vacuo :	3,006.786	1,825.430	4,832.216
Total Long tons in vacuo :	2,959.298	1,796.600	4,755.898
Total Short tons in vacuo :	3,314.414	2,012.192	5,326.606
Total Pounds in vacuo :	6,628,828.435	4,024,384.273	10,653,212.708
1 Pound / 1 Metric ton :	0.00045359	0.00045359	
Weight Correction Factor :	0.996919632988958	0.997856164678524	
Total Metric tons in air :	2,997.528	1,821.516	4,819.044
Total Long tons in air :	2,950.187	1,792.748	4,742.935
Total Short tons in air :	3,304.209	2,007.878	5,312.087
Total Pounds in air :	6,608,418.038	4,015,755.380	10,624,173.418
US Gallons at 60°F :	2,148,546.470	923,556.920	3,072,103.390
US Barrels at 60°F :			
Standard Volume at 15°C, cu m :	8,097.998	3,490.974	11,588.972
Average Density at 15°C, kg/l :	0.3713	0.5229	

Liquid and vapour densities of ethylene calculated as per NBS 1045-1981 by R.D. McCarty and R.T. Jacobsen

Liquid and vapour densities of propylene calculated as per IUPAC, Propylene (Propene), International Thermodynamic Tables of Fluid State - 7, by S. Angus, B. Armstrong, K. M. de Reuck, published by Pergamon Press in 1980



RECEIPT FOR DOCUMENTS

Report No. ES-0143-09-2016
Date of report 22-Sep-16
Vessel Ramagas
Location Pantalan de Repsol, Tarragona, Spain
Product ethylene, propylene
Bill of Lading date 22-Sep-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 Loading	One
Ullage Report after Loading	One
Vessel Experience Report	One
Tank Inspection Report	One
Total Pages:	6

Instructions regarding documents:	1 set for Vessel's own use
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Should you have any query, or require any additional information, please contact Mr. Pablo Sanchez at our Tarragona office (telephone number +34 98 765 43 21).

Chief Officer of "Ramagas": Alexey Petrov

For and on behalf of Global Survey Solutions Limited: Pablo Sanchez



Report No. ES-0143-09-2016
 Date of report 22-Sep-16
 Vessel Ramagas
 Location Pantalan de Repsol, Tarragona, Spain
 Product ethylene, propylene
 Bill of Lading date 22-Sep-16

Time	Date	Operations
18:20	12-Sep-16	Vessel arrived at roads (End of Sea Passage)
18:20	12-Sep-16	Notice of Readiness tendered
18:54	12-Sep-16	Anchor dropped
08:30	18-Sep-16	Notice of Readiness accepted
08:50	18-Sep-16	Anchor aweigh
10:36	18-Sep-16	Pilot on board
11:36	18-Sep-16	Commenced mooring (first line ashore)
12:18	18-Sep-16	Vessel all fast alongside berth no. 11
12:36	18-Sep-16	Gangway secured
16:00	18-Sep-16	Cleared by Customs / Free Pratique granted
16:45	18-Sep-16	Inspector on board
17:24	18-Sep-16	OBQ in Vessel's tanks measured
17:24	18-Sep-16	Tank inspection completed
17:48	18-Sep-16	OBQ calculation completed
18:42	18-Sep-16	Hoses connected (1 x 8")
19:00	18-Sep-16	Commenced Loading 1st grade (ethylene)
15:31	19-Sep-16	Commenced Loading 2nd grade (propylene)
18:25	19-Sep-16	Completed Loading 2nd grade (propylene)
04:18	22-Sep-16	Completed Loading 1st grade (ethylene) - by Shore
05:45	22-Sep-16	Vessel's tanks measured
06:30	22-Sep-16	Loaded quantity calculation completed
07:06	22-Sep-16	Hose disconnected
09:00	22-Sep-16	Official cargo documents on board
10:30	22-Sep-16	Vessel sailed (ETS)

DELAYS				REASON
From		To		
18:20	12-Sep-16	10:36	18-Sep-16	Awaiting berthing instructions
10:36	18-Sep-16	12:18	18-Sep-16	Pilotage
15:00	18-Sep-16	16:00	18-Sep-16	Safety meeting
16:00	18-Sep-16	18:12	18-Sep-16	Awaiting weather improvement
07:45	20-Sep-16	19:30	21-Sep-16	Loading of 2nd grade suspended due to bad weather
04:18	22-Sep-16	06:35	22-Sep-16	Measurements and calculations

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

Sea water temperature, °C
18

General weather condition
Calm

Product Name	Pumping time		Bill of Lading Mt air	Pumping rate Mt air / hour
	hours	minutes		
ethylene	21	33	2984.710	138.502
propylene	2	54	1822.141	628.324

Chief Officer of "Ramagas": Alexey Petrov

For and on behalf of Global Survey Solutions Limited: Pablo Sanchez



Report No. ES-0143-09-2016
 Date of report 22-Sep-16
 Vessel Ramagas
 Location Pantalan de Repsol, Tarragona, Spain
 Product ethylene, propylene
 Bill of Lading date 22-Sep-16

VESSEL ULLAGE REPORT BEFORE LOADING

UNITS: Volume: **cu.m.** Linear: **m.** Temp: **°C** Pressure: **bar** Atmospheric pressure: 1.01325

Tank No.	1P	1S	2P	2S	3P	3S		
Cargo	ethylene	ethylene	ethylene	ethylene	propylene	propylene		
100% capacity of tanks:	2,500.130	2,498.350	2,524.970	2,524.960	2,524.980	2,524.220		
Observed Liquid Innage, m								
Liquid Temperature, °C								
Vapour Temperature, °C	-102.30	-102.10	-102.30	-102.10	-49.20	-50.30		
Vapour Gauge Pressure, bar	0.73675	0.73675	0.76325	0.76325	0.61325	0.61325		
Inert gases, %								

