

**GAS FORM-C**  
based on the  
**OCIMF / SIGTTO**  
**SHIP INFORMATION QUESTIONNAIRE**  
for  
**GAS CARRIERS**  
2nd Edition 1998

**GTS**

Specifications of the vessel and the gas installations are believed to be correct, but not guaranteed.

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**SECTION A  
GENERAL INFORMATION**

**A1 PRINCIPAL SHIP PARTICULARS**

1.1	Date questionnaire completed	22-May-2016
1.2	Name of vessel	JS INEOS INGENUITY
1.3	LR/IMO number	9685437
1.4	Last previous name	
1.4.1	Date of name change	
1.5	Second last previous name	
1.5.1	Date of name change	
1.6	Third last previous name	
1.6.1	Date of name change	
1.7	Fourth last previous name	
1.7.1	Date of name change	
1.8	Flag	Denmark
1.9	Port of Registry	DRAGOR
1.10	Official number	D4743
1.11	Call sign	OWHX2
1.12	INMARSAT A or B number	FBB +870 773 922 331
1.13	Vessel's telephone number	VSAT +4723677084 / Norway
		VSAT +1 203 346 2989 / USA
1.13.1	Vessel's mobile number	
1.14	Vessel's fax number	870 783 917 004
1.15	Vessel's telex number	
1.16	Vessel's E-mail address	<a href="mailto:js.ingenuity@skyfile.com">js.ingenuity@skyfile.com</a>
1.17	INMARSAT C number	422 000 671 422 000 670
1.18	Vessel's MMSI number	219000034
1.19	Type of vessel	Liquefied Gas Carrier

**OWNERSHIP AND OPERATION**

1.20	Registered Owner	SNC Multigas S1016
	Full address	17 Cours Valmy Puteaux 92800 France
	Office telephone number	
	Office telex number	
	Office fax number	
	Office Email address	<a href="mailto:fleet@greenshipgas.com">fleet@greenshipgas.com</a>
	Contact person	Mihir Navalkar
	Contact person after hours telephone number	33158470346
1.21	Name of technical operator (If different from above)	Evergas Ship Management Pte Ltd
	Full Address	21 Ubi Road # 06-01, Cambridge Trust Building Singapore 408724
	Office telephone number	+65 62207291
	Office telex number	N/A
	Office fax number	+65 62251527
	Office Email address	<a href="mailto:technical@evergas.net">technical@evergas.net</a>
	Contact person (Designated Person Ashore)	Rajneesh Rana
	Contact person after hours telephone number	+65 9113 3759
	Emergency callout number	+65 81888482
	Emergency callout pager number	N/A
	Contact details for person responsible for oil spill response	Rajneesh Rana
	Number of years controlled by technical operator	0

1.22	Total number of ships operated by this Operator	4
1.23	Number of years ship owned	1
1.23.1	Name of commercial operator (If different from above)	Evergas Management A/S
	Full Address	Kalvebod Brygge 39-41 1560 Copenhagen Denmark
	Office telephone number	+45 3997 0350
	Office telex number	N/A
	Office fax number	N/A
	Office Email address	<a href="mailto:operation@evergas.net">operation@evergas.net</a>
	Contact person	Nete Egebjerg
	Contact person after hours telephone number	+45 3038 1156
	Emergency callout number	+45 39970101
	Emergency callout pager number	N/A
	Number of years controlled by commercial operator	0

**BUILDER**

1.24	Builder	Nantong SinoPacific Offshore & Engineering
1.25	Name of yard vessel built at	SOE
1.26	Hull number ( Class ID No. )	S1016 / 4743D
1.27	Date keel laid	19-Jun-2014
1.28	Date launched	10-Oct-2014
1.29	Date delivered	23-Jul-2015
1.30	Date of completion of major hull changes, - if any.	N/A
1.31	If changes were made, what changes were made and at which yard were they carried out	

**CLASSIFICATION**

1.32	Classification society	Bureau Veritas
1.33	Class Notation	BV I, +HULL, +MACH, Liquefied Gas Carrier, Type 2G - Dualfuel, Unrestricted Navigation, CPS (WBT), +VeriSTAR - HULL DFL, +AUT-UMS, +SYS-NEQ, MON-SHAFT, CLEAN PASSPORT, GREENSHIP, INWATERSURVEY
1.34	If Classification society changed, name of previous society	N/A
1.35	If Classification society changed, date of change	
1.36	Was ship built in accordance with the following regulations:	
	IMO	Yes
	US COAST GUARD	Yes
	IACS Class	Yes
	Other: _____	
1.37	IMO certification	
	Certificate of fitness - IGC	Yes
	Certificate - A328	
	Certificate - A329	
	Letter of Compliance	
	Issued by	
1.38	Unattended Machinery Space Certificate	
1.39	Net Registered Tonnage	6,866
1.40	Gross Registered Tonnage	22,887
1.41	Suez Net Tonnage - Canal Tonnage	24966.94
	Suez Gross Tonnage	21589.49
1.42	Panama Net Tonnage - Canal Tonnage	19070
	Panama Gross Tonnage	N/A

## A2 HULL DIMENSIONS

2.1	Length overall (LOA)	180.30	Metres
2.2	Length between perpendiculars (LBP)	170.80	Metres
2.3	Distance bow to bridge	142.40	Metres
2.4	Distance bridge front - mid point manifold	46.40	Metres
2.5	Distance bow to mid-point manifold	92.00	Metres
2.6	Extreme breadth	26.60	Metres
2.7	Extreme depth	17.80	Metres
2.8	Summer draught (design / Scantling)	9.42	Metres
2.9	Corresponding Summer deadweight	20896.5	Tonnes
2.10	Light displacement	11170.0	Tonnes
2.11	Loaded displacement (Summer deadweight)	32087.9	Tonnes
2.12	Cargo tanks cubic capacity - 100%	27,571.184	Cubic metres
2.12.1	Deck tank(s) cubic capacity - 100%	2001.91	Cubic metres
2.12.2	Cargo tanks cubic capacity - 98%	27,019.760	Cubic metres
2.12.3	Deck tank(s) cubic capacity - 98%	1961.88	Cubic metres
2.13	Distance from keel to highest point	46.50	Metres
2.14	Air draught (normal ballast condition)	38.36	Metres

## A3 IMMERSION

3.1	TPC - in normal ballast condition	37.00	6.50
	TPC - in loaded condition (summer deadweight)	41.90	9.40

Tonnes / cm @ metres draught

## A4 LOADED PARTICULARS

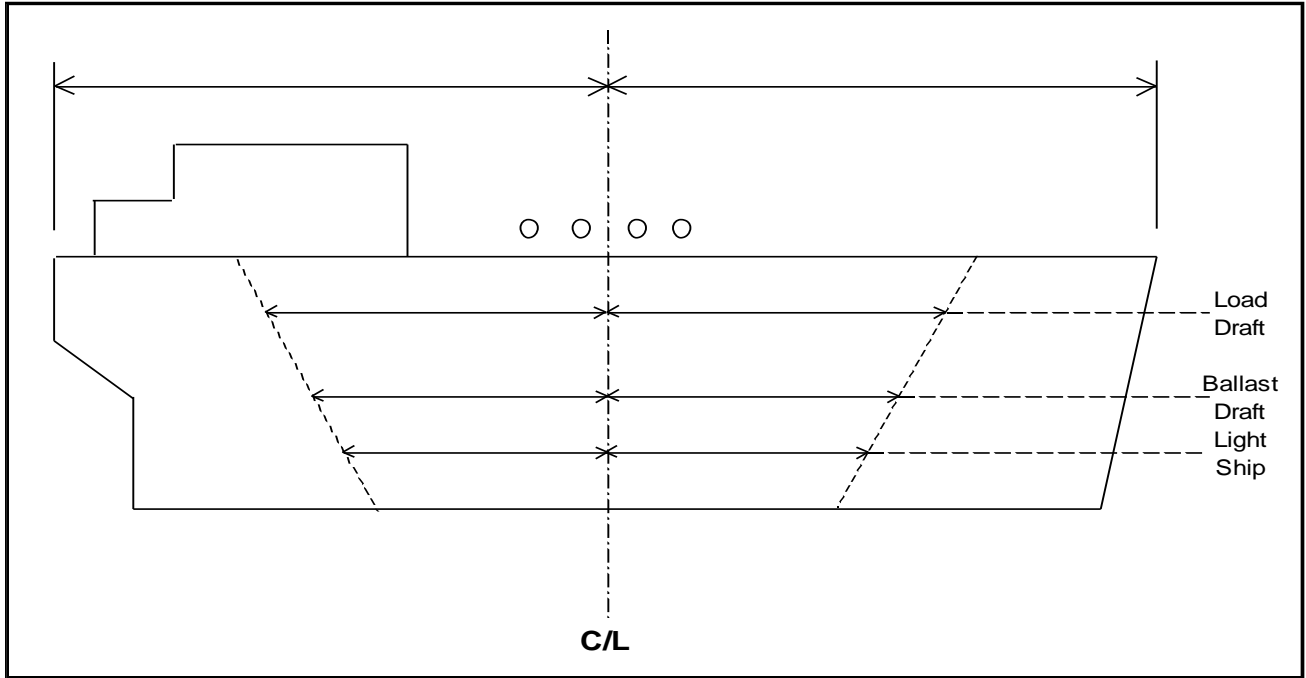
	Methane	Butadiene	
4.1	Cargo grade		
4.2	Density	0.42	0.65
4.3	Cargo loadable	11346	17650
4.4	Bunkers - FO / Metane or Ethane	1316.8 / 823	1316.8 / 1068
4.5	Bunkers - DO	232	232
4.6	Fresh water	304	304
4.7	Stores & spares	60	60
4.8	Lub oil	109.4	109.4
4.9	Ballast	1377	205.6
4.10	Deadweight	15587	20876
4.11	Draught - forward	7.50	9.23
	Draught - aft	8.67	9.56
	Draught - mean	8.08	9.39

