INTERTANKO CHARTERING QUESTIONNAIRE 88 - OIL/CHEMICAL

1.	GENERAL INFORMATION			
1.1	Date updated:			
1.2	Vessel's name (IMO number):		Oralynn (9402677)	
1.3			Orarikke (Apr 24, 2014) Britta Theresa (Feb 05, 2010)	
1.4	Date delivered / Builder (where built):		Sep 18, 2008 / XI XIA KOU Shipyard, Rongchem - PR China	
1.5	Flag / Port of Registry:		Denmark / Svendborg	
1.6	Call sign / MMSI:		OZWA2 / 219030184	
1.7	Vessel's contact details (satcom/fax/er	mail etc.):	Tel: N/A	
			Fax: N/A	
			Email: oralynn@mhsimonsen.com	
1.8	Type of vessel (as described in Form <i>i</i> of the IOPPC):	A or Form B Q1.11	Chemical	
1.9	Type of hull:		Double Hull	
Owner	ship and Operation			
1.10	Registered owner - Full style:	Rederiet M. H. Simo Christiansmindevej Denmark Tel: +45 62203633 Fax: 0 Telex: 0 Email: mhs@mhsim Web: n/a	76 DK-5700 Svendborg	
1.11	Technical operator - Full style:	rederiet M. H. Simor Christiansmindevej Denmark Tel: +45 6220 3633 Fax: 0 Telex: 0 Email: mhs@mhsim Web: www.mhsimor Company IMO#: 174	76 DK-5700 Svendborg onsen.com isen.com	
1.12	Commercial operator - Full style:	Simonsen Chartering ApS Christiansmindevej 76 DK-5700 Svendborg Denmark Tel: +45 6220 2033 Fax: +45 6220 1033 Telex: 0 Email: sc@simchart.com Web: www.simchart.com		
1.13	Disponent owner - Full style:	Rederiet M.H. Simonsen Aps Christiansmindevej 76 DK-5700 Svendborg Denmark Tel: +45 6220 2033 Fax: - Telex: - Email: mhs@mhsimonsen.com Web: -		
Insura	nce			
1.14	P & I Club - Full Style:	BRITANNIA		
1.15	P & I Club pollution liability coverage /	expiration date:	1,000,000,000 US\$	
1.16	Hull & Machinery insured by - Full Style: (Specify broker or leading underwriter)	Fairwater		
1.17	Hull & Machinery insured value / expir	ation date:	9,000,000 US\$ (Euro)	
Classif	fication			

1.18	Classification society:			Bureau Veritas	
1.19	Class notation:				Chemical Tanker ESP, AVM-APS, AUT-UMS M-SHAFT, IG (SS), ICE-1C
1.20	Is the vessel subject to any conditions of class, class extensions, outstanding memorandums or class recommendations? If yes, give details:			No na	
1.21	If classification soo date of change:	ciety changed, name	of previous and	, Not Applicable	9
1.22	Does the vessel h	ave ice class? If yes	, state what level:	Yes, ICE-1C	
1.23	Date / place of las	t dry-dock:		Apr 04, 2022 /	Tallin
1.24	Date next dry docl	k due / next annual s	urvey due:		
1.25	Date of last specia	al survey / next speci	al survey due:		
1.26	If ship has Conditi the latest overall r	on Assessment Prog ating:	ram (CAP), what is	No,	
Dimen	sions				
1.27	Length overall (LC	DA):			103.00 m
1.28	Length between p	erpendiculars (LBP):			96.50 m
1.29	Extreme breadth (Beam):			16.00 m
1.30	Moulded depth:				8.70 m
1.31	Keel to masthead collapsed conditio	(KTM) / Keel to mas n, if applicable:	thead (KTM) in	28.30 m	0 m
1.32	Distance bridge fro	ont to center of mani	fold:		36.00 m
1.33	Bow to center manifold (BCM) / Stern to center manifold (SCM):			54.50 m	48.50 m
1.34	Parallel body dista	ances:	Lightship	Normal Ballast	Summer Dwt
	Forward to mid-po	int manifold:	35.00 m	37.00 m	42.00 m
	Aft to mid-point ma	anifold:	30.00 m	35.00 m	39.00 m
	Parallel body leng	th:	65 m	72 m	81 m
Tonna	ges				
1.35	Net Tonnage:				1,940.00
1.36	Gross Tonnage / F	Reduced Gross Tonr	nage (if applicable):	3,953.00	3,301
1.37	Suez Canal Tonna	age - Gross (SCGT)	/ Net (SCNT):	4,269.45	3,487.24
1.38	Panama Canal Ne	et Tonnage (PCNT):			0.00
Loadli	ne Information				
1.39	Loadline	Freeboard	Draft	Deadweight	Displacement
	Summer:	1.70 m	7.01 m	6,866 MT	9,130.30 MT
	Winter:	1.84 m	6.85 m	6,650 MT	8,897.00 MT
	Tropical:	1.55 m	7.15 m	6,943.00 MT	9,343.00 MT
	Lightship:	6.75 m	1.97 m	Not Applicable	2,244.10 MT
	Normal Ballast Condition:	4.73 m	4.00 m	2,814.00 MT	4,864.00 MT
	Segregated Ballast Condition:	4.73 m	4.00 m	2,814.00 MT	4,864.00 MT
1.40	FWA/TPC at sumr	mer draft:		153.00 mm	14.87 MT
1.41	Does vessel have all assigned loadling	multiple SDWT? If y nes:	es, please provide	No	
1.42	Constant (excludir	Constant (excluding fresh water):			100 MT

