GAS FORM-C

Benelux Overseas

1. PREAMBLE	
Ship's name	CLAUDIA GAS
Owners	Claudia Gas Shipping S.A. c/o: BENELUX OVERSEAS INC.
Flag – Registry	Liberia - Monrovia
Builder	Jos L. Meyer Gmbh, Papenburg
Delivery	October 12, 1990
Class	KOREAN REGISTER OF SHIPPING
IMO No.	8813087
GT (International)	11,822
NT (International)	3753
GRT (Suez)	12730.93
NRT (Suez)	9558.22
GRT (Panama)	12859.00
LWT (MT)	6704.90
Is vessel approved?	
USCG	Yes
IMO	Yes

2. HULL		
	Metres	**Feet**
LOA	158.00	518.37
LBP	149.80	491.46
Breadth	21.30	69.88
Depth	13.90	45.60
Air draft (fm Summer LL)	34.065	111.760
	Draft (m)	**Corresponding DWT**
Tropical	9.735	16,137
Summer	9.735	16,137
Winter	9.735	16,137
TPC fully loaded (MT)	26.10 @ 7.80 M Draft	

Estimated Mean draft with full bunkers and 98% cargo & full bunkers

Cargo	Mean draft (m)	DWT	displacement
Butane	7.73	10676	17380.90
Propane	7.65	10465	17169.90
Ammonia	8.35	12294	18998.90
VCM	9.76	16133.7	22838.60

3. COMMUNICATION EQUIPMENT	
International call sign	D5JU2
Radio station	TA-36204
Inmarsat FBB	JRC Model JUE 251 / Thrane & Thrane Model Sailor 250
- Telephone	(00) 870773935334
- Telephone	(00) 870773935333
- Telefax1	(00) 870783929901
- Telefax2	(00) 870783929900
Inmarsat C	463719228 (LRIT) / 463719229 (SSAS)
MMSI	636017205
Cell phone	-

GAS FORM-C

Benelux Overseas

E-Mail	master.claudiagas@amosconnect.com

4. MACHINERY

Main Engine	
Maker/model	MAN B&W 6L 50 MCE
MCR	5820 KW / 141 RPM
Grade fuel used	I.F.O. 380 CST & M.D.O.
Auxiliaries Engines	
Type/Model	MAN B&W HOLEBY Type L23/30
Maker	MAN B&W
Output(KW/RPM)	1 X 810 KW / 2 X 1080 KW
Generator	2 X 1024 KW
Grade fuel used	I.F.O. 380 & M.D.O.
Speed	
Guarantee average loaded/ ballast speed (kt)	14.0 / 14.5
Draft at Guarantee average loaded/ ballast speed (m)	C4 = 7.73 / 5.0
	C3 = 7.65 / 5.0
	NH3 = 8.35 / 5.0
	VCM = 9.73 / 5.0

Consumption	**At Sea**	**At Port**
Main engine (IFO)	20.0	-
Aux. Engines (IFO)	3.0	5.5
Number of A/E in use	1	2
MDO Consumption alongside in port	-	-
Inert Gas plant when operating	3.0	3.0
Boiler consumption (MT/day)	1.0	

Permanent bunkers capacity (Excl. daily service tanks) @ 98%	
HFO (MT)	1378.942 @ 0.9800
MDO (MT)	111.165 @ 0.8600

5. CARGO INSTALLATION

Re-liquefaction plant Type	SULZER 2K140-2F
Minimum temperature can maintain	-48° C

Tank No.	**Capacities**		**n-C4 0.605**	**n-C3 0.582**	**NH3 0.682**	**Butadiene 0.653**
	100% M^3	**98% M^3**	**@ -5 °C**	**@ -41.5 °C**	**@ -33.4 °C**	**@ -5 °C**
1	4997.700	4897.746	2963.136	2850.488	3340.263	3198.228
2	5049.300	4948.314	2993.730	2879.919	3374.750	3231.249
3	5049.100	4948.118	2993.611	2879.805	3374.616	3231.121
Total	15096.100	14794.178	8950.477	8610.212	10089.629	9660.598

Carried Products

Butadiene, Butane, Butane-Propane Mixtures, Butylenes, Mixed C4, Propane, Propylene, Vinyl Chloride

Cooling before loading

(*for fully-refrigerated vessels what quantity of cargo is needed and which is the corresponding*

time to pre-cool the tanks and have them ready to load?)		
	MT	**Hrs**
BUTANE	75	16
PROPANE	85	16
BUTADIENE	65	16
AMMONIA	68	20
VCM	80	16