	Ethylene	Ethane	
	Cargo grade		
	Density	0.568	0.545
	Cargo loadable	15344	14723
	Bunkers - FO / Ethane	1316.8 / 1068	1316.8 / 1068
	Bunkers - DO	232	232
	Fresh water	304	304
	Stores & spares	60	60
	Lub oil	109.4	109.4
	Ballast	701.4	701.4
	Deadweight	20484	18533
	Draught - forward	9.19	8.39
	Draught - aft	9.45	9.24
	Draught - mean	9.32	8.81

	Propane	Butane	
Cargo grade			
Density	0.583	0.602	
Cargo loadable	15749	16262	Tonnes
Bunkers - FO / Ethane	1316.8 / 1068	1316.8 / 1068	Tonnes
Bunkers - DO	232	232	Tonnes
Fresh water	304	304	Tonnes
Stores & spares	60	60	Tonnes
Lub oil	109.4	109.4	Tonnes
Ballast	701.4	701.4	Tonnes
Deadweight	19560	20073	Tonnes
Draught - forward	8.78	8.98	Metres
Draught - aft	9.36	9.42	Metres
Draught - mean	9.07	9.2	Metres

	Propylene	Ballast	
Cargo grade			
Density	0.609		
Cargo loadable	16452		Tonnes
Bunkers - FO / Ethane or Methane	1316.8 / 1068	1316.8 / 823	Tonnes
Bunkers - DO	232	239.4	Tonnes
Fresh water	304	304	Tonnes
Stores & spares	60	60	Tonnes
Lub oil	109.4	109.4	Tonnes
Ballast	701.4	6726.4	Tonnes
Deadweight	20262	9639	Tonnes
Draught - forward	9.05	4.88	Metres
Draught - aft	9.44	8.14	Metres
Draught - mean	9.25	6.51	Metres

**A5 PARALLEL MID-BODY DIMENSIONS**



5.1	Light ship	52.4	Metres
5.2	Forward to mid-point manifold - light ship	26.2	Metres
5.3	Aft to mid-point manifold - light ship	26.2	Metres
5.4	Normal ballast	67.8	Metres
5.5	Forward to mid-point manifold - normal ballast	34.1	Metres
5.6	Aft to mid-point manifold - normal ballast	33.7	Metres
5.7	Loaded SDWT	83.2	Metres
5.8	Forward to mid-point manifold - loaded SDWT	40.0	Metres
5.9	Aft to mid-point manifold - loaded SDWT	43.2	Metres

**A6 BUNKER CAPACITIES**

Main engine  
 Auxiliary engine  
 Other:

Grade	Capacity @ 98%	
HFO	1236	m3
MDO	400.8	m3
LNG / Ethane	1960.4	m3

**A7 FUEL CONSUMPTION DETAILS**

	Grade	
7.1 At sea - normal service speed SG engaged	HFO	Tonnes/day
	Diesel oil	Tonnes/day
	Gas oil	Tonnes/day
7.2 At sea - normal service speed - while conditioning cargo full cooling	HFO	Tonnes/day
	Diesel oil	Tonnes/day
	Gas oil	Tonnes/day
7.3 In port - loading	LNG	Tonnes/day
	Diesel oil	Tonnes/day
	Gas oil	Tonnes/day
7.4 In port - discharging	LNG	Tonnes/day
	Diesel oil	Tonnes/day
	Gas oil	Tonnes/day
7.5 In port - idle	LNG	Tonnes/day
	Diesel oil	Tonnes/day
	Gas oil	Tonnes/day

**A7 SPEED/CONSUMPTION**

Copies of the vessel's Speed and Consumption Graph for both Laden and Ballast conditions are enclosed?

NO
----

**A8 MAIN ENGINE PARTICULARS**

8.1	Main engine make and type	Wartsila	
		Type SL50DF Tire II - 2 Sets	
8.2	Number of units	2	
8.3	Maximum continuous rating (MRC) per engine	5850	kW
8.4	Total available power - Kwe	7,000	kW
8.5	Normal service power - Kwe at 75% SMCR	5,250	kW

**A9 AUXILIARY PLANTS**

9.1	Make and type of auxiliary generators / engines	Wartsila	
		6L20 DF	
9.2	Number of units	2	
9.3	Maximum generator output per unit	RPM	Kilowatts
	Unit no. 1	1200	1056 kW
	Unit no. 2	1200	1056 kW
	Unit no. 3		
9.4	Shaft generator		2 x 1875 kW
9.5	Total available power		3750 kW
9.6	Emergency generator	1800	150 kW
9.7	Emergency fire pump - type	Motor driven Vertical Centrifugal	
	Delivery pressure		8 Bar
	Motive power		Electrical
	If electrical, - indicate power required		43 kW
9.8	Steering gear - type	Rolls-Royce RV850-R	
	Indicate power required to steer the vessel with one pump unit		34 kW

**A10 POWER/SPEED INFORMATION**

10.1	Trial data	BHP	5412	kW
		MRC	5250	kW
		Speed	15.94	kN
		Draught	9.4	m
10.2	Normal service speed (LOADED / BALLAST)	BHP		
		MRC		
		Speed		kN
		Draught	9.4	m

**A11 THRUSTERS**

11.1	Make and type	N/A	
11.2	Bow thruster	(output)	N/A
11.3	Stern thruster	(output)	N/A

**A12 FRESH WATER**

12.1	Capacity of distilled tanks	49.7	Cubic metres
12.2	Capacity of domestic tanks	254.5	Cubic metres
12.3	Daily consumption		Tonnes
		Distilled	Tonnes
		Domestic	Tonnes
12.4	Daily evaporator capacity		Tonnes



**A13 BALLAST CAPACITIES AND PUMPS**

Tank	Capacity (m3)	Number
13.1 Fore peak	286.1	FPT
13.2 Wing and or side tanks	1928.6	1-4 P+S
13.3 Double bottom tanks	5469	1-6 P+S
13.4 Aft peak	821.4	APT
13.5 Deep tank	N/A	N/A
13.6 Total	8505	

13.7 Ballast pump make and type	Allweiler / Centrifugal Pump	
13.8 Number of pumps	2	m3/h
13.9 Total capacity	700	
13.10 Location	Engine Room	
13.11 Control location	ECR, CCR, Bridge	
13.13 Ballast Water Treatment Plant	GloEn - P700 - 1 Set	

**A14 MOORING EQUIPMENT**

**14.1 ROPES**

Indicate on the diagram below the position of:

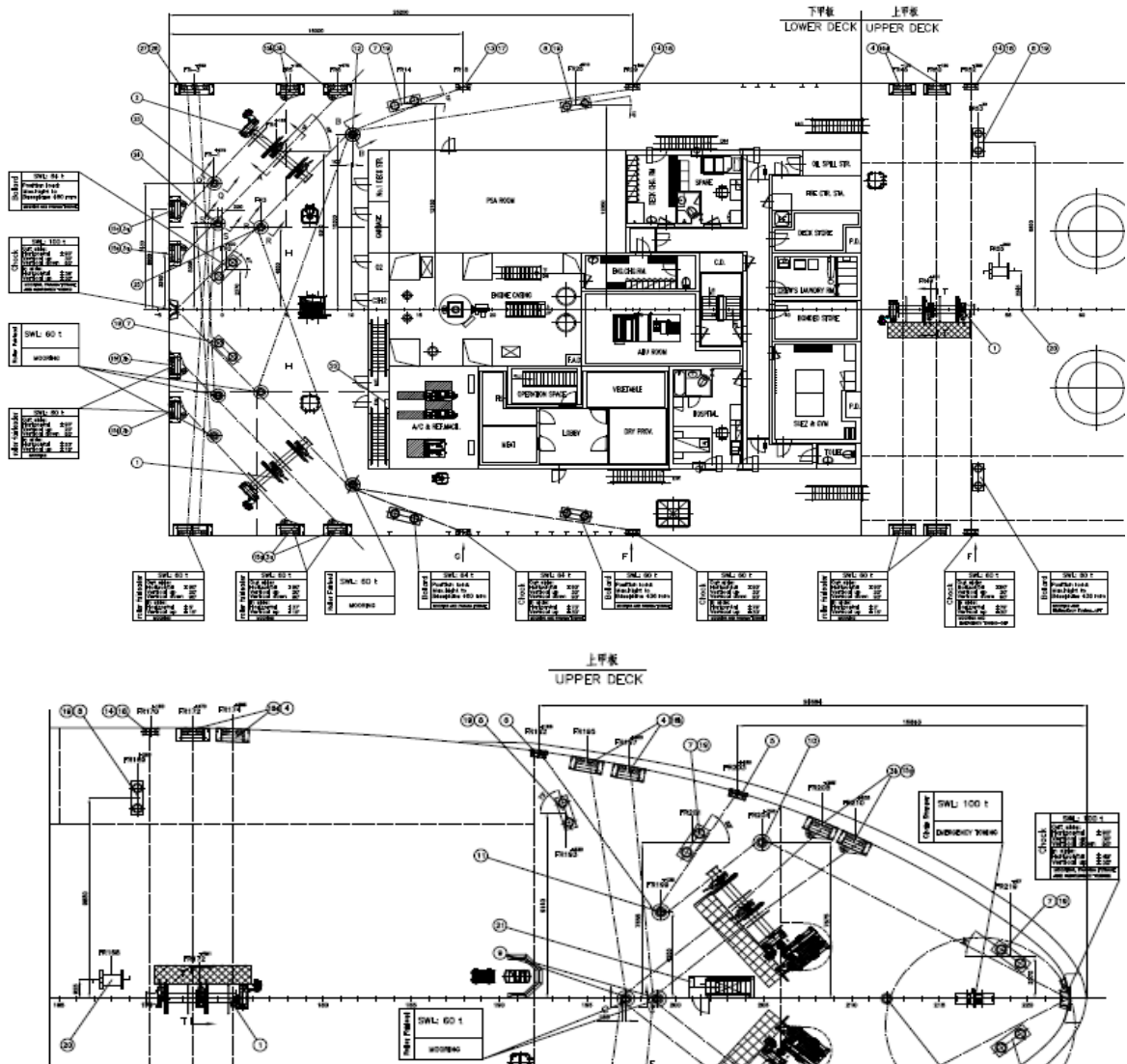
Winch Mounted Ropes (R)

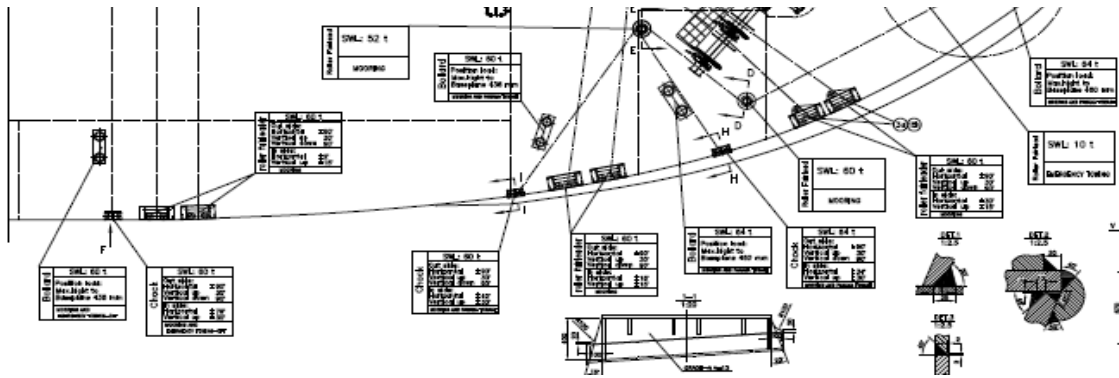
Open Fairleads (O)

Closed Fairleads (C)

Alternatively enclosed copy of vessel's Mooring arrangements in A4 format.

NO





**MOORING ROPES (ON DRUMS)**

**Mooring Ropes (On Drums) Forecastle - Number**

Diameter

Material

Length

Breaking Strength

**Mooring Ropes (On Drums) Forward Main Deck -**

Number

Diameter

Material

Length

Breaking Strength

	4	
	64	mm
	Polyester	
	220	m
	58.7	mt
	2	
	64	mm
	Polyester	
	220	m
	58.7	mt

**Mooring Ropes (On Drums) Aft Main Deck - Number**

Diameter	2	
Material	52	mm
Length	Polyester	
Breaking Strength	220	m
	58.7	mt

**Mooring Ropes (On Drums) Poop - Number**

Diameter	4	
Material	52	mm
Length	Polyester	
Breaking Strength	220	m
	58.7	mt

**OTHER MOORING LINES****Mooring Ropes not on Drums - Number**

Diameter	2+2	
Material	64 / 52	mm
Length	Polyester	
Breaking Strength	220	m
	58.7	mt

**Emergency Towing Wires / Fire Wires - Number**

Diameter	2	
Material		
Length	Steel Wire	
Breaking Strength	45	

14.2

**MOORING WINCHES****Forecastle - Number**

Single Drum or Double Drums	2	
Split Drums Y/N	Double	
Motive Power	Y	
Heaving Power	Hydraulic	
Brake Capacity	150	kN
Hauling Speed	345.6	kN
	15	M/Min
	45	M/Min

**Forward Main Deck - Number**

Single Drum or Double Drums	1	
Split Drums Y/N	Double	
Motive Power	Y	
Heaving Power	Hydraulic	
Brake Capacity	150	kN
Hauling Speed	345.6	kN
	15	M/Min
	45	M/Min

**Aft Main Deck - Number**

Single Drum or Double Drums	1	
Split Drums Y/N	Double	
Motive Power	Y	
Heaving Power	Hydraulic	
Brake Capacity	150	kN
Hauling Speed	345.6	kN
	15	M/Min
	45	M/Min

**Poop - Number**

Single Drum or Double Drums	2	
Split Drums Y/N	Double	
Motive Power	Y	
Heaving Power	Hydraulic	
Brake Capacity	150	kN
Hauling Speed	345.6	kN
	15	M/Min
	45	M/Min

14.3

**ANCHORS AND WINDLASS**

Windlass motive power(e.g. steam, hydraulic)	Hydraulic	
Hauling power, nominal	220	kN
Hauling power, max	329	kN
Brake holding power	1575	kN

Anchor type  
Weight

HY-14 SB HPP
5515

 kg

Is spare anchor carried	No	
Cable diameter	68	mm
Number of shackles port cable	11	
Number of shackles starboard cable	11	

14.4 **TOWING ARRANGEMENTS**

Is the vessel fitted with a Towing Bracket Aft?	Yes	
If Yes, state SWL	100	mt
Is Towing chain provided	Yes	
Dimensions of Towing wire	65	mm
Diameter		
Length	100	m

14.5 **WINDAGE**

Windage on ballast draught		
Front		
End-on		
Lateral	2205	m2

**A15 NAVIGATIONAL EQUIPMENT**

15.1	Magnetic compass		Yes
15.2	Off Course Alarm - Magnetic compass		Yes
15.3	Gyro compass		Yes
		Number of Units	1
15.4	Off Course Alarm - Gyro compass		Yes
15.5	Gyro (Bridge) Repeaters		Yes
		Number of Units	4
15.6	Radar 3cm		Yes
15.7	Radar 10cm		Yes
15.8	Are radars gyro stabilised?		Yes
15.9	Radar plotting equipment		Yes
15.10	ARPA		Yes
15.11	ECDIS		Yes
15.12	Depth sounder with recorder		No
15.13	Depth sounder without recorder		Yes
15.14	Speed/distance indicator		Yes
15.15	Doppler log		Yes
15.16	Docking approach Doppler		No
15.17	Rudder angle indicator		Yes
15.18	Rudder angle indicator on Each Bridge Wing		Yes
15.19	RPM indicator		Yes
15.20	RPM indicator on Each Bridge Wing		No
15.21	Controllable pitch propeller indicator		Yes
15.22	Thruster(s) indicator		N/A
15.23	Rate of turn indicator		No
15.24	Radio direction finder		No
15.25	Navtex receiver		Yes
15.26	GPS		Yes
15.26.1	DGPS		Yes
15.27	Transit SATNAV		No
15.28	Decca navigator		No
15.29	Omega		No
15.30	Loran C		No
15.31	Weather fax		Yes
15.32	Sextant(s)		Yes
15.33	Signal lamp ALDIS		Yes
15.34	Anemometer		Yes
15.35	Engine order recorder		Yes
15.35.1	VDR (Voyage Data Recorder)		Yes
15.36	Course recorder		Yes
15.37	Are steering motor controls and engine controls fitted on bridge wings?		Yes

15.38	Is bridge equipped with a 'Dead-Man' alarm?		Yes
15.39	What chart outfit coverage is provided	World-wide	Yes
		Limited	No
	If limited, - please indicate area(s) covered		
15.40	Formal chart correction system in use		Yes
15.41	Electronic Chart system in use		AVCS

**A16 COMMUNICATIONS AND ELECTRONICS**

16.2	What GMDSS areas is the vessel classed for? A1 A2 A3 A4		A1+A2+A3
16.3	Transponder (SART)		2
16.4	EPIRB		2
16.5	How many VHF radios are fitted on the bridge?		2
16.6	Is vessel fitted with VHF in the cargo control room (CCR)?		Yes
16.7	Is the CCR connected to the vessel's internal communication system?		Yes
16.8	How many intrinsically safe walkie talkies are provided for cargo handling?		10
16.9	Is vessel fitted with an INMARSAT satellite communications system?		Yes
16.10	Does vessel carry at least three survival craft two-way radio telephones?		Yes
16.11	Inmarsat satellite system		Yes
	Specify system type A, B or C		C
16.12	2182kHz bridge auto alarm		Yes
16.13	Radio telephone distress frequency watch receiver		Yes
16.14	Emergency lifeboat transceiver		Yes
16.15	Can vessel transmit the helicopter homing signal on 410 kHz?		No
16.16	Full set of Radio List publications		Yes

## SECTION B CARGO SYSTEMS

### B1 CARGO - GENERAL INFORMATION

1.1 List products which the ship is Certified to carry

Cargo	Temp at atm. Press (Celcius)	Density at atm. Press (kg/m3)
Methane	-163	545
Ethylene	-104	568
C-Ethane (0,5 mol% Methane in Liq. Phase)	-89	545
Propylene	-48	609
C-Propane (2,5 mol% Ethane in Liq. Phase)	-45	583
VCM	-14	969
Iso-Butane	-12	594
Butylenes	-7	625
Butadiene	-5	650
N-Butane	0	602
Methyl Chloride		
DME	-25	734
Other Cargoes		
Acetaldehyde	20	778
Dimethyl Amine	7	666
Ethyl Chloride	13	903
Diethyl Ether	35	700
Isoprene (Monomer)	34	666
Isopropyl Amine	32	676
Monoethyl Amine	17	687
Pentanes/Pentenenes	36 / 30	605 / 608
Vinyl Ethyl Ether	36	750

#### Transport and Carriage Conditions

1.2	Minimum allowable tank temperature	-163	Deg. C
1.3	Maximum Permissible tank pressure	4.5	Bar gauge
1.4	List Number of grades that can be loaded/discharged simultaneously and completely segregated without risk of contamination?	2	
1.5	List the Number of grades that can be carried simultaneously and completely segregated without risk of contamination?	2	
1.6	What is the Number of Products that can be conditioned by reliquefaction simultaneously?	2	
1.7	State the number of natural segregation's (NB: Separation must be by the removal of spools or the insertion of blanks)	Removal of spools	

### B2 CARGO TANKS

2.1	Type and materials of cargo tanks	Type C, Bilobe / X7Ni9 Steel	
2.2	Maximum allowable relief valve setting	4.5	Bar gauge
2.2.1	IMO Setting	4.5	Bar gauge
2.2.2	USCG Setting	4.5	Bar gauge
2.3	Safety valve set pressure, - if variable stipulate range of pilot valves	4.5	Bar gauge
2.4	Maximum allowable vacuum	-0.25	Bar gauge
2.5	Maximum cargo density at 15 deg Celsius	992	Kg/m3
2.6	Maximum rate of cool-down	10	Deg Cel / Hour
2.7	State any limitations regarding partially filled tanks		


2.8

State allowable combinations of filled and empty tanks




**B3 CARGO TANK CAPACITIES**

**Tank number / location**

Capacity m3 (100%)  
 Capacity 98%  
 N-Butane capacity  
 N-Butane temperature  
 C-Propane capacity  
 C-Propane temperature  
 Butadiene capacity  
 Butadiene temperature  
 Propylene capacity  
 Propylene temperature  
 Vinyl Chloride Monomer capacity  
 Vinyl Chloride Monomer temperature  
 Ethylene capacity  
 Ethylene temperature  
 Propylene Oxide capacity  
 Propylene Oxide temperature  
 Ammonia capacity  
 Ammonia temperature

<b>CT 1</b>		
	8194.53	m3
	8030.64	m3
	4849	Tonnes
	-0.5	Deg. C
	4700	Tonnes
	-45	Deg. C
	5165	Tonnes
	-4.5	Deg. C
	4884	Tonnes
	-48	Deg. C
	7763	Tonnes
	-13.8	Deg. C
	4929	Tonnes
	-104	Deg. C
	N/A	Tonnes
	N/A	Deg. C
	N/A	Tonnes
	N/A	Deg. C

**Tank number / location**

Capacity m3 (100%)  
 Capacity 98%  
 N-Butane capacity  
 N-Butane temperature  
 C-Propane capacity  
 C-Propane temperature  
 Butadiene capacity  
 Butadiene temperature  
 Propylene capacity  
 Propylene temperature  
 Vinyl Chloride Monomer capacity  
 Vinyl Chloride Monomer temperature  
 Ethylene capacity  
 Ethylene temperature  
 Propylene Oxide capacity  
 Propylene Oxide temperature  
 Ammonia capacity  
 Ammonia temperature

<b>CT 2</b>		
	9684.22	m3
	9491.00	m3
	5732	Tonnes
	-0.5	Deg. C
	5556	Tonnes
	-45	Deg. C
	6105	Tonnes
	-4.5	Deg. C
	5773	Tonnes
	-48	Deg. C
	9176	Tonnes
	-13.8	Deg. C
	5826	Tonnes
	-104	Deg. C
	N/A	Tonnes
	N/A	Deg. C
	N/A	Tonnes
	N/A	Deg. C

**Tank number / location**

Capacity m3 (100%)  
 Capacity 98%  
 N-Butane capacity  
 N-Butane temperature  
 C-Propane capacity  
 C-Propane temperature  
 Butadiene capacity  
 Butadiene temperature  
 Propylene capacity  
 Propylene temperature  
 Vinyl Chloride Monomer capacity  
 Vinyl Chloride Monomer temperature  
 Ethylene capacity  
 Ethylene temperature  
 Propylene Oxide capacity  
 Propylene Oxide temperature  
 Ammonia capacity  
 Ammonia temperature

<b>CT 3</b>		
	9687.33	m3
	9493.58	m3
	5732.39	Tonnes
	-0.5	Deg. C
	5555.83	Tonnes
	-45	Deg. C
	6105.43	Tonnes
	-4.5	Deg. C
	5773.20	Tonnes
	-48	Deg. C
	9176.19	Tonnes
	-13.8	Deg. C
	5826.36	Tonnes
	-104	Deg. C
	N/A	Tonnes
	N/A	Deg. C
	N/A	Tonnes
	N/A	Deg. C

**Tank number / location**

Capacity m3 (100%)  
Capacity 98%  
Butane capacity  
Butane temperature  
Propane capacity  
Propane temperature  
Butadiene capacity  
Butadiene temperature  
Propylene capacity  
Propylene temperature  
Vinyl Chloride Monomer capacity  
Vinyl Chloride Monomer temperature  
Ethylene capacity  
Ethylene temperature  
Propylene Oxide capacity  
Propylene Oxide temperature  
Ammonia capacity  
Ammonia temperature

	m3
	m3
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C

**Tank number / location**

Capacity m3 (100%)  
Capacity 98%  
Butane capacity  
Butane temperature  
Propane capacity  
Propane temperature  
Butadiene capacity  
Butadiene temperature  
Propylene capacity  
Propylene temperature  
Vinyl Chloride Monomer capacity  
Vinyl Chloride Monomer temperature  
Ethylene capacity  
Ethylene temperature  
Propylene Oxide capacity  
Propylene Oxide temperature  
Ammonia capacity  
Ammonia temperature

	m3
	m3
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C

**Tank number / location**

Capacity m3 (100%)  
Capacity 98%  
Butane capacity  
Butane temperature  
Propane capacity  
Propane temperature  
Butadiene capacity  
Butadiene temperature  
Propylene capacity  
Propylene temperature  
Vinyl Chloride Monomer capacity  
Vinyl Chloride Monomer temperature  
Ethylene capacity  
Ethylene temperature  
Propylene Oxide capacity  
Propylene Oxide temperature  
Ammonia capacity  
Ammonia temperature

	m3
	m3
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C
	Tonnes
	Deg. C

**Tank number / location**

Capacity m3 (100%)		m3
Capacity 98%		m3
Butane capacity		Tonnes
Butane temperature		Deg. C
Propane capacity		Tonnes
Propane temperature		Deg. C
Butadiene capacity		Tonnes
Butadiene temperature		Deg. C
Propylene capacity		Tonnes
Propylene temperature		Deg. C
Vinyl Chloride Monomer capacity		Tonnes
Vinyl Chloride Monomer temperature		Deg. C
Ethylene capacity		Tonnes
Ethylene temperature		Deg. C
Propylene Oxide capacity		Tonnes
Propylene Oxide temperature		Deg. C
Ammonia capacity		Tonnes
Ammonia temperature		Deg. C

**Tank number / location**

Capacity m3 (100%)		m3
Capacity 98%		m3
Butane capacity		Tonnes
Butane temperature		Deg. C
Propane capacity		Tonnes
Propane temperature		Deg. C
Butadiene capacity		Tonnes
Butadiene temperature		Deg. C
Propylene capacity		Tonnes
Propylene temperature		Deg. C
Vinyl Chloride Monomer capacity		Tonnes
Vinyl Chloride Monomer temperature		Deg. C
Ethylene capacity		Tonnes
Ethylene temperature		Deg. C
Propylene Oxide capacity		Tonnes
Propylene Oxide temperature		Deg. C
Ammonia capacity		Tonnes
Ammonia temperature		Deg. C

Total Capacity of all cargo tanks (100%)	27,566.08	m3
Total Capacity of all cargo tanks (98%)	27,015.22	m3
Total Capacity of N-Butane	16262	Tonnes
Total Capacity of C-Propane	15749	Tonnes
Total Capacity of Butadiene	17376	Tonnes
Total Capacity of Propylene	16430	Tonnes
Total Capacity of Vinyl Chloride Monomer	26115	Tonnes
Total Capacity of Ethylene	16582	Tonnes
Total Capacity of Propylene Oxide	N/A	Tonnes
Total Capacity of Ammonia	N/A	Tonnes

**B16 DECK (FUEL) TANK CAPACITIES**

Are Deck pressure tank(s) fitted?	Yes
Material of tank(s)	Ni-Steel: X7Ni9
Maximum allowable relief valve setting	8.0 Bar gauge

**Deck tank number 1 - capacity (100%)**

Capacity 98%  
 Propane Capacity  
 Butane Capacity  
 Propylene capacity  
 Ethylene capacity  
 Ammonia Capacity

1000.23	m3
980.22	m3
N/A	Tonnes
N/A	Tonnes
N/A	Tonnes
N/A	Tonnes
N/A	Tonnes

**Deck tank number 2 - capacity (100%)**

Capacity 98%  
 Propane Capacity  
 Butane Capacity  
 Propylene capacity  
 Ethylene capacity  
 Ammonia Capacity

1000.43	m3
980.42	m3
N/A	Tonnes
N/A	Tonnes
N/A	Tonnes
N/A	Tonnes
N/A	Tonnes

**B4 LOADING RATES****4.1 From Refrigerated Storage (Fully Refrigerated at Vessel's Manifold)**

N-Butane - with vapour return  
 N-Butane - without vapour return  
 C-Propane - with vapour return  
 C-Propane - without vapour return  
 Butadiene - with vapour return  
 Butadiene - without vapour return  
 Propylene - with vapour return  
 Propylene - without vapour return  
 Ethylene - with vapour return  
 Ethylene - without vapour return  
 Ammonia - with vapour return  
 Ammonia - without vapour return  
 Vinyl Chloride Monomer - with vapour return  
 Vinyl Chloride Monomer - without vapour return  
 Propylene Oxide - with vapour return  
 Propylene Oxide - without vapour return

1268	Tonnes/Hr.
1268	Tonnes/Hr.
1231	Tonnes/Hr.
1231	Tonnes/Hr.
1366	Tonnes/Hr.
1366	Tonnes/Hr.
1277	Tonnes/Hr.
1277	Tonnes/Hr.
1197	Tonnes/Hr.
1197	Tonnes/Hr.
N/A	Tonnes/Hr.
N/A	Tonnes/Hr.
2027	Tonnes/Hr.
2027	Tonnes/Hr.
N/A	Tonnes/Hr.
N/A	Tonnes/Hr.

**4.8 From Pressure Storage**

**N-Butane** 0 deg C - with vapour return  
 0 deg C - without vapour return  
 10 deg C - with vapour return  
 10 deg C - without vapour return  
 20 deg C - with vapour return  
 20 deg C - without vapour return

1267	Tonnes/Hr.
1267	Tonnes/Hr.
1243	Tonnes/Hr.
1243	Tonnes/Hr.
1220	Tonnes/Hr.
1220	Tonnes/Hr.

**C-Propane** minus 30 deg C - with vapour return  
 Minus 30 deg C - without vapour return  
 Minus 20 deg C - with vapour return  
 Minus 20 deg C - without vapour return  
 Minus 10 deg C - with vapour return  
 Minus 10 deg C - without vapour return  
 0 deg C - with vapour return  
 0 deg C - without vapour return  
 10 deg C - with vapour return  
 10 deg C - without vapour return  
 20 deg C - with vapour return  
 20 deg C - without vapour return

1192	Tonnes/Hr.
1192	Tonnes/Hr.
1166	Tonnes/Hr.
1166	Tonnes/Hr.
1140	Tonnes/Hr.
1140	Tonnes/Hr.
1112	Tonnes/Hr.
1112	Tonnes/Hr.
1083	Tonnes/Hr.
1083	Tonnes/Hr.
1053	Tonnes/Hr.
1053	Tonnes/Hr.

<b>Butadiene</b> 0 deg C - with vapour return	1340	Tonnes/Hr.
0 deg C - without vapour return	1340	Tonnes/Hr.
10 deg C - with vapour return	1315	Tonnes/Hr.
10 deg C - without vapour return	1315	Tonnes/Hr.
20 deg C - with vapour return	1290	Tonnes/Hr.
20 deg C - without vapour return	1290	Tonnes/Hr.

<b>Propylene</b> minus 30 deg C - with vapour return	1231	Tonnes/Hr.
Minus 30 deg C - without vapour return	1231	Tonnes/Hr.
Minus 20 deg C - with vapour return	1203	Tonnes/Hr.
Minus 20 deg C - without vapour return	1203	Tonnes/Hr.
Minus 10 deg C - with vapour return	1176	Tonnes/Hr.
Minus 10 deg C - without vapour return	1176	Tonnes/Hr.
0 deg C - with vapour return	1147	Tonnes/Hr.
0 deg C - without vapour return	1147	Tonnes/Hr.
10 deg C - with vapour return	1116	Tonnes/Hr.
10 deg C - without vapour return	1116	Tonnes/Hr.
20 deg C - with vapour return	1084	Tonnes/Hr.
20 deg C - without vapour return	1084	Tonnes/Hr.

<b>Ethylene</b> minus 100 deg C - with vapour return	1195	Tonnes/Hr.
Minus 100 deg C - without vapour return	1195	Tonnes/Hr.
Minus 95 deg C - with vapour return	1180	Tonnes/Hr.
Minus 95 deg C - without vapour return	1180	Tonnes/Hr.
Minus 90 deg C - with vapour return	1166	Tonnes/Hr.
Minus 90 deg C - without vapour return	1166	Tonnes/Hr.
Minus 85 deg C - with vapour return	1151	Tonnes/Hr.
Minus 85 deg C - without vapour return	1151	Tonnes/Hr.

<b>Ammonia</b> minus 20 deg C - with vapour return	N/A	Tonnes/Hr.
Minus 20 deg C - without vapour return	N/A	Tonnes/Hr.
Minus 10 deg C - with vapour return	N/A	Tonnes/Hr.
Minus 10 deg C - without vapour return	N/A	Tonnes/Hr.
0 deg C - with vapour return	N/A	Tonnes/Hr.
0 deg C - without vapour return	N/A	Tonnes/Hr.

<b>VCM</b> minus 10 deg C - with vapour return	2017	Tonnes/Hr.
Minus 10 deg C - without vapour return	2017	Tonnes/Hr.
0 deg C - with vapour return	1983	Tonnes/Hr.
0 deg C - without vapour return	1983	Tonnes/Hr.
10 deg C - with vapour return	1949	Tonnes/Hr.
10 deg C - without vapour return	1949	Tonnes/Hr.
20 deg C - with vapour return	1913	Tonnes/Hr.
20 deg C - without vapour return	1913	Tonnes/Hr.

4.14

**Special remarks:**


**B5 DISCHARGING - GENERAL**

**Cargo Pumps**

5.1	Type of Pumps	Wärtsilä Svanebjerg AS DW 200/200-3K+1	
5.2	Number of pumps per tank	2	
5.3	Rate per Pump	350	m3/hr
5.4	At Delivery Head mlc	120	mlc
5.5	Maximum density	992	kg/m3

**Booster Pump**

5.6	Type of Booster Pumps	Wärtsilä Svanehöj AS NMB 150c	
5.7	Number of pumps	2	
5.8	Rate per Pump	500	m3/hr
5.9	At Delivery Head m/c	120	m/c
5.10	Maximum density	690	kg/m3

**Copies of pumping curves for cargo and booster pumps are enclosed?**

Yes
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**B6 DISCHARGE PERFORMANCE**

Full Cargo Discharge Times per tank (using 2 cargo pumps and 1 booster pump)

18	Hours
----	-------

**Fully Refrigerated**

Manifold Back Press 1 kP/cm2, with vapour return

14	Hours
----	-------

Manifold Back Press 1 kP/cm2, without vapour return

14	Hours
----	-------

Manifold Back Press 5 kP/cm2, with vapour return

14	Hours
----	-------

Manifold Back Press 5 kP/cm2, without vapour return

14	Hours
----	-------

Manifold Back Press 10 kP/cm2, with vapour return

	Hours
--	-------

Manifold Back Press 10 kP/cm2, without vapour return

	Hours
--	-------

**Pressurised**

Manifold Back Press 1 kP/cm2, with vapour return

14	Hours
----	-------

Manifold Back Press 1 kP/cm2, without vapour return

14	Hours
----	-------

Manifold Back Press 5 kP/cm2, with vapour return

14	Hours
----	-------

Manifold Back Press 5 kP/cm2, without vapour return

14	Hours
----	-------

Manifold Back Press 10 kP/cm2, with vapour return

	Hours
--	-------

Manifold Back Press 10 kP/cm2, without vapour return

	Hours
--	-------

**B7 UNPUMPABLES**

7.1	Tank number / location	1	0.5	m3
	Tank number / location	2	0.5	m3
	Tank number / location	3	0.5	m3
	Tank number / location			m3
	Tank number / location			m3
	Tank number / location			m3
	Tank number / location			m3
	Tank number / location			m3
	Tank number / location			m3
	Total		1.5	m3

**B8 VAPORISING UNPUMPABLES**

8.1	Process used	Vaporizing / Hot Gas		
	Time to vaporise liquid un pumpables remaining after full cargo discharge of:			
8.2	Butane	4		Hours
8.3	Propane	4		Hours
8.4	Butadiene	4		Hours
8.5	Propylene	4		Hours
8.6	Ethylene	4		Hours
8.7	Ammonia	N/A		Hours
8.8	Vinyl Chloride Monomer	4		Hours
8.9	Propylene Oxide	N/A		Hours

**B9 RELIQUEFACTION PLANT**

9.1	Plant Design Conditions - air temperature	45	Deg. C
9.3	Plant Design Conditions - sea temperature	32	Deg. C

<b>Plant Type</b>		Wartsila - Hamworthy
9.4	Is the plant two stage/direct? (for warm cargoes )	Yes
9.5	Is the plant three stage/direct? (for propane and propylene)	Yes
9.6	Is the plant simple cascade?	Yes
9.7	Coolant type	R-1270 (propylene)
<b>Compressors</b>		Reciprocating
9.8	Compressor type	Burckhardt Compression 3K140-3D_1
9.8.1	Compressor makers name	
9.9	Number of compressors	2
9.10	Capacity per unit, 1st / 2nd / 3rd stage (swept volume)	1913 / 1089 / 348
9.11	Are they Oil Free?	Yes

**B11 CARGO TEMPERATURE LOWERING CAPABILITY (AT SEA WITH SEA TEMPERATURE +20C)**

<b>Time taken to lower the temperature of:</b>		
11.1	<b>C-Propane</b> from -40 deg C to - 42 deg C*	39
11.2	<b>C-Propane</b> from -30 deg C to - 42 deg C*	190
11.3	<b>C-Propane</b> from -38 deg C to - 42deg C	74
11.4	<b>C-Propane</b> from +20 deg C to -0.50 deg C	N/A
11.5	<b>C-Propane</b> from -5 deg C to -20 deg C*	98
11.6	<b>N-Butane</b> from +5 deg C to-0.5 deg C*	77
11.7	<b>N-Butane</b> from +10 deg C to-0.5 deg C	135
11.8	<b>N-Butane</b> from +10 deg C to -5 deg C	N/A
11.9	<b>Butadiene</b> From +18 deg C to -5 deg C*	224
11.10	<b>Propylene</b> From -40 deg C to -47 deg C*	129
11.11	<b>Ethylene</b> From -99 deg C to -103 deg C	113
11.12	<b>Ammonia</b> From -16 deg C to -33 deg C	N/A
11.13	<b>Vinyl Chloride Monomer</b> From -5 deg C to -13 deg C*	95

\*Temperature is changed to make suitable tank and suction pressures.

**B12 INERT GAS AND NITROGEN**

<b>Main IG Plant</b>		N/A
12.1	Type of system	
12.2	Capacity	
12.3	Type of fuel used	
12.4	Composition of IG - oxygen	
	Composition of IG - CO2	
	Composition of IG - Nox	
	Composition of IG - N2	
12.5	Lowest dewpoint achievable	
12.6	Used for	
<b>Nitrogen plant</b>		Nitrogen Generator, Oxymat Nitromat N X3000
12.7	Type of System	
12.8	Purity N2	95.0 %
12.9	Capacity	1650 M3/Hr
	Purity N2	99.5%
	Capacity	1000 M3/Hr

Purity N2

99.8%
-------



- 12.10 Capacity  
12.11 Used for

630 M3/Hr
Inerting and gas freeing

- Nitrogen**  
12.12 Liquid storage capacity  
12.13 Daily boil-off loss  
12.14 Maximum supply pressure  
12.15 Supply capacity  
12.16 Used for

600	LTR
N/A	
1.0	Bar gauge
N/A	
Nitrogen padding	

**B13 CARGO TANK INERTING/DE-INERTING**

- 13.1 Time taken to inert from fresh air to under 5% O2 at minus 25 degree C?  
13.2 Time taken to inert from cargo vapour to fully inert at minus 25 degrees dewpoint when IG density is **less** than product?  
Time taken to inert from cargo vapour to fully inert at minus 25 degrees dewpoint when IG density is **greater** than product?

36	Hours
N/A	Hours
N/A	Hours

**B14 GAS FREEING TO FRESH AIR**

- 14.1 Plant used  
14.2 Time taken from fully inert condition to fully breathable fresh air?

Nitrogen Plant	
28	Hours

**B15 CHANGING CARGO GRADES**

**Indicate number of hours needed to change grades from the removal of pumpables to tanks fit to load and the estimated quantity of Inert Gas and or Nitrogen consumed during the operation:**

	Hours	Inert Gas (Air)	Nitrogen
From Propane to Butane	160	83 000 Nm3	105 000 Nm3
From Propane to Butadiene	160	83 000 Nm3	105 000 Nm3
From Propane to Ethylene	160	83 000 Nm3	105 000 Nm3
From Propane to Ammonia	N/A	N/A	N/A
From Propane to Vinyl Chloride Monomer	160	83 000 Nm3	105 000 Nm3
From Propane to Propylene Oxide	N/A	N/A	N/A
From Butane to Propane	160	83 000 Nm3	105 000 Nm3
From Butane to Butadiene	160	83 000 Nm3	105 000 Nm3
From Butane to Ethylene	160	83 000 Nm3	105 000 Nm3
From Butane to Ammonia	N/A	N/A	N/A
From Butane to Vinyl Chloride Monomer	160	83 000 Nm3	105 000 Nm3
From Butane to Propylene Oxide	N/A	N/A	N/A
From Butadiene to Propane	160	83 000 Nm3	105 000 Nm3
From Butadiene to Butane	160	83 000 Nm3	105 000 Nm3
From Butadiene to Ethylene	160	83 000 Nm3	105 000 Nm3
From Butadiene to Ammonia	N/A	N/A	N/A
From Butadiene to Vinyl Chloride Monomer	160	83 000 Nm3	105 000 Nm3
From Butadiene to Propylene Oxide	N/A	N/A	N/A
From Ethylene to Propane	160	83 000 Nm3	105 000 Nm3
From Ethylene to Butane	160	83 000 Nm3	105 000 Nm3
From Ethylene to Butadiene	160	83 000 Nm3	105 000 Nm3
From Ethylene to Ammonia	N/A	N/A	N/A
From Ethylene to Vinyl Chloride Monomer	160	83 000 Nm3	105 000 Nm3
From Ethylene to Propylene Oxide	N/A	N/A	N/A
From Ammonia to Propane	N/A	N/A	N/A
From Ammonia to Butane	N/A	N/A	N/A
From Ammonia to Butadiene	N/A	N/A	N/A
From Ammonia to Ethylene	N/A	N/A	N/A
From Ammonia to Vinyl Chloride Monomer	N/A	N/A	N/A
From Ammonia to Propylene Oxide	N/A	N/A	N/A

From Vinyl Chloride Monomer to Propane	160	83 000 Nm3	105 000 Nm3
From Vinyl Chloride Monomer to Butane	160	83 000 Nm3	105 000 Nm3
From Vinyl Chloride Monomer to Butadiene	160	83 000 Nm3	105 000 Nm3
From Vinyl Chloride Monomer to Ammonia	N/A	N/A	N/A
From Vinyl Chloride Monomer to Ethylene	160	83 000 Nm3	105 000 Nm3
From Propylene Oxide to Propylene Oxide	N/A	N/A	N/A
From Propylene Oxide to Propane	N/A	N/A	N/A
From Propylene Oxide to Butane	N/A	N/A	N/A
From Propylene Oxide to Butadiene	N/A	N/A	N/A
From Propylene Oxide to Ethylene	N/A	N/A	N/A
From Propylene Oxide to Vinyl Chloride Monomer	N/A	N/A	N/A
From Propylene Oxide to Ammonia	N/A	N/A	N/A

Cargo Grade Change Operations that cannot be carried out at sea:

All operation can be carried out at sea but have to load small parcel for gassing up/ coolong down purpose.
---

### B17 PRE-LOADING COOLDOWN

The following questions ask the Time and Quantity of coolant required to cooldown cargo tanks from ambient temperature to fully gassed up state sufficient to allow loading to commence.

17.1	<b>Propane</b> - Quantity of Coolant Required	123	Tons
	<b>Propane</b> - Time required to cooldown cargo tanks from ambient temperature with vapour return line	6	Hours
	<b>Propane</b> - Time required to cooldown cargo tanks from ambient temperature without vapour return line	N/A	
17.2	<b>Butane</b> - Quantity of Coolant Required	N/A	Tons
	<b>Butane</b> - Time required to cooldown cargo tanks from ambient temperature with vapour return line	N/A	
	<b>Butane</b> - Time required to cooldown cargo tanks from ambient temperature without vapour return line	N/A	
17.3	<b>Butadiene</b> - Quantity of Coolant Required	45	Tons
	<b>Butadiene</b> - Time required to cooldown cargo tanks from ambient temperature with vapour return line	2	Hours
	<b>Butadiene</b> - Time required to cooldown cargo tanks from ambient temperature without vapour return line	N/A	
17.4	<b>Propylene</b> - Quantity of Coolant Required	128	Tons
	<b>Propylene</b> - Time required to cooldown cargo tanks from ambient temperature without vapour return line	6	Hours
	<b>Propylene</b> - Time required to cooldown cargo tanks from ambient temperature with vapour return line	N/A	N/A
17.5	<b>Ethylene</b> - Quantity of Coolant Required	155	Tons
	<b>Ethylene</b> - Time required to cooldown cargo tanks from ambient temperature with vapour return line	8	Hours
	<b>Ethylene</b> - Time required to cooldown cargo tanks from ambient temperature without vapour return line	N/A	
17.6	<b>Ammonia</b> - Quantity of Coolant Required	N/A	
	<b>Ammonia</b> - Time required to cooldown cargo tanks from ambient temperature with vapour return line	N/A	
	<b>Ammonia</b> - Time required to cooldown cargo tanks from ambient temperature without vapour return line	N/A	

17.7	<b>VCM - Quantity of Coolant Required</b>	73	Tons
	<b>VCM - Time required to cooldown cargo tanks from ambient temperature without vapour return line</b>	3	Hours
	<b>VCM - Time required to cooldown cargo tanks from ambient temperature with vapour return line</b>	N/A	

**B18 LPG VAPORISER**

18.1	Type of Vaporiser	U-tubes, welded in tube plate	
18.2	Number of Vaporisers fitted	1	
18.3	Capacity per unit - <b>Propane</b>	3000	m3/h
18.4	Liquid Supply Rate	9.5	m3/h
18.5	Delivery Temperature	-42	degC
18.6	Capacity per unit - <b>Ammonia</b>	N/A	
18.7	Liquid Supply Rate	N/A	
18.8	Delivery Temperature	N/A	
18.9	Capacity per unit - <b>Nitrogen</b>	N/A	
18.10	Liquid Supply Rate	N/A	
18.11	Delivery Temperature	N/A	

**B19 BLOWER**

19.1	Type of Blower	
19.2	Rated Capacity	
19.3	Delivery Pressure	

**B20 CARGO RE-HEATER**

20.1	Type of Re-Heater	U-tubes, welded in tube plate	
20.2	Number Fitted	1	
20.3	Heating Medium	Seawater	
20.4	Discharge rates with sea water at 15 degrees C to raise product temperature of <b>Propane</b> from -42 degrees C to -5 degrees C	500	m3/h
20.5	Discharge rates with sea water at 15 degrees C to raise product temperature of <b>Ammonia</b> from -33 degrees C to 0 degrees C	N/A	

**B21 HYDRATE CONTROL**

21.1	Type of Depressant?	Ethanol	
21.1.1	Freezing point temperature?	-114	Deg. C
21.2	Quantity of Depressant Carried?	200	Ltr
21.3	Means of injection?	Portable Pump	
	Name any other system used	N/A	

**B22 CARGO MEASUREMENT**

**Level Gauges**

22.1	Are level gauges local or remote?	Local	
22.2	Name of manufacture	HSH BV	Kongsberg AS
22.3	Type	Float	Radar
22.4	Rated Accuracy	1	
22.5	Certifying Authority	SGS	

**Temperature Gauges**

22.6	Name of manufacture	Kongsberg Maritime AS	
22.7	Type	PT-100	
22.8	Rated Accuracy	0.1	
22.9	Certifying Authority	SGS	

<b>Pressure Gauges</b>		
22.10	Name of manufacture	Kongsberg Maritime Ship Systems AS
22.11	Type	GT402F3C6L00
22.12	Rated Accuracy	0.45 %
22.13	Certifying Authority	SGS

<b>Oxygen Analyser</b>		
22.14	Name of manufacture	Riken Keiki
22.15	Type	GX-8000E
22.15.1	What is the lowest level measurable?	0%

<b>Fixed Gas Analyser</b>		
22.16	Name of manufacture	Omicron
22.17	Type	OGS 3.11

<b>Cargo Tank Calibrations</b>		
22.18	Are Cargo tank calibration tables available?	Yes
22.19	Name of Measuring Company	SGS
22.20	Name of Certifying Authority	
22.21	Calibration calculated to cm?	No
22.21.1	Calibration calculated to 1/2 cm?	Yes
22.22	Tables established to cm?	No
22.22.1	Tables established to mm?	No
22.22.2	Tables established to "other" (state what other)	No
22.23	Are trim and list corrections available?	Yes
22.24	Are temperature corrections available?	Yes
22.25	Are float gauge tape corrections available?	Yes

**B23 CARGO SAMPLING**

23.1	May cargo samples be obtained from the levels; top, middle and bottom in all cargo tanks?	Yes
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If no, - the arrangement for sampling is limited to:

N/A
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23.2	Can samples be drawn from tank vapour outlet?	No
	Can samples be drawn from manifold liquid line?	No
	Can samples be drawn from manifold vapour line?	No
	Can samples be drawn from pump discharge line?	Yes
23.3	State sample connection type	Thread, female connection
	Size of sample connection	1/2"

**B24 CARGO MANIFOLD**

**Manifold arrangement diagram**

Center of manifold to bow  
Center of manifold to stern

96.40	m
83.90	m

**Liquid line L1**

Distance from bow  
Distance from stern  
Distance from manifold centerline  
Size and rating  
Type  
Height above uppermost continuous deck  
Distance from ship's side

92.65	m
87.65	m
3750	mm
DN300 / ANSI B16.5 Cl.300	
RF	
2150	mm
4125	mm

Height above load waterline	10.56	m
Height above light waterline	13.44	m
<b>Vapour line V1</b>		
Distance from bow	95.15	m
Distance from stern	85.15	m
Distance from manifold centerline	1250	mm
Size and rating	DN200 / ANSI B16.5 Cl.300	
Type	RF	
Height above uppermost continuous deck	2150	mm
Distance from ship's side	4125	mm
Height above load waterline	10.56	m
Height above light waterline	13.44	m
<b>Vapour line V2</b>		
Distance from bow	97.65	m
Distance from stern	82.65	m
Distance from manifold centerline	1250	mm
Size and rating	DN200 / ANSI B16.5 Cl.300	
Type	RF	
Height above uppermost continuous deck	2150	mm
Distance from ship's side	4125	mm
Height above load waterline	10.56	m
Height above light waterline	13.44	m
<b>Liquid line L2</b>		
Distance from bow	100.15	m
Distance from stern	80.15	m
Distance from manifold centerline	3750	mm
Size and rating	DN300 / ANSI B16.5 Cl.300	
Type	RF	
Height above uppermost continuous deck	2150	mm
Distance from ship's side	4125	mm
Height above load waterline	10.56	m
Height above light waterline	13.44	m
<b>Liquid line L3</b>		
Distance from bow	N/A	
Distance from stern		
Distance from manifold centerline		
Size and rating		
Type		
Height above uppermost continuous deck		
Distance from ship's side		
Height above load waterline		
Height above light waterline		
<b>Vapour line V3</b>		
Distance from bow	N/A	
Distance from stern		
Distance from manifold centerline		
Size and rating		
Type		
Height above uppermost continuous deck		
Distance from ship's side		
Height above load waterline		
Height above light waterline		
<b>Vapour line V4</b>		
Distance from bow	N/A	
Distance from stern		
Distance from manifold centerline		
Size and rating		
Type		
Height above uppermost continuous deck		
Distance from ship's side		
Height above load waterline		
Height above light waterline		

**Liquid line L4**

- Distance from bow
- Distance from stern
- Distance from manifold centerline
- Size and rating
- Type
- Height above uppermost continuous deck
- Distance from ship's side
- Height above load waterline
- Height above light waterline

N/A

**Nitrogen manifold**

- Distance from bow
- Distance from stern
- Distance from manifold centerline
- Size
- Height above uppermost continuous deck
- Distance from ship's side

N/A

**Manifold Arrangement Located on Top of Compressor**

- Distance from rail of compressor room/platform to presentation flanges
- Distance from deck of compressor room/platform/try to centre of manifold

N/A
N/A

**B25 CARGO MANIFOLD REDUCERS**

- 25.1 Number of ANSI Class 300 reducers carried onboard
- Flange rating of ANSI Class 300 reducer
- Size of ANSI Class 300 reducer
- Length of ANSI Class 300 reducer
- 25.2 Number of ANSI Class 300 to Class 150 reducers carried onboard
- Flange rating of ANSI Class 300 to Class 150 reducer
- Size of ANSI Class 300 to Class 150 reducer
- Length of ANSI Class 300 to Class 150 reducer
- 25.3 Number of ANSI Class 150 reducers carried onboard
- Flange rating of Class 150 reducer
- Size of ANSI Class 150 reducer
- Length of ANSI Class 150 reducer

10
DN 150 / DN 300
650
10
DN 150 / DN 300
650
0

mm

mm

**B26 CONNECTIONS TO SHORE FOR ESD AND COMMUNICATIONS SYSTEMS**

26.1	Is ESD connection to shore available?	Yes	
	If yes, is the system pneumatic?	No	
	If yes, is the system electrical?	Yes	
	If yes, is the system fiber optic?	Yes	
26.2	What is the type of connection used?	5-pin Plug	
26.3	Are ESD hoses or cables available on board?	Yes	
	If yes, length of pneumatic	N/A	
	If yes, length of electrical	30.00	m
	If yes, length of fiber optic	25.00	m
26.4	Is there a connection available for a telephone line?	Yes	
26.5	Are ESD connections available on both sides of vessel?	Yes	
	Are ESD Fusible plugs fitted at tank domes?	Yes	
	Are ESD Fusible plugs fitted at manifolds?	Yes	
	Is the link compatible with the SIGTTO guidelines?	Yes	
	Type of manifold valve	Butterfly	
	Closing time in seconds	26	Sec
	Is closing time adjustable?	Yes	
	Is Independent high level shut down system fitted(overflow control)?	Yes	
	If yes, does the independent high level shutdown system also switch off running cargo pumps?	Yes	
	Shut down level %	99.70	

**B27 MANIFOLD DERRICK/CRANE**

27.1	Is manifold derrick provided	No	
27.2	Is manifold crane provided	Yes	
27.3	Is lifting equipment same for port and starboard?	Yes	
	If no, then stipulate details	N/A	
27.4	State SWL at maximum outreach	6	MT
27.4.1	Maximum outreach of lifting equipment	11.70	M

**B28 STORES DERRICK/CRANE**

28.1	State location	Aft P+S/Side	
	SWL	2	MT

**B29 SISTER VESSEL(S)**

29.1	Name of vessel	JS Ineos Insight
		JS Ineos Intrepid
		JS Ineos Inspiration