

OIL CONDITION MONITORING REPORT SLNS SAGARA

ENGINE PARTICULARS (Information provided by the customer)		
	Port Main Engine	Stbd Main Engine
Make :	SEMI PIELSTICK	
Model :	16 PA 6V 280	
Sr. No's:	742002/8806	742002/8807
Date sampling :	25 Jun 25	
Sampling point :	Sump	
Sampling Method :	Draining	
Type of Lubricant :	Shell Gadinia S3 40	
System Capacity :	1420 Ltrs	

RUNNING HRS DETAILS (Information provided by the customer)		
	Port Main Engine	Stbd Main Engine
Sample ID	M010369	M010370
Oil Running Hours	634.40	495.53
AMORH	634.40	495.53
Total Running Hours of the Machinery	29504.20	29483.53

ANALYSIS RESULTS

Description	Method	Fresh Oil (As per OEM data sheet)	Uncertainty (K=2)	Port Main Engine (S/I-M010369)	Stbd Main Engine (S/I-M010370)
Viscosity @ 40°C (cSt)	ASTM D445	128.00	0.006	103.77	104.04
Viscosity @ 100°C (cSt)		13.70	0.005	11.71	12.45
Viscosity Index	ASTM D2270	103	N/A	100.58	112.176
Flash Point (°C)	ASTMD 92	230	0.082	200	206

Elemental Concentration as per ASTM D5185 (ppm)

Element	Maximum Permissible Limit	Uncertainty (K=2)	Fresh Oil Sample	Port Main Engine (S/I-M010369)	Stbd Main Engine (S/I-M010370)
Fe	80	0.15	< 1.000	13.773	18.468
Cr	10	0.18	< 1.000	< 1.000	< 1.000
Si	15	0.17	< 1.000	< 1.000	< 1.000
Al	20	0.28	< 1.000	2.161	2.373
Pb	20	0.13	< 1.000	2.242	1.802
Cu	25	0.17	< 1.000	8.550	5.886
Sn	10	0.20	< 1.000	2.208	1.395
Ni	10	0.08	< 1.000	< 1.000	< 1.000

TREND ANALYSIS WITH PREVIOUS REPORTS

	Fresh Oil Sample	Port Main Engine													
		S/I-M000151	S/I-M000246	S/I-M000329	S/I-M000473	S/I-M000577	S/I-M001351	S/I-M001701	S/I-M001945	S/I-M002641	S/I-M003355	S/I-M003765	S/I-M005072	S/I-M005961	
Oil Running Hrs	-	1536.58	306.20	479.50	716.45	867.15	1507.20	433.45	471.50	967.17	1212.50	250.00	456.10	502.05	
T/R/H of Machinery	-	25580.05	25886.25	26059.55	26296.50	26447.20	27087.20	27471.50	27559.55	28055.20	28300.15	28550.15	28756.25	28,802.20	
Basic Properties															
Viscosity @ 40°C (cSt)	128.00	133.00	113.95	129.96	119.84	117.61	111.82	126.52	122.47	111.19	91.14	111.26	101.39	99.17	
Viscosity @ 100°C (cSt)	13.70	15.31	12.33	13.86	13.20	13.36	13.05	13.25	13.32	12.46	10.34	12.24	11.56	11.69	
Viscosity Index	103	N/A	N/A	N/A	104.53	109.28	111.58	98.58	103.45	103.38	93.64	99.94	101.17	106.33	
Total Base No. mgKOH/g	10.48*	N/A	N/A	N/A	10.85	10.43	9.44	10.21	10.04	9.34	8.57	9.47	8.17	N/C	
Water content %	< 0.2	N/A	N/A	N/A	< 0.1	< 0.1	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.1	N/C	
Flash Point (°C)	230	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	175	195	190	N/C	
Elemental Concentration as per ASTM D5185 (ppm)															
Element	Max. Permissible Limit														
Fe	80	< 1.000	12.924	5.024	5.928	4.027	5.814	8.267	7.062	8.222	12.483	8.608	3.330	7.927	6.306
Cr	10	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
Si	15	< 1.000	4.069	4.798	4.941	3.388	3.185	< 1.000	3.998	5.322	2.000	2.639	< 1.000	< 1.000	10.340
Al	20	< 1.000	1.896	2.870	2.190	< 1.000	< 1.000	2.051	< 1.000	1.728	2.187	3.221	2.625	< 1.000	8.013
Pb	20	< 1.000	< 1.000	1.460	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	2.092	< 1.000	< 1.000	< 1.000
Cu	25	< 1.000	10.988	2.082	1.945	1.286	1.816	2.503	2.058	3.374	5.149	3.102	< 1.000	2.510	3.104
Sn	10	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000

	Fresh Oil Sample	Port Main Engine									
		S/I-M006707	S/I-M007355 (after MOH)	S/I-M007783	S/I-M008078	S/I-M009085	S/I-M009144	S/I-M009612	S/I-M009801	S/I-M010369	
Oil Running Hrs	-	552.05	08.00	37.55	89.70	127.15	162.05	500.00	604.05	634.40	
T/R/H of Machinery	-	28852.20	28,877.20	28907.25	28959.30	29007.05	29033.35	29366.55	29473.45	29504.20	
Basic Properties											
Viscosity @ 40°C (cSt)	128.00	97.69	125.96	120.68	118.46	115.82	115.10	105.44	102.95	103.77	
Viscosity @ 100°C (cSt)	13.37	11.24	13.45	13.32	13.21	13.06	12.90	11.74	11.49	11.71	
Viscosity Index	103	100.71	101.55	110.67	100.98	107.03	105.45	99.08	98.16	100.58	
Total Base No. mgKOH/g	10.48*	N/C	10.30	10.38	N/C	10.12	10.02	9.71	N/C	N/C	
Water content %	< 0.2	N/C	< 0.1	N/C	N/C	< 0.1	< 0.1	< 0.1	N/C	N/C	
Flash Point (°C)	230	N/C	220	210	N/C	208	210	208	185	200	
Elemental Concentration as per ASTM D5185 (ppm)											
Element	Max. Permissible Limit										
Fe	80	< 1.000	3.365	5.587	8.363	4.398	17.138	32.701	21.139	14.905	13.773
Cr	10	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
Si	15	< 1.000	3.843	1.263	7.620	4.091	4.177	< 1.000	4.683	3.272	< 1.000
Al	20	< 1.000	1.235	1.198	1.604	< 1.000	1.767	3.823	1.998	1.576	2.161
Pb	20	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	1.501	2.600	4.893	1.628	2.242
Cu	25	< 1.000	1.722	3.281	6.080	2.280	4.780	6.055	4.077	3.998	8.550
Sn	10	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	1.856	1.305	2.208
Ni	10	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	N/C	< 1.000	< 1.000	< 1.000	< 1.000

	Fresh Oil Sample	Stbd Main Engine														S/I-M005962
		S/I-M000152	S/I-M000247	S/I-M000330	S/I-M000474	S/I-M000578	S/I-M000758	S/I-M001352	S/I-M001702	S/I-M001946	S/I-M002083	S/I-M002642	S/I-M003356	S/I-M003766	S/I-M004613	
Oil Running Hrs	-	1514.49	355.00	494.40	726.55	886.50	1101.30	1520.20	381.25	495.50	668.42	994.35	1199.05	250.00	500.00	577.00
T/R/H of Machinery	-	25518.20	25873.20	26013.00	26247.20	26407.15	26618.50	27037.20	27469.15	27533.55	27730.45	28032.40	28236.50	28486.50	28736.50	28813.50
Basic Properties																
Viscosity @ 40°C (cSt)	128.00	104.98	110.27	108.94	93.96	112.23	105.90	106.22	117.76	116.86	112.97	108.99	91.53	104.49	106.58	84.19
Viscosity @ 100°C (cSt)	13.70	12.77	12.01	12.60	11.37	13.34	12.38	12.57	12.90	13.03	12.83	12.36	10.66	11.88	11.89	10.68
Viscosity Index	103	N/A	N/A	N/A	109.03	115.32	108.60	111.203	102.5	105.42	106.85	104.44	99.16	102.93	99.98	111.27
Total Base No. mgKOH/g	10.48*	N/A	N/A	N/A	10.64	10.15	10.02	9.68	10.11	9.82	8.23	9.69	8.72	9.85	8.74	N/C
Water content %	< 0.2	N/A	N/A	N/A	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.1	N/C
Flash Point (°C)	230	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	180	195	190	N/C

Elemental Concentration as per ASTM D5185 (ppm)

Element	Max. Permissible Limit																
Fe	80	< 1.000	13.278	6.667	7.768	5.879	7.585	10.830	7.152	5.617	3.622	4.898	9.354	13.005	3.583	2.128	10.187
Cr	10	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
Si	15	< 1.000	4.042	4.566	4.003	3.115	4.395	6.383	< 1.000	4.256	4.334	< 1.000	< 1.000	1.860	< 1.000	< 1.000	9.825
Al	20	< 1.000	1.421	2.070	2.500	< 1.000	1.721	1.852	1.234	1.107	1.191	1.447	1.768	3.453	2.248	< 1.000	7.589
Pb	20	< 1.000	1.015	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	1.993	< 1.000	1.280	< 1.000	< 1.000	< 1.000
Cu	25	< 1.000	19.906	3.831	4.581	3.380	3.102	4.335	3.039	1.885	2.361	3.281	5.772	4.219	< 1.000	1.026	3.663
Sn	10	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000

	Fresh Oil Sample	Stbd Main Engine								S/I-M010370
		S/I-M006708	S/I-M007356	S/I-M007784 (after MOH)	S/I-M008078	S/I-M009086	S/I-M009145	S/I-M009613	S/I-M010370	
Oil Running Hrs	-	677.00	701.50	28.45	80.10	124.15	159.03	500.00	495.53	
T/R/H of Machinery	-	28863.50	28,888.20	28917.25	28891.10	29012.55	29058.05	29384.33	29483.53	
Basic Properties										
Viscosity @ 40°C (cSt)	128.00	106.61	102.98	119.74	118.36	117.28	116.30	106.15	104.04	
Viscosity @ 100°C (cSt)	13.70	11.79	12.01	13.47	13.13	13.10	13.02	12.38	12.45	
Viscosity Index	103	98.52	102.36	108.48	101.41	105.98	105.89	108.28	112.176	
Total Base No. mgKOH/g	10.48*	N/C	N/C	10.14	N/C	10.02	10.05	9.54	N/C	
Water content %	< 0.2	N/C	N/C	< 0.1	N/C	< 0.1	< 0.1	< 0.1	N/C	
Flash Point (°C)	230	N/C	180	210	N/C	208	208	206	206	

Elemental Concentration as per ASTM D5185 (ppm)