Liquid Phase							Total:	MT (vacuo)
Correction for <i>Trim / List, m</i>								
Correction for <i>Float Buoy., m</i>								
Correction for <i>Tape, m</i>								
Corrected Liquid Innage, m								
Liquid Volume, m ³								
Shrinking Factor								
Volume corrected, m ³								
Liquid Density, Mt/m ³								
Liquid Metric tons (vac)								

Vapour Phase							Total:	29.841 MT (vacuo)
Vapour Volume, m ³	2,500.130	2,498.350	2,524.970	2,524.960	2,524.980	2,524.220		
Corr.Vap.Vol. for <i>Inert Gas</i>	2,500.130	2,498.350	2,524.970	2,524.960	2,524.980	2,524.220		
Shrinking Factor	0.996132	0.996139	0.996132	0.996139	0.997885	0.997848		
Volume corrected, m ³	2,490.460	2,488.704	2,515.204	2,515.211	2,519.639	2,518.789		
Vapour Density, Mt/m ³	0.002253	0.002277	0.002253	0.002277	0.001419	0.001427		
Vapour Metric tons (vac)	5.611	5.667	5.667	5.727	3.575	3.594		
Total Metric tons (vac)	5.611	5.667	5.667	5.727	3.575	3.594		
Correction Factor to air	0.99692	0.99692	0.99692	0.99692	0.99786	0.99786		
Total Metric tons (air)	5.594	5.650	5.650	5.709	3.567	3.586		
GSV at 15°C, cu m	15.112	15.263	15.263	15.424	6.837	6.873		

Before loading:								
Total Metric tons (vac)	5.611	5.667	5.667	5.727	3.575	3.594		
Total Metric tons (air)	5.594	5.650	5.650	5.709	3.567	3.586		
GSV at 15°C, cu m	15.112	15.263	15.263	15.424	6.837	6.873		

Total quantity before loading:	ethylene	propylene	Total
Metric Tons (vacuo)	22.672	7.169	29.841
Metric Tons (air)	22.603	7.153	29.756
Cubic Metres at 15°C	61.062	13.710	74.772

Sea Condition : Moderate
 Draft FWD : 3.90 m
 AFT : 6.10 m
 TRIM : 2.20 m
 LIST : Nil

Remarks :

Vessel calculations based upon calibration tables for "Ramagas"

Chief Officer of "Ramagas": Alexey Petrov

For and on behalf of Global Survey Solutions Limited: Pablo Sanchez



Report No. ES-0143-09-2016
 Date of report 22-Sep-16
 Vessel Ramagas
 Location Pantalan de Repsol, Tarragona, Spain
 Product ethylene, propylene
 Bill of Lading date 22-Sep-16

**VESSEL ULLAGE REPORT AFTER
LOADING**

UNITS: Volume: **cu.m.** Linear: **m.** Temp: **°C** Pressure: **bar** Atmospheric pressure: 1.01325

Tank No.	1P	1S	2P	2S	3P	3S		
Cargo	ethylene	ethylene	ethylene	ethylene	propylene	propylene		
100% capacity of tanks:	2,500.130	2,498.350	2,524.970	2,524.960	2,524.980	2,524.220		
Observed Liquid Innage, m	2.030	1.946	10.650	10.785	6.415	6.260		
Liquid Temperature, °C	-103.90	-102.80	-103.10	-103.80	-51.30	-54.20		
Vapour Temperature, °C	-102.10	-101.40	-102.40	-102.90	-47.10	-46.20		
Vapour Gauge Pressure, bar	0.35675	0.35675	2.18675	2.18675	2.23675	2.23675		
Inert gases, %								

Liquid Phase Total, Mt vac: 4,804.810 MT (vacuo)

Correction for Trim / List, m	-0.123	-0.123	-0.142	-0.143	-0.143	-0.134		
Correction for Float Buoy, m	1.958	1.873	10.564	10.698	6.338	6.183		
Correction for Tape, m								
Corrected Liquid Innage, m	3.865	3.696	21.072	21.340	12.610	12.309		
Liquid Volume, m ³	314.742	295.748	2,332.744	2,345.845	1,485.400	1,469.537		
Shrinking Factor	0.996080	0.996116	0.996106	0.996083	0.997815	0.997720		
Volume corrected, m ³	313.508	294.599	2,323.660	2,336.656	1,482.155	1,466.186		
Liquid Density, Mt/m ³	0.3713	0.3713	0.3713	0.3713	0.5229	0.5229		
Liquid Metric tons (vac)	178.104	166.890	1,317.748	1,327.688	909.450	904.930		

Vapour Phase 19.999 MT (vacuo)

Vapour Volume, m ³	2,185.388	2,202.602	192.226	179.115	1,039.580	1,054.683		
Corr.Vap.Vol. for Inert Gas	2,185.388	2,202.602	192.226	179.115	1,039.580	1,054.683		
Shrinking Factor	0.996139	0.996162	0.996129	0.996113	0.997954	0.997984		
Volume corrected, m ³	2,176.950	2,194.149	191.482	178.419	1,037.453	1,052.556		
Vapour Density, Mt/m ³	0.002277	0.002364	0.002337	0.002278	0.004306	0.004309		
Vapour Metric tons (vac)	4.957	5.187	0.447	0.406	4.467	4.535		

After loading:

Total Metric tons (vac)	183.061	172.077	1,318.195	1,328.094	913.917	909.465		
Correction Factor to air	0.99692	0.99692	0.99692	0.99692	0.99786	0.99786		
Total Metric tons (air)	182.497	171.547	1,314.134	1,324.003	911.958	907.515		
GSV at 15°C, cu m	493.027	463.445	3,550.215	3,576.876	1,747.785	1,739.271		

Quantity Loaded:

Total Metric tons (vac)	177.450	166.410	1,312.528	1,322.367	910.342	905.871		
Total Metric tons (air)	176.903	165.897	1,308.484	1,318.294	908.391	903.929		
GSV at 15°C, cu m	477.915	448.182	3,534.952	3,561.452	1,740.948	1,732.398		

Total Quantity Loaded:	ethylene	propylene	Total
Metric Tons (vacuo)	2,978.755	1,816.213	4,794.968
Metric Tons (air)	2,969.578	1,812.320	4,781.898
Cubic Metres at 15°C	8,022.501	3,473.346	11,495.847

Sea Condition : Moderate
 Draft FWD : 8.00 m
 AFT : 8.50 m
 TRIM : 0.50 m
 LIST : Nil

Remarks :

Vessel calculations based upon calibration tables
 for "Ramagas"

Chief Officer of "Ramagas": Alexey Petrov

For and on behalf of Global Survey Solutions Limited: Pablo Sanchez



VESSEL TANK INSPECTION REPORT

Report No. ES-0143-09-2016
Date of report 22-Sep-16
Vessel Ramagas
Location Pantalan de Repsol, Tarragona, Spain
Product ethylene, propylene
Bill of Lading date 22-Sep-16

Tank inspection was carried out: Time: 17:24 Date: 18-Sep-16

Inspection of "Ramagas" at on the September 18, 2016.

GENERAL INFORMATION

Name of Vessel: Ramagas
Loading Place: Pantalan de Repsol, Tarragona, Spain
Installation: Gas Terminal, berth No. 11
Date: 18-Sep-16
Cargoes to be loaded: ethylene
propylene

INFORMATION OBTAINED ON BOARD

Previous cargoes: ethylene in cargo tanks: 1P, 1S, 2P, 2S
propylene 3P, 3S
Quantity remaining on board: 29.756 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 "Ramagas": Alexey Petrov

For and on behalf of
Global Survey Solutions Limited
Surveyor's name Roberto Fernandez



SAMPLE RECEIPT

Report No. ES-0143-09-2016
Date of report 22-Sep-16
Vessel Ramagas
Location Pantalan de Repsol, Tarragona, Spain
Product ethylene, propylene
Bill of Lading date 22-Sep-16

Product	Sample source	Size	Sample description	Seal No.	Sample Distribution
ethylene	In-line autosampler	1 Ltr.	Taken during loading	12345	For Receiver
ethylene	Single ship's tank composite	1 Ltr.	Multiple ship's tank composite	12346	For Receiver
propylene	In-line autosampler	1 Ltr.	Taken during loading	12347	For Receiver
propylene	Single ship's tank composite	1 Ltr.	Multiple ship's tank composite	12348	For Receiver

Date: 22-Sep-16 Receipt acknowledged
Chief Officer of "Ramagas": Alexey Petrov
Surveyor's name Roberto Fernandez



ANALYSIS REPORT
(Grade 1: ethylene)
After Loading

Report No. ES-0143-09-2016
Date of report 22-Sep-16
Vessel Ramagas
Location Pantalan de Repsol, Tarragona, Spain
Product ethylene
Bill of Lading date 22-Sep-16
Sample submitted as: ethylene
Sample drawn: by In-line autosampler
Sample description: In-line autosample taken during loading
Received on: 22-Sep-16
Testing performed by: Global Survey Solutions Limited Laboratory
Testing performed on: 22-Sep-16

Test	Units	Method	Specification	Result
Ethylene	volume %	Gas chromatography	99.9 min.	99.91
Carbon Monoxide	volume ppm	Gas chromatography	5 max.	4
Oxygen	volume ppm	Gas chromatography	2 max.	1
Carbon Dioxide	volume ppm	Gas chromatography	6 max.	5
Sulphur	volume ppm	ASTM D4468	3 max.	2
Hydrogen	volume ppm	Gas chromatography	5 max.	4
Acetylene	volume ppm	Gas chromatography	5 max.	3
C3 and heavier	volume ppm	Gas chromatography	5 max.	3
Methane and Ethane	volume ppm	Gas chromatography	1000 max.	872
Water	volume ppm	Gas chromatography	5 max.	4
Methanol	volume ppm	UOP 344	3 max.	2

Chemist: Maria Valadez



Report No. ES-0143-09-2016
Date of report 22-Sep-16
Vessel Ramagas
Location Pantalan de Repsol, Tarragona, Spain
Product propylene
Bill of Lading date 22-Sep-16
Sample submitted as: propylene
Sample drawn: by In-line autosampler
Sample description: In-line autosample taken during loading
Received on: 22-Sep-16
Testing performed by: Global Survey Solutions Limited Laboratory
Testing performed on: 22-Sep-16

ANALYSIS REPORT
(Grade 2: propylene)
After Loading

Test	Units	Method	Specification	Result
Propylene	volume %	Gas chromatography	99.5 min.	99.52
Propane + Ethane	volume %	Gas chromatography	0.5 max.	0.38
Ethane	ppm volume	Gas chromatography	2000 max.	937
Ethylene	ppm volume	Gas chromatography	10 max.	8
Acetylene	ppm volume	ASTM D4468	10 max.	6
Methyl acetylene + propadiene	ppm volume	Gas chromatography	20 max.	14
Non saturated C4	ppm volume	Gas chromatography	5 max.	3
Water	ppm mass	UOP 344	30 max.	23
Hydrogen Sulphide (H2S)	ppm mass	Detection tube	2 max.	1
Total Sulphur	ppm volume	ASTM D4468	2 max.	1
Oxygen	ppm volume	Gas chromatography	5 max.	3
Carbon Monoxide	ppm volume	Gas chromatography	5 max.	4

Chemist: Maria Valadez



LETTER OF PROTEST ON APPARENT DISCREPANCY

Report No. ES-0143-09-2016
 Date of report 22-Sep-16
 Vessel Ramagas
 Location Pantalan de Repsol, Tarragona, Spain
 Product ethylene
 Bill of Lading date 22-Sep-16

To: To Whom It May Concern

At the Port of: Antwerp

Dear Sir,

On behalf of our principal(s), we hereby notify you that on the day of 22-Sep-16 the following occurrence was noted:

APPARENT DISCREPANCY:

<u>Grade 1</u>	ethylene
Metric Tons in vacuo (Gross Weight)	
Bill of Lading	2,993.933
Vessel's loaded quantity	2,978.755
Difference	-15.178
% Difference	-0.507%
Bill of Lading	2,993.933
Vessel adjusted by VEF	2,991.619
Difference	-2.314
% Difference	-0.077%
Metric Tons in air (Gross Weight)	
Bill of Lading	2,984.710
Vessel's loaded quantity	2,969.578
Difference	-15.132
% Difference	-0.507%
Bill of Lading	2,984.710
Vessel adjusted by VEF	2,982.402
Difference	-2.308
% Difference	-0.077%

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. Pablo Sanchez
 Global Survey Solutions Limited

Tel: +390524894149
 Email: ops@surveycalc.com
 Email: info@surveycalc.com

Very truly yours:

Receipt acknowledged:

Date: September 22, 2016
 Signed by: Roberto Fernandez
 For: Surveyor

Date: September 22, 2016
 Signed by: Vitaliy Tomilovskiy
 For: Ship



LETTER OF PROTEST ON APPARENT DISCREPANCY

Report No. ES-0143-09-2016
 Date of report 22-Sep-16
 Vessel Ramagas
 Location Pantalan de Repsol, Tarragona, Spain
 Product propylene
 Bill of Lading date 22-Sep-16

To: To Whom It May Concern

At the Port of: Antwerp

Dear Sir,

On behalf of our principal(s), we hereby notify you that on the day of 22-Sep-16 the following occurrence was noted:

APPARENT DISCREPANCY:

<u>Grade 2</u>	propylene
Metric Tons in vacuo (Gross Weight)	
Bill of Lading	1,826.055
Vessel's loaded quantity	1,816.213
Difference	-9.842
% Difference	-0.539%
Bill of Lading	1,826.055
Vessel adjusted by VEF	1,824.056
Difference	-1.999
% Difference	-0.109%
Metric Tons in air (Gross Weight)	
Bill of Lading	1,822.141
Vessel's loaded quantity	1,812.320
Difference	-9.821
% Difference	-0.539%
Bill of Lading	1,822.141
Vessel adjusted by VEF	1,820.147
Difference	-1.994
% Difference	-0.109%

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. Pablo Sanchez
 Global Survey Solutions Limited

Tel: +390524894149
 Email: ops@surveycalc.com
 Email: info@surveycalc.com

Very truly yours:

Receipt acknowledged:

Date: September 22, 2016
 Signed by: Roberto Fernandez
 For: Surveyor

Date: September 22, 2016
 Signed by: Vitaliy Tomilovskiy
 For: Ship



STATEMENT OF FACTS

Report No. ES-0143-09-2016
Date of report 22-Sep-16
Vessel Ramagas
Location Pantalan de Repsol, Tarragona, Spain
Product ethylene, propylene
Bill of Lading date 22-Sep-16

For the attention of: To Whom It May Concern
Copy to:

At the Port of: Tarragona

Dear Sirs,

On behalf of our principal(s), we hereby notify you that on the day of 22-Sep-16 the following occurrence was noted:

Due to the moderate swelling the measurements taken on board Gas Carrier "Ramagas" may affect on accuracy of determination of quantity of ethylene and propylene in ship's tanks.

Very truly yours:

Date: September 22, 2016

Signed by: Roberto Fernandez

For: Surveyor



Report No. ES-0143-09-2016
 Date of report 22-Sep-16
 Vessel Ramagas
 Location Pantalan de Repsol, Tarragona, Spain
 Bill of Lading date 22-Sep-16

SHORE TANK REPORT
 Page 1 of 4

Atmospheric pressure, bar: 1.01325

		Tank No. 17		Tank No. 18		Tank No. 21	
		Before	After	Before	After	Before	After
LIQUID PHASE							
Product		propylene	propylene	propylene	propylene	ethylene	ethylene
Date	dd-mm-yy	18-Sep-16	19-Sep-16	18-Sep-16	19-Sep-16	18-Sep-16	19-Sep-16
Time	0000	18:59	05:40	18:59	05:40	18:59	05:40
Total Tank Volume	cu m	605.059	605.059	606.821	606.821	609.045	609.045
Shrinkage Factor for Total Volume		0.9979	0.9979	0.99794	0.99796	0.99614	0.99614
Total Volume Corrected	cu m	603.789	603.789	605.571	605.583	606.694	606.694
Liquid level corrected	m	3.588	0.334	3.746	0.233	3.670	0.427
Liquid Volume	cu m	463.502	14.447	487.297	8.131	484.435	22.304
Liquid Temperature	°C	-47.9	-47.6	-47.8	-47.6	-102.7	-102.6
Shrinkage Factor for Liquid Volume		0.99867	0.99895	0.99864	0.99896	0.99747	0.99802
Liquid Volume Corrected	cu m	462.886	14.432	486.634	8.123	483.209	22.260
Density at 15°C	kg/l	0.5229	0.5229	0.5229	0.5229	0.3713	0.3713
Observed Liquid Density	kg/l	0.6099	0.6093	0.6098	0.6093	0.5671	0.5667
Liquid Mass	Mt	282.314	8.793	296.749	4.949	274.028	12.615
VAPOUR PHASE							
Vapour Vol. Corrected	cu m	140.903	589.357	118.937	597.460	123.485	584.434
Vapour Temperature	°C	-49.3	-49.4	-47.1	-46.1	-101.2	-101.6
Vapour Gauge Pressure	bar	6.89175	4.53475	7.21475	4.52775	6.86075	4.53675
Molecular Mass	g/mole	0.004	0.004	0.004	0.004	0.004	0.004
Vapour Density	kg/l	0.004296	0.004296	0.004306	0.00431	0.002485	0.002435
Vapour Mass	Mt	0.605	2.532	0.001	0.003		0.001
Total Mass	Mt	282.919	11.325	296.750	4.952	274.028	12.616
Difference, Mass	Mt		271.594		291.798		261.412
Total Weight in Air	Mt	282.312	11.301	296.114	4.941	273.184	12.577
Difference, Weight in Air	Mt		271.011		291.173		260.607
GSV at 15°C	cu m	541.058	21.658	567.508	9.470	738.023	33.978
Difference, GSV at 15°C	cu m		519.400		558.038		704.045

		Tank No. 22		Tank No. 23		Tank No. 24	
		Before	After	Before	After	Before	After
LIQUID PHASE							
Product		ethylene	ethylene	ethylene	ethylene	ethylene	ethylene
Date	dd-mm-yy	18-Sep-16	19-Sep-16	18-Sep-16	19-Sep-16	18-Sep-16	19-Sep-16
Time	0000	18:59	05:40	18:59	09:55	18:59	05:40
Total Tank Volume	cu m	600.353	600.353	602.946	602.946	608.010	608.010
Shrinkage Factor for Total Volume		0.99612	0.99612	0.9961	0.99612	0.99613	0.99613
Total Volume Corrected	cu m	598.024	598.024	600.594	600.606	605.657	605.657
Liquid level corrected	m	3.711	0.403	3.607	0.457	3.634	0.454
Liquid Volume	cu m	481.926	20.406	472.722	24.852	476.436	24.508
Liquid Temperature	°C	-103.4	-103.1	-103.5	-102.9	-102.7	-102.3
Shrinkage Factor for Liquid Volume		0.99744	0.99802	0.99748	0.99802	0.99749	0.99803
Liquid Volume Corrected	cu m	480.692	20.366	471.531	24.803	475.240	24.460
Density at 15°C	kg/l	0.3713	0.3713	0.3713	0.3713	0.3713	0.3713
Observed Liquid Density	kg/l	0.5681	0.5674	0.5682	0.5671	0.5671	0.5663
Liquid Mass	Mt	273.081	11.556	267.924	14.066	269.509	13.852
VAPOUR PHASE							
Vapour Vol. Corrected	cu m	117.332	577.658	129.063	575.803	130.417	581.197
Vapour Temperature	°C	-101.5	-102.1	-102.8	-102.3	-102.1	-102.0
Vapour Gauge Pressure	bar	6.84675	4.54175	6.72775	4.86575	6.82375	4.80875
Molecular Mass	g/mole	0.004	0.004	0.004	0.004	0.004	0.004
Vapour Density	kg/l	0.002447	0.002374	0.00229	0.002349	0.002374	0.002386
Vapour Mass	Mt	0.287	1.371		0.001		0.001
Total Mass	Mt	273.368	12.927	267.924	14.067	269.509	13.853
Difference			260.441		253.857		255.656
Total Weight in Air	Mt	272.526	12.887	267.099	14.024	268.679	13.810
Difference, Weight in Air	Mt		259.639		253.075		254.869
GSV at 15°C	cu m	736.246	34.816	721.584	37.886	725.852	37.309
Difference, GSV at 15°C	cu m		701.430		683.698		688.543

SUB TOTALS:	Product :	ethylene	propylene	Sub Totals
Total Metric tons (vacuo) :		1,031.366	563.392	1,594.758
Total Metric tons (air) :		1,028.190	562.184	1,590.374
GSV at 15°C, cu m :		2,777.716	1,077.438	3,855.154

Terminal Representative: Jose Ramires

Surveyor's name Roberto Fernandez



Report No. ES-0143-09-2016
 Date of report 22-Sep-16
 Vessel Ramagas
 Location Pantalan de Repsol, Tarragona, Spain
 Bill of Lading date 22-Sep-16

SHORE TANK REPORT
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Atmospheric pressure, bar: 1.01325

		Tank No. 25		Tank No. 27		Tank No. 17	
LIQUID PHASE		Before	After	Before	After	Before	After
Product		ethylene	ethylene	ethylene	ethylene	propylene	propylene
Date	dd-mm-yy	19-Sep-16	19-Sep-16	19-Sep-16	19-Sep-16	19-Sep-16	20-Sep-16
Time	0000	09:55	14:54	09:55	11:51	19:18	03:53
Total Tank Volume	cu m	609.132	609.132	604.049	604.049	605.059	605.059
Shrinkage Factor for Total Volume		0.9961	0.99611	0.9961	0.99609	0.99787	0.99788
Total Volume Corrected	cu m	606.757	606.763	601.693	601.687	603.771	603.777
Liquid level corrected	m	3.641	0.422	2.708	0.407	3.759	0.373
Liquid Volume	cu m	481.546	22.420	337.840	21.535	486.958	17.263
Liquid Temperature	°C	-103.2	-102.8	-103.2	-103.4	-49.6	-49.3
Shrinkage Factor for Liquid Volume		0.99747	0.99802	0.99771	0.99801	0.9986	0.99892
Liquid Volume Corrected	cu m	480.328	22.376	337.066	21.492	486.276	17.244
Density at 15°C	kg/l	0.3713	0.3713	0.3713	0.3713	0.5229	0.5229
Observed Liquid Density	kg/l	0.5677	0.5671	0.5677	0.5679	0.6121	0.6113
Liquid Mass	Mt	272.682	12.689	191.352	12.205	297.650	10.541
VAPOUR PHASE							
Vapour Vol. Corrected	cu m	126.429	584.387	264.627	580.195	117.495	586.533
Vapour Temperature	°C	-102.1	-102.0	-102.4	-102.7	-47.3	-46.8
Vapour Gauge Pressure	bar	6.28675	5.93575	6.04175	5.46175	8.47675	4.04775
Molecular Mass	g/mole	0.004	0.004	0.004	0.004	0.004	0.004
Vapour Density	kg/l	0.002374	0.002386	0.002337	0.002302	0.004305	0.004307
Vapour Mass	Mt	0.300	1.394	0.001	0.001	0.001	0.003
Total Mass	Mt	272.982	14.083	191.353	12.206	297.651	10.544
Difference, Mass	Mt	258.899		179.147		287.107	
Total Weight in Air	Mt	272.141	14.040	190.764	12.168	297.013	10.521
Difference, Weight in Air	Mt	258.101		178.596		286.492	
GSV at 15°C	cu m	735.206	37.929	515.360	32.874	569.231	20.164
Difference, GSV at 15°C	cu m	697.277		482.486		549.067	

		Tank No. 18		Tank No. 21		Tank No. 22	
LIQUID PHASE		Before	After	Before	After	Before	After
Product		propylene	propylene	ethylene	ethylene	ethylene	ethylene
Date	dd-mm-yy	19-Sep-16	20-Sep-16	19-Sep-16	20-Sep-16	19-Sep-16	20-Sep-16
Time	0000	19:18	03:53	19:18	03:53	19:18	07:40
Total Tank Volume	cu m	606.821	606.821	609.045	609.045	600.353	600.353
Shrinkage Factor for Total Volume		0.99792	0.99788	0.99609	0.9961	0.99613	0.99612
Total Volume Corrected	cu m	605.559	605.535	606.664	606.670	598.030	598.024
Liquid level corrected	m	3.787	0.402	3.737	0.437	3.058	1.474
Liquid Volume	cu m	492.781	19.701	493.714	23.144	387.035	144.200
Liquid Temperature	°C	-48.1	-49.1	-103.6	-103.1	-102.3	-102.7
Shrinkage Factor for Liquid Volume		0.99862	0.99892	0.99743	0.99801	0.99766	0.99791
Liquid Volume Corrected	cu m	492.101	19.680	492.445	23.098	386.129	143.899
Density at 15°C	kg/l	0.5229	0.5229	0.3713	0.3713	0.3713	0.3713
Observed Liquid Density	kg/l	0.6103	0.6111	0.5685	0.5674	0.5667	0.5669
Liquid Mass	Mt	300.329	12.026	279.955	13.106	218.819	81.576
VAPOUR PHASE							
Vapour Vol. Corrected	cu m	113.458	585.855	114.219	583.572	211.901	454.125
Vapour Temperature	°C	-47.3	-47.2	-101.9	-102.1	-102.2	-102.3
Vapour Gauge Pressure	bar	8.41275	3.96575	8.56475	4.14875	8.64175	5.72675
Molecular Mass	g/mole	0.004	0.004	0.004	0.004	0.004	0.004
Vapour Density	kg/l	0.004305	0.004305	0.002398	0.002374	0.002361	0.002349
Vapour Mass	Mt	0.488	2.522	0.001	0.001	0.001	0.001
Total Mass	Mt	300.817	14.548	279.955	13.107	218.820	81.577
Difference		286.269		266.848		137.243	
Total Weight in Air	Mt	300.172	14.517	279.093	13.067	218.146	81.326
Difference, Weight in Air	Mt	285.655		266.026		136.820	
GSV at 15°C	cu m	575.286	27.822	753.986	35.300	589.335	219.706
Difference, GSV at 15°C	cu m	547.464		718.686		369.629	

SUB TOTALS:	Product :	ethylene	propylene	Sub Totals
Total Metric tons (vacuo) :		842.137	573.376	1,415.513
Total Metric tons (air) :		839.543	572.147	1,411.690
GSV at 15°C, cu m :		2,268.078	1,096.531	3,364.609

Terminal Representative: Jose Ramires

Surveyor's name Roberto Fernandez



Report No. ES-0143-09-2016
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 Vessel Ramagas
 Location Pantalan de Repsol, Tarragona, Spain
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SHORE TANK REPORT
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Atmospheric pressure, bar: 1.01325

		Tank No. 23		Tank No. 24		Tank No. 27	
LIQUID PHASE		Before	After	Before	After	Before	After
Product		ethylene	ethylene	ethylene	ethylene	ethylene	ethylene
Date	dd-mm-yy	19-Sep-16	20-Sep-16	19-Sep-16	20-Sep-16	19-Sep-16	20-Sep-16
Time	0000	19:18	07:40	19:18	07:40	19:18	07:40
Total Tank Volume	cu m	602.946	602.946	608.010	608.010	604.049	604.049
Shrinkage Factor for Total Volume		0.9961	0.99609	0.9961	0.99611	0.99613	0.99611
Total Volume Corrected	cu m	600.594	600.588	605.639	605.645	601.711	601.699
Liquid level corrected	m	3.731	1.767	3.785	1.439	2.767	2.758
Liquid Volume	cu m	489.747	189.438	497.137	140.568	347.133	345.717
Liquid Temperature	°C	-103.2	-103.4	-103.1	-102.9	-102.4	-102.9
Shrinkage Factor for Liquid Volume		0.99744	0.99787	0.99743	0.99792	0.99772	0.99771
Liquid Volume Corrected	cu m	488.493	189.034	495.859	140.276	346.342	344.925
Density at 15°C	kg/l	0.3713	0.3713	0.3713	0.3713	0.3713	0.3713
Observed Liquid Density	kg/l	0.5680	0.5678	0.5679	0.5671	0.5666	0.5673
Liquid Mass	Mt	277.464	107.334	281.598	79.551	196.237	195.676
VAPOUR PHASE							
Vapour Vol. Corrected	cu m	112.101	411.554	109.780	465.369	255.369	256.774
Vapour Temperature	°C	-102.7	-102.6	-102.4	-102.5	-102.1	-102.2
Vapour Gauge Pressure	bar	8.97475	4.38275	9.10675	4.40275	6.75075	6.30175
Molecular Mass	g/mole	0.004	0.004	0.004	0.004	0.004	0.004
Vapour Density	kg/l	0.002302	0.002313	0.002337	0.002325	0.002374	0.002361
Vapour Mass	Mt	0.258	0.952	0.001	0.001	0.001	0.001
Total Mass	Mt	277.722	108.286	281.598	79.552	196.238	195.677
Difference, Mass	Mt	169.436		202.046		0.561	
Total Weight in Air	Mt	276.867	107.952	280.731	79.307	195.634	195.074
Difference, Weight in Air	Mt	168.915		201.424		0.560	
GSV at 15°C	cu m	747.972	291.640	758.411	214.253	528.516	527.005
Difference, GSV at 15°C	cu m	456.332		544.158		1.511	

		Tank No. 17		Tank No. 18		Tank No. 21	
LIQUID PHASE		Before	After	Before	After	Before	After
Product		propylene	propylene	propylene	propylene	ethylene	ethylene
Date	dd-mm-yy	21-Sep-16	22-Sep-16	21-Sep-16	22-Sep-16	21-Sep-16	22-Sep-16
Time	0000	19:26	01:12	19:26	01:12	19:26	02:28
Total Tank Volume	cu m	605.059	605.059	606.821	606.821	609.045	609.045
Shrinkage Factor for Total Volume		0.99788	0.99788	0.99791	0.99788	0.99609	0.9961
Total Volume Corrected	cu m	603.777	603.777	605.553	605.535	606.664	606.670
Liquid level corrected	m	3.659	0.378	3.716	0.406	3.658	2.195
Liquid Volume	cu m	473.370	17.635	483.241	20.014	482.754	257.017
Liquid Temperature	°C	-49.3	-49.1	-48.2	-49.1	-103.5	-103.1
Shrinkage Factor for Liquid Volume		0.99862	0.99893	0.99863	0.99892	0.99746	0.99781
Liquid Volume Corrected	cu m	472.717	17.616	482.579	19.992	481.528	256.454
Density at 15°C	kg/l	0.5229	0.5229	0.5229	0.5229	0.3713	0.3713
Observed Liquid Density	kg/l	0.6115	0.6111	0.6101	0.6111	0.5681	0.5674
Liquid Mass	Mt	289.066	10.765	294.421	12.217	273.556	145.512
VAPOUR PHASE							
Vapour Vol. Corrected	cu m	131.060	586.161	122.974	585.543	125.136	350.216
Vapour Temperature	°C	-46.3	-47.2	-47.3	-47.2	-102.7	-102.8
Vapour Gauge Pressure	bar	5.56175	4.58975	5.58175	4.58475	5.51075	4.40375
Molecular Mass	g/mole	0.004	0.004	0.004	0.004	0.004	0.004
Vapour Density	kg/l	0.004309	0.004305	0.004305	0.004305	0.002302	0.00229
Vapour Mass	Mt	0.565	2.523	0.001	0.003	0.001	0.001
Total Mass	Mt	289.631	13.288	294.422	12.220	273.556	145.513
Difference		276.343		282.202		128.043	
Total Weight in Air	Mt	289.010	13.260	293.791	12.194	272.713	145.065
Difference, Weight in Air	Mt	275.750		281.597		127.648	
GSV at 15°C	cu m	553.894	25.412	563.056	23.370	736.752	391.901
Difference, GSV at 15°C	cu m	528.482		539.686		344.851	

SUB TOTALS:	Product :	ethylene	propylene	Sub Totals
Total Metric tons (vacuo) :		500.086	558.545	1,058.631
Total Metric tons (air) :		498.547	557.347	1,055.894
GSV at 15°C, cu m :		1,346.852	1,068.168	2,415.020

Terminal Representative: Jose Ramires

Surveyor's name Roberto Fernandez



Report No. ES-0143-09-2016
 Date of report 22-Sep-16
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 Location Pantalan de Repsol, Tarragona, Spain
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SHORE TANK REPORT
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Atmospheric pressure, bar: 1.01325

LIQUID PHASE	Tank No. 22		Tank No. 23		Tank No. 24	
	Before	After	Before	After	Before	After
Product	ethylene	ethylene	ethylene	ethylene	ethylene	ethylene
Date dd-mm-yy	21-Sep-16	22-Sep-16	21-Sep-16	22-Sep-16	21-Sep-16	22-Sep-16
Time 0000	19:26	01:12	19:26	01:12	19:26	20:01
Total Tank Volume cu m	600.353	600.353	602.946	602.946	608.010	608.010
Shrinkage Factor for Total Volume	0.9961	0.99609	0.9961	0.9961	0.99609	0.9961
Total Volume Corrected cu m	598.012	598.006	600.594	600.594	605.633	605.639
Liquid level corrected m	1.468	0.404	1.763	0.428	1.431	0.462
Liquid Volume cu m	143.353	20.484	188.833	22.421	139.432	25.191
Liquid Temperature °C	-103.1	-103.6	-103.1	-103.2	-103.4	-103.3
Shrinkage Factor for Liquid Volume	0.99791	0.99801	0.99787	0.99801	0.99791	0.99801
Liquid Volume Corrected cu m	143.053	20.443	188.431	22.376	139.141	25.141
Density at 15°C kg/l	0.3713	0.3713	0.3713	0.3713	0.3713	0.3713
Observed Liquid Density kg/l	0.5675	0.5681	0.5674	0.5675	0.5679	0.5677
Liquid Mass Mt	81.183	11.614	106.916	12.698	79.018	14.273
VAPOUR PHASE						
Vapour Vol. Corrected cu m	454.959	577.563	412.163	578.218	466.492	580.498
Vapour Temperature °C	-102.1	-102.2	-102.3	-102.2	-102.0	-102.6
Vapour Gauge Pressure bar	5.90175	4.36875	5.07575	4.38275	4.98875	4.88675
Molecular Mass g/mole	0.004	0.004	0.004	0.004	0.004	0.004
Vapour Density kg/l	0.002374	0.002361	0.002349	0.002361	0.002386	0.002313
Vapour Mass Mt	1.080	1.364	0.001	0.001	0.001	0.001
Total Mass Mt	82.263	12.978	106.917	12.699	79.019	14.274
Difference, Mass Mt	69.285		94.218		64.745	
Total Weight in Air Mt	82.010	12.938	106.588	12.660	78.776	14.230
Difference, Weight in Air Mt	69.072		93.928		64.546	
GSV at 15°C cu m	221.554	34.953	287.953	34.201	212.817	38.443
Difference, GSV at 15°C cu m	186.601		253.752		174.374	

LIQUID PHASE	Tank No. 27		Tank No. 7		Tank No. 6	
	Before	After	Before	After	Before	After
Product	ethylene	ethylene	propylene	propylene	ethylene	ethylene
Date dd-mm-yy	21-Sep-16	22-Sep-16	19-Sep-16	19-Sep-16	19-Sep-16	19-Sep-16
Time 0000	19:26	01:12	15:31	17:01	17:01	18:25
Total Tank Volume cu m	604.049	604.049	594.155	594.155	601.852	601.852
Shrinkage Factor for Total Volume	0.99609	0.99611	0.99795	0.99795	0.9961	0.99612
Total Volume Corrected cu m	601.687	601.699	592.936	592.936	599.505	599.517
Liquid level corrected m	2.782	0.406	2.032	0.415	3.625	1.059
Liquid Volume cu m	349.491	21.453	237.014	22.871	481.616	93.070
Liquid Temperature °C	-103.4	-102.9	-47.1	-47.0	-103.2	-102.7
Shrinkage Factor for Liquid Volume	0.99769	0.99802	0.99885	0.99896	0.99742	0.99796
Liquid Volume Corrected cu m	348.684	21.411	236.741	22.847	480.373	92.880
Density at 15°C kg/l	0.3713	0.3713	0.5229	0.5229	0.3713	0.3713
Observed Liquid Density kg/l	0.5680	0.5671	0.6083	0.6081	0.5671	0.5664
Liquid Mass Mt	198.053	12.142	144.010	13.893	272.420	52.607
VAPOUR PHASE						
Vapour Vol. Corrected cu m	253.003	580.288	356.195	570.089	119.132	506.637
Vapour Temperature °C	-102.7	-102.4	-50.9	-51.3	-102.2	-102.0
Vapour Gauge Pressure bar	5.87675	4.41175	0.50475	0.31675	0.60975	0.43575
Molecular Mass g/mole	0.004	0.004	0.001	0.001	0.002	0.001
Vapour Density kg/l	0.002302	0.002337	0.001172	0.000733	0.002265	0.00229
Vapour Mass Mt	0.582	1.356			0.001	0.001
Total Mass Mt	198.635	13.498	144.010	13.893	272.420	52.608
Difference	185.137		130.117		219.812	
Total Weight in Air Mt	198.023	13.456	143.701	13.863	271.581	52.446
Difference, Weight in Air Mt	184.567		129.838		219.135	
GSV at 15°C cu m	534.972	36.353	275.406	26.569	733.692	141.686
Difference, GSV at 15°C cu m	498.619		248.837		592.006	

SUB TOTALS:	Product :	ethylene	propylene	Sub Totals
Total Metric tons (vacuo) :		633.197	130.117	763.314
Total Metric tons (air) :		631.248	129.838	761.086
GSV at 15°C, cu m :		1,705.352	248.837	1,954.189

Terminal Representative: Jose Ramires

Surveyor's name Roberto Fernandez

Report No. ES-0143-09-2016 Location Pantalan de Repsol, Tarragona, Spain **SHORE LINES REPORT (Before)**
 Date of report 22-Sep-16 Bill of Lading date 22-Sep-16 15.0
 Vessel Ramagas **Before:** Date: 18-Sep-16 Time: 18:30 AISI 430

Before				LIQUID PHASE								VAPOUR PHASE								DIFFERENCE (Before - After)									
Shore Line Name	Grade	Total Line Volume, cu m	Shrinkage Factor for Total Volume	% Liquid of Total Volume	Liquid Volume Corrected cu m	Liquid T°C	Density @15°C kg/l	Liquid Density at T°C, kg/l	Liquid Volume at 15°C, cu m	Liquid Mass, Mt	Atmospheric pressure, bar: 1.01325								GSV at 15°C, cu m	Difference Mass, Mt	Difference Weight in Air, Mt	Difference GSV at 15°C, cu m							
											Vapour Volume Corrected, cu m	Vapour T°C	Vapour Gauge Pressure, bar	Vapour Density, kg/l	Vapour Mass, Mt	Total Mass, Mt	Correction Factor to air	Total Weight in Air, Mt											
110/2 ethylene Liquid	ethylene	163.243	0.99613	100.0%	162.611	-102.4	0.3713	0.5665	0.567	92.119																			
110/3 propylene Liquid	propylene	364.478	0.99791	100.0%	363.716	-48.3	0.5229	0.611	0.611	222.230																			

SUBTOTALS Products:	ethylene	propylene	Sub Totals	ethylene	propylene	Sub Totals	ethylene	propylene	Sub Totals
Metric tons (vacuo):	92.119	222.230	314.349	92.119	222.230	314.349			
Metric tons (air):	91.835	221.754	313.589	91.835	221.754	313.589			
GSV at 15°C, cu m:	248.099	424.995	673.094	248.099	424.995	673.094			

Terminal Representative: Jose Ramires