6. CARGO TANKS	
Type	INDEPENDENT TYPE C, SEMI-PRESSURE
Material	13 MnNi63DIN No. 1.6217 (CG2)
MARVS	5.40 Barg. (IMO)
	3.60 Barg. (USCG)
Maximum Vacuum	about - 0.30 Barg.
Minimum pressure	about 0.70 Barg.
Minimum temperature acceptable in tanks	- 48.0 deg. Celsius
Maximum Specific Gravity	0.970 kg/cm^3
Maximum Loading rate – m³/hour	1500
Number of deck tanks	1

7. CARGO PUMPS		
Number/Type	6 x DEEPWELL CLG 150-N4-LE 13500-R - (250 m^3/h @ 125 mLc)	
Maker	Kvaerner-Eureka	
Location	Each Tanks Dome	
Max permissible specific gravity	0.970 kg/m^3	
Cargo remaining onboard in cargo tanks after total completion pumping	Tank1= 12.1,Tank 2= 12.3 Tank 3= 12.3	
Cargo remaining onboard in cargo tanks (heel) after completion pumping	Liquid	1.5 M/T
	Vapour	36.3 M/T
Total head when working in series with booster pump	120 mlc	
Booster pumps (number/type)	2 x CQV 150-RRN (200 m^3/h @ 120m mLc)	
Maker	Kvaerner-Eureka	
Stripping		
Stripping system	Pressurizing	
Time required for all traces of liquid cargo	Subject to Tank Condition	
Loading Rates of		
BUTANE : (storage tank at atmospheric pressure + vapor return)	900 MT/h	
BUTANE : (storage tank at atmospheric pressure)		
PROPANE* : (storage tank at atmospheric pressure)	730 MT/h	
PROPANE : (pressurized storage tank with vapour return line)	795 MT/h	
AMMONIA*: (storage tank at atmospheric pressure)	852 MT/h	
AMMONIA: (pressurized storage tank with vapour return line)	132 MT/h	
BUTADIENE*:(storage tank at atmospheric pressure)	650 MT/h	

(*) ***for pressure or semi-refrigerated vessels using the cargo heater with sea temperature +15^{o}C***

Time for discharging full cargo using all pumps against no backpressure		
	With vapour return line	Without vapour return line

Discharging rate (atm)	10 hours	10 hours
Discharging rate (1 bar)	10 hours	10 hours
Discharging rate (5 bars)	12 hours	12 hours
Discharging rate (10 bars)	37 hours	37 hours

8. CARGO COMPRESSORS

Number/Type		4 / Two Stage Direct Type Oil Free	
Maker/Model		Sulzer 2K140 - 2F	
Total Swept volume		1st Stage = 600 m^3 / hr. per Unit 2nd Stage = 900 m^3/ hr. per Unit	
Can re-liquefy VCM		Yes	
	Ethylene	**Propane**	**Ammonia**
Refrigeration Capacity	-	320,000 kcal/hr	450,000 kcal/hr
Suction pressure	-	0.40 Barg.	0.40 Barg.

9. INERT GAS SYSTEM

Does the vessel use inert gas?	Yes
Method	IGG
Maker	SMIT OVENS B.V.
Fuel used	M.D.O. / M.G.O.
Does the vessel produce inert gas?	Yes
Type	Gin, 1500-03 BUFD, NO. 088044
Daily production	1500 m^3/H = 36,000 m^3/Day
Composition of inert gas	
Carbon dioxide	13.0%
Oxygen max.	0.1%
Carbon monoxide max.	0.1%
Hydrogen max.	0.2%
Nitrogen	Balance
Soot	0 Bacharach
Sulphur oxides max.	Max. 10 ppm
Dew point	-40°C
State if any shore supply of liquid nitrogen may be required	
May be required for pumping tanks prior to loading butadiene and ammonia	
What quantity? (AT 2 SHIFTS)	37,740.25 M^3

10. GAS FREEING

Can this operation be carried out at sea?	YES
State method incl. all details	
For LPG	I.G. by vessel's own plant, aeration by Air Blower/Cargo Compressor
For NH_3	I.G. by vessel's own plant, aeration by Air Blower/Cargo Compressor
Advise time required and consumption of inert gas if any :	
From LPG about	16 hrs / 24,000 m^3
From NH_3	16 hrs / 24,000 m^3
Is the vessel equipped with inert gas blower?	Yes
Capacity	1500 m^3/hr
Ventilation fan	3000 m^3/hr / Rotary Piston

11. CHANGING GRADE

Can this operation be carried out at sea?	Yes

GAS FORM-C

Benelux Overseas

State method used and time required for charging from NH_3 to LPG and vice versa, to reach 50 ppm to previous cargo in tanks atmosphere, the tanks being dry and free of moisture (dewpoint plus 10° C)	
From NH_3 to LPG	Inert Gas Production
Time required	50 Hours
From NH_3 to LPG	Inert Gas Production
Time required	50 Hours
Can vessel reduce in tank atmosphere and gas installation concentration of previous cargo below 50 ppm?	Yes
Method used, time required and extra shore supply if any	Inert Gas Production, Time depending on Cargo Tanks Condition
How can it be checked that no liquid gas remain onboard	Check Level Indicators, Open drains at Low Points

12. CARGO HEATER		
Cargo Heater	Yes	
Maker	Cryogas HCH 100, 120	
Type	Sea Water	
Discharging rate for C3 & NH3 to be brought fm atmospheric pressure to -5° C @ S.W 15° C	Propane	399 m^3/hr
	Ammonia	352 m^3/hr
State discharging rate for propane with 2.5 mol % ethane to be brought from -44oC to -5oC at sea temperature of 15oC		399 m^3/hr

13. CARGO VAPORIZER	
In case of need of vapor gas during discharge, can vessel produce its own if no shore gas available?	Yes. By Cargo Heater/Vaporizer
14. REFRIGERATING APPARATUS	
It is independent of cargo?	Yes / Two Grades re-liquefaction System
15. MEASURING APPARATUS	
What gauges onboard	Level/Pressure/Temperature
Location and type	Float Type Level Gauges/ P&T Sensor
Number of temperature sensors/gauges per tank	3 Pieces
Number of pressure sensors/gauges on tank	1 Piece
16. SAMPLES	
Where samples can be taken?	Bottom:0.20m, Middle:5.6m, Top:11.0 m for each Cargo Tank and One Closed Sampling by Cargo Pump Re-circulation
Are sample bottles available onboard?	No
17. CARGO LINES	
Is vessel fitted with midship manifolds	Yes
Number of lines on each side	2 x Liquid (10'' & 6") ASA 300 2 x Vapour (6'' & 4") ASA 300
Lines Configuration	L-V-V-L
Distance from cargo manifold to bow	77.250 Meters
Distance from manifold to stern	80.750 Meters
Height upper cargo manifold above main deck	1.900 Meters
Height above Summer Draft mark	6.065 Meters
Height upper cargo manifold waterline when LWT	12.456 Meters

GAS FORM-C

Benelux Overseas

Height upper cargo manifold above waterline when in ballast	10.987 Meters
Distance manifold from ship's rail	3.50 Meters
Distance between liquid lines	6.000 Meters
Distance between vapour lines	2.000 Meters
Distance between loading and vapour return connections	2.000 Meters
Is vessel fitted with stern discharge	N/A

Note: Above distances from center line of liquid and vapour crossovers

Dimension of lines		
	Diameter	**Flange size**
Liquid (P/S)	10'' / 6''	ASA 300
Vapour	6'' / 4''	ASA 300
Booster	6''	N/A

What reducers onboard			
Number	**Diameter**	**Length**	**Pressure rating**
1	10'' x 12''	500mm	300 x 150
2	10'' x 10''- 2pcs	500mm	300 x 300
3	10'' x 10''	500mm	300 x 150
4	10'' x 8''	500mm	300 x 300
5	10'' x 8''	500mm	300 x 150
6	10'' x 6''	500mm	300 x 300
7	8'' x 6''	500mm	300 x 300
8	6'' x 12''	500mm	300 x 150
9	6'' x 8''	500mm	300 x 150
10	6'' x 6''	500mm	300 x 300
11	6'' x 6'' - 2pcs	500mm	300 x 150
12	6'' x4'' – 2 pcs	500mm	300 x 300
13	4'' x 4''	500mm	300 x 300

18. LIFTING APPLIANCES

Where situated	Aft	Amidship
Number and lifting capacity	1 Provision Crane SWL = 3.0 M/T	1 Hose Handling Crane SWL = 4.0 M/T
Max. distance from ship's side of lifting hook	Max. 3.00 Meters	Max. 5.00 Meters

19. HOSES

For what products are hoses suitable				
Number	**Length**	**Diameter**	**Working pressure**	**Flange**
N/A	N/A	N/A	N/A	N/A

20. SPECIAL FACILITIES

How many grades can vessel segregate?	
Indicate systems	1+3 and 2/1 and 3/1 + 2+3
Is vessel able to load/discharge two or more grades simultaneously?	Yes / 2 Grades
Can vessel sail with slack tanks?	Yes
Is vessel fitted with purge tank?	Yes / 1 of 125 m^3 Capacity