1.43	What is the company guidelines for Under Keel Clearance (UKC) for this vessel?		neters Confined/shallow water: 0,5 meters Pilot: bour: 0,5 meters
1.44	What is the max height of mast above waterline (air draft)	Full Mast	Collapsed Mast
	Summer deadweight:	21.29 m	0 m
	Normal ballast:	24.30 m	0 m
	Lightship:	26.33 m	0 m

2.	CERTIFICATES	Issued	Last Annual	Last Intermediate	Expires
2.1	Safety Equipment Certificate (SEC):				
2.2	Safety Radio Certificate (SRC):				
2.3	Safety Construction Certificate (SCC):				
2.4	International Loadline Certificate (ILC):				
2.5	International Oil Pollution Prevention Certificate (IOPPC):				
2.6	International Ship Security Certificate (ISSC):				
2.7	Maritime Labour Certificate (MLC):				
2.8	ISM Safety Management Certificate (SMC):				
2.9	Document of Compliance (DOC):				
2.10	USCG Certificate of Compliance (USCGCOC):				
2.11	Civil Liability Convention (CLC) 1992 Certificate:				
2.12	Civil Liability for Bunker Oil Pollution Damage Convention (CLBC) Certificate:				
2.13	Liability for the Removal of Wrecks Certificate (WRC):				

2.14	U.S. Certificate of Financial Responsibility (COFR):				
2.15	Certificate of Class (COC):				
2.16	International Sewage Pollution Prevention Certificate (ISPPC)				
2.17	Certificate of Fitness (COF):				
2.18	International Energy Efficiency Certificate (IEEC):				
2.19	International Air Pollution Prevention Certificate (IAPPC):				
Docun	nentation				
2.20	Owner warrant that vessel is memb remain so for the entire duration of this voyage/contract:	er of ITOPF and will	Yes		
2.21	Does vessel have in place a Drug a complying with OCIMF guidelines for Control of Drugs and Alcohol Or	-	Yes		
2.22	Is the ITF Special Agreement on bo	ard (if applicable)?		N/A	
2.23	ITF Blue Card expiry date (if applica	ble):			
	·				
3.	CREW				
3.1	Nationality of Master:		Polish		
3.2	Number and nationality of Officers:		6	Latvian, Polish	
3.3	Number and nationality of Crew:		5	Polish, Ukranian, Latvian	
3.4	What is the common working languation	age onboard:	English	·	
3.5	Do officers speak and understand E	nglish:	Yes		
3.6	If Officers/Crew employed by a Manning Agency - Full style: Crew:				
	Rederiet M. H. Simonsen				
4.	FOR USA CALLS				
4.1	Has the vessel Operator submitted a Vessel Spill Response Plan to the US Coast Guard which has been approved by official USCG letter?		N/A		
4.2	Qualified individual (QI) - Full style: Not Applicable n/a Tel: n/a Fax: n/a Telex: n/a Telex: n/a Web: n/a				
4.3	Oil Spill Response Organization (OSRO) - Full style: Not Applicable n/a Tel: n/a				

			Fax: n/a Telex: n/a Email: n/a		
4.4	Salvage and Marin Services (SMFF) -				
5.	SAFETY/HELICO	PTER			
5.1	Is the vessel operated under a Quality Management System? If Yes, what type of system? (ISO9001 or IMO Resolution A.741(18) as amended):			Yes IMO Resolution	n A.741 (18)
5.2	Can the ship comp	bly with the ICS He	elicopter Guidelines?	No	
5.2.1	If Yes, state wheth	er winching or lan	ding area provided:		
5.2.2	If Yes, what is the	diameter of the cir	rcle provided:	0.00 m	
	1				
6.	COATING/ANODE	ES			
	Coating				1
6.1	Tank Coating	Coated	Туре	To What Extent	Anodes
	Cargo tanks:	Yes	Marine Line 784	Whole Tank	No
	Ballast tanks:	Yes	Epoxy Kansai Super EX 21	Whole Tank	Yes
	Slop tanks:	Yes	Whole	Whole Tank	No
7.	BALLAST				1
7.1	Pumps:	No.	Туре	Capacity	At What Head (sg=1.0)
	Ballast Pumps:	2	Centrifugal	200 m3/hr	25 m
	Ballast Eductors:	1	CP 50-0,7	50 m3/hr	8 m
0	CARGO-OIL/CHE				
8. Doubl	CARGO-OIL/CHE	MICAL			
8.1			ead in all cargo tanks?	Yes, Solid	
Cargo	Tank Capacities				
8.2	Number of cargo ta	anks and total cub	ic capacity (98%):	12	6,666.94 m3
8.2.1		each natural segre	egation with double	Seg#2: 1062.5	27 m3 (Tanks 1ps/3ps/5ps.) m3 (Tanks 6p/s) i3 (Tanks 2ps/4ps.)
8.2.2	IMO class (Oil/Che	emical Ship Type 1	1, 2 or 3):	2	
8.3	Number of slop tar	nks and total cubic	capacity (98%):		111 m3
8.3.1	Specify segregatio their capacity with	ns which slops tar double valve:	nks belong to and		
8.3.2	Residual/Retention oil tank(s) capacity (98%), if applicable:				12.60 m3
SBT V	essels				
8.3.3	What is total SBT of vessel can maintai		entage of SDWT	2,507.10 m3	36.40 %
8.3.4	Does vessel meet Reg 18.2:	the requirements	of MARPOL Annex I	Yes	
Cargo	Handling and Pur	nping Systems			
8.4	How many grades/ with double valve s		sel load/discharge		3

8.4.1	State type of cargo containment (integral, independent, gravity or pressure tanks):				
8.5	Are there any cargo tank filling restrictions? If yes, specify number of slack tanks, max s.g., ullage restrictions etc.:	Yes Max filling 98%			
8.6	Max loading rate for homogenous cargo	With VECS	Without VECS		
	Loaded per manifold connection:	400 m3/hr	400 m3/hr		
	Loaded simultaneously through all manifolds:	800 m3/hr	800 m3/hr		
Cargo	Control Room		1		
8.7	Is ship fitted with a Cargo Control Room (CCR)?		Yes		
8.8	Can tank innage / ullage be read from the CCR?		Yes		
Gaugir	ng and Sampling	I			
8.9	Is gauging system certified and calibrated? If no, specify which ones are not calibrated:	Yes,			
	What type of gauging system as per IBC 13.1 is fitted (Open/Restricted/Closed)?	Closed			
	What type of fixed closed tank gauging system is fitted: Krohne Skorpenord Marine Tank Level Gauging; Enraf Tank System System				
	Is a tank overflow control system fitted? If yes, then state if system includes automatic closing of valves?:	e if Yes, No			
	Are overfill (high) alarms fitted? If Yes, indicate whether to all tanks or partial:	Yes, All			
8.9.1	Can cargo be transferred under closed loading conditions in accordance with ISGOTT 11.1.6.6?		Yes		
8.9.2	Are cargo tanks fitted with multipoint gauging? If yes, specify type and locations:	Yes,			
8.10	Number of portable gauging units (example- MMC) on board:				
Vapor	Emission Control System (VECS)				
8.11	Is a Vapour Emission Control System (VECS) fitted?	Yes			
8.12	Number/size of VECS manifolds (per side):	2	219 mm		
8.13	Number / size / type of VECS reducers:				
Ventin	9				
8.14	State what type of venting system is fitted:	P/V valves			
Cargo	Manifolds and Reducers				
8.15	Total number / size of cargo manifold connections on each side:	3 / 219 mm			
8.15.1	Does the vessel have a Common Line Manifold connection? If yes, describe:	n/a			
8.16	What type of valves are fitted at manifold:	Butterfly			
8.17	What is the material/rating of the manifold:	SS 316 L / ANS	SI		
8.17.1	Does vessel comply with the latest edition of the OCIMF 'Recommendations for Oil Tanker Manifolds and Associated Equipment'?	Yes			
8.18	Distance between cargo manifold centers:		800.00 mm		
8.19	Distance ships rail to manifold:	2,100.00 mr			
8.20	Distance manifold to ships side:		3,000.00 mm		
8.21	Top of rail to center of manifold:		2,550.00 mm		
8.22	Distance main deck to center of manifold:		2,000.00 mm		
8.23	Spill tank grating to center of manifold:		1,000.00 mm		
8.24	Manifold height above the waterline in normal ballast / at SDWT condition:	6.40 m	3.70 m		

8.25	Number / size / type of reducers:			7 x 150/200mm 6 x 100/200mm 1 x 200/250mm 1 x 300/200mm 1 x 200/200mm ANSI	n (4/8") n (8/10") n (12/8")
8.26	Is vessel fitted with	Is vessel fitted with a stern manifold? If yes, state size:			
Heatin	g				
8.27	Cargo / slop tanks f heating system?	fitted with a cargo	Туре	Coiled	Material
	Cargo tanks:		steam	Yes	SS
	Slop tanks:		heating coils	Yes	SS 316 L
8.27.1	Is a Thermal Oil He tanks?:	eating system fitted	? If yes, identify	No,	
8.28	Maximum temperat	ture cargo can be lo	oaded / maintained:	80.0 °C / 176.0 °F	80 °C / 176 °F
8.28.1	Minimum temperatu	ure cargo can be lo	aded / maintained:		
Inert G	as and Crude Oil W	Vashing			
8.29	Is an Inert Gas Sys	tem (IGS) fitted / or	perational?		Yes / Yes
8.29.1	Is a Crude Oil Wash operational?	hing (COW) installa	ition fitted /		No / N/A
8.30	Is IGS supplied by flue gas, inert gas (IG) generator and/or nitrogen:			Nitrogen Gener	rator
8.30.1	If nitrogen generator, specify the applicable flow rate for each of the designed purity modes:				
Cargo	Pumps				
8.31	How many cargo pu capacity:	umps can be run si	multaneously at full		2
8.32	Pumps:	No.	Туре	Capacity	At What Head (sg=1.0)
	Cargo Pumps:	3	Screw	500 M3/HR	110 Meters
	Cargo Eductors:			m3/hr	m
	Stripping:			m3/hr	m
8.33	Is at least one eme	rgency portable car	go pump provided?	No	
Tank C	Cleaning Systems			-	
8.34	Is tank cleaning equ	uipment fixed in car	go tanks?	Yes	
8.35	Is portable tank clea	aning equipment pr	ovided?	Yes	
8.36	Tank washing pump	p capacity:			56.00 m3/hr
8.37	Is a washing water and state max wash			Yes, 80.00 °C	
8.38	What is the maximu operated at their de			4	
Other	Deck Equipment				
8.39	Is vessel fitted with monitoring system.			Yes, Yes	
8.40	Is vessel fitted with a remote cargo tank pressure monitoring system. If yes, is it operational?			Yes, Yes	
8.41	Is vessel fitted with a cargo tank drier. If yes is it operational and state capacity:			No, N/A, m3/hr	
8.42	Is vessel fitted with operational and sta			No, No,	
8.43	Is steam available o	on deck?		Yes	
9.	MOORING				
J .					

9.1	Wires (on drums)	No.	Diameter	Material	Length	Breaking Strength
	Forecastle:	0	0 mm	0	0 m	0 MT
	Main deck fwd:	0	0 mm	0	0 m	0 MT
	Main deck aft:	0	0 mm	0	0 m	0 MT
	Poop deck:	0	0 mm	0	0 m	0 MT
9.2	Wire tails	No.	Diameter	Material	Length	Breaking Strength
	Forecastle:	0	0 mm	0	0 m	0 MT
	Main deck fwd:	0	0 mm		0 m	0 MT
	Main deck aft:	0	0 mm	0	0 m	0 MT
	Poop deck:	0	0 mm	0	0 m	0 MT
9.3	Ropes (on drums)	No.	Diameter	Material	Length	Breaking Strength
	Forecastle:	2	40.00 mm	PP/PE BI Constituentfiber	220.00 m	27.50 MT
	Main deck fwd:	2	48 mm	Tipto 12	220 m	38 MT
	Main deck aft:	2	48 mm	tipto 12	220 m	38 MT
	Poop deck:	2	40.00 mm	PP/PE BI Constituentfiber	220.00 m	27.50 MT
9.4	Other lines	No.	Diameter	Material	Length	Breaking Strength
	Forecastle:	3	40.00 mm	PP/PE BI Constituentfiber	220.00 m	27.50 MT
	Main deck fwd:	2	40.00 mm	POLYAMIDE	200.00 m	27.30 MT
	Main deck aft:		mm		m	MT
	Poop deck:	3	40.00 mm	PP/PE BI Constituentfiber	220.00 m	27.50 MT
9.5	Winches	No.	No. Drums	Motive Power	Brake Capacity	Type of Brake
	Forecastle:	2	Sgl	Electr	19.00 MT	drum
	Main deck fwd:				MT	
	Main deck aft:	2	Double Drums		55 MT	
	Poop deck:	2	Sgl	Electr	19.00 MT	drum
9.6	Bitts, closed chocks/fairle		No. Bitts	SWL Bitts	No. Closed Chocks	SWL Closed Chocks
	Forecastle:		6	25 MT	7	26 MT
	Main deck fv	vd:	2	25 MT		MT
	Main deck at	ft:	2	25 MT		MT
	Poop deck:		6	25 MT	9	26 MT
	ors/Emergend	-				
9.7			es on port / starboar			9/9
9.8			ergency Towing sys		n/a	MT
9.9	Type / SWL	of Em	ergency Towing sys	item aft:		MT

What is size of closed chock and/or fai type on stern:	irleads of enclosed		-
t Tug			
What is SWL of closed chock and/or fa type on stern:	airleads of enclosed		35.50 MT
What is SWL of bollard on poop deck s tug:	suitable for escort		25.50 MT
Equipment/Gangway		1	
Derrick / Crane description (Number, S	SWL and location):	Cranes: 1 x 1.0 center amidship	
Accommodation ladder direction:			
Does vessel have a portable gangway length:	? If yes, state	Yes	m
Point Mooring (SPM) Equipment			
edition of OCIMF 'Recommendations f	or Equipment		No
If fitted, how many chain stoppers:		0	
State type / SWL of chain stopper(s):		na	0 MT
What is the maximum size chain diame stopper(s) can handle:	eter the bow		0 mm
Distance between the bow fairlead and stopper/bracket:	d chain		0 m
		Yes	
PROPULSION			
Speed		Maximum	Economical
Ballast speed:		12 Kts	Kts (WSNP)
Laden speed:		11.50 Kts (WSNP)	Kts (WSNP)
What type of fuel is used for main prop plant:	oulsion / generating	IFO - 380	MDO
Type / Capacity of bunker tanks:		Fuel Oil: 308.24 Diesel Oil: 73.8 Gas Oil: 0 m3	
Is vessel fitted with fixed or controllable	e pitch propeller(s):	Controllable	
Engines	No	Capacity	Make/Type
Main engine:	1	Kw	
Aux engine:	3	Kw	
Power packs:		m3/hr	
Boilers:	2	5.70 MT/Hr	
tern Thruster			
What is brake horse power of bow thru	uster (if fitted):	Yes, 400.00 bh	q
-		No, 0 bhp	
What is brake horse power of stern thr	uster (if fitted):	1NO, 0 DHP	
What is brake horse power of stern thr ions	uster (if fitted):		
		Tier I	
ions	ard:	1	
	type on stern: Tug What is SWL of closed chock and/or fa type on stern: What is SWL of bollard on poop deck stug: Equipment/Gangway Derrick / Crane description (Number, S Accommodation ladder direction: Does vessel have a portable gangway length: Point Mooring (SPM) Equipment Does the vessel meet the recommend edition of OCIMF 'Recommendations f Employed in the Bow Mooring of Conv Single Point Moorings (SPM)'? If fitted, how many chain stoppers: State type / SWL of chain stopper(s): What is the maximum size chain diame stopper(s) can handle: Distance between the bow fairlead and stopper(s) can handle: Distance between the bow fairlead and stopper/bracket: Is bow chock and/or fairlead of enclose recommended size (600mm x 450mm) of size: PROPULSION Speed Ballast speed: Laden speed: What type of fuel is used for main prop plant: Type / Capacity of bunker tanks: Is vessel fitted with fixed or controllable Engines Main engine: Aux engine: Power packs: Boilers: tern Thruster	Tug What is SWL of closed chock and/or fairleads of enclosed type on stern: What is SWL of bollard on poop deck suitable for escort tug: Equipment/Gangway Derrick / Crane description (Number, SWL and location): Accommodation ladder direction: Does vessel have a portable gangway? If yes, state length: Point Mooring (SPM) Equipment Does the vessel meet the recommendations in the latest edition of OCIMF "Recommendations for Equipment Employed in the Bow Mooring of Conventional Tankers at Single Point Moorings (SPM)'? If fitted, how many chain stoppers: State type / SWL of chain stopper(s): What is the maximum size chain diameter the bow stopper(s) can handle: Distance between the bow fairlead and chain stopper/bracket: Is bow chock and/or fairlead of enclosed type of OCIMF recommended size (600mm x 450mm)? If not, give details of size: PROPULSION Speed Ballast speed: Laden speed: What type of fuel is used for main propulsion / generating plant: Type / Capacity of bunker tanks: Is vessel fitted with fixed or controllable pitch propeller(s): Engines No Main engine: 1 Aux engine: 2 Power packs: 2 <	type on stern: Tug What is SWL of closed chock and/or fairleads of enclosed type on stern: What is SWL of bollard on poop deck suitable for escort tig: Equipment/Gangway Derrick / Crane description (Number, SWL and location): Cranes: 1 x 1.0 center amidshi Accommodation ladder direction: Point Mooring (SPM) Equipment Does vessel have a portable gangway? If yes, state length: Yes Point Mooring (SPM) Equipment Yes Does the vessel meet the recommendations in the latest edition of OCIMF Recommendations for Equipment Employed in the Bow Mooring of Conventional Tankers at Single Point Moorings (SPM)? 0 If fitted, how many chain stoppers: 0 State type / SWL of chain stopper(s): na What is the maximum size chain diameter the bow stopper/shracket: Is bow chock and/or fairlead of enclosed type of OCIMF recommended size (600mm x 450mm)? If not, give details of size: Yes PROPULSION Speed Maximum Ballast speed: 12 Kts (WSNP) Laden speed: Type / Capacity of bunker tanks: Fuel Oit: 308.2 Dises Oit: 308.2 Dits or 30.5 Controllable Fuel Oit:

11.1	Does vessel comply with recommendations contained in OCIMF/ICS Ship To Ship Transfer Guide (Petroleum, Chemicals or Liquified Gas, as applicable)?	Yes
11.2	What is maximum outreach of cranes / derricks outboard of the ship's side:	5.00 m
11.3	Date/place of last STS operation:	n/a
12.	RECENT OPERATIONAL HISTORY	
12.1	Last three cargoes / charterers / voyages (Last / 2nd Last / 3rd Last):	
12.2	Has vessel been involved in a pollution, grounding, serious casualty or collision incident during the past 12 months? If yes, full description:	Pollution: No, na Grounding: No, na Casualty: No, n/a Repair: No, na Collision: No, na
12.3	Date and place of last Port State Control inspection:	
12.4	Any outstanding deficiencies as reported by any Port State Control? If yes, provide details:	No
12.5	Recent Oil company inspections/screenings (To the best of owners knowledge and without guarantee of acceptance for future business)*: *"Approvals" are not given by Oil Majors and ships are accepted for the voyage on a case by case basis.	CONOCOPHILLIPS
12.6	Date / place of last SIRE inspection:	
12.6.1	Date / place of last CDI inspection:	
12.7	Additional information relating to features of the ship or operational characteristics:	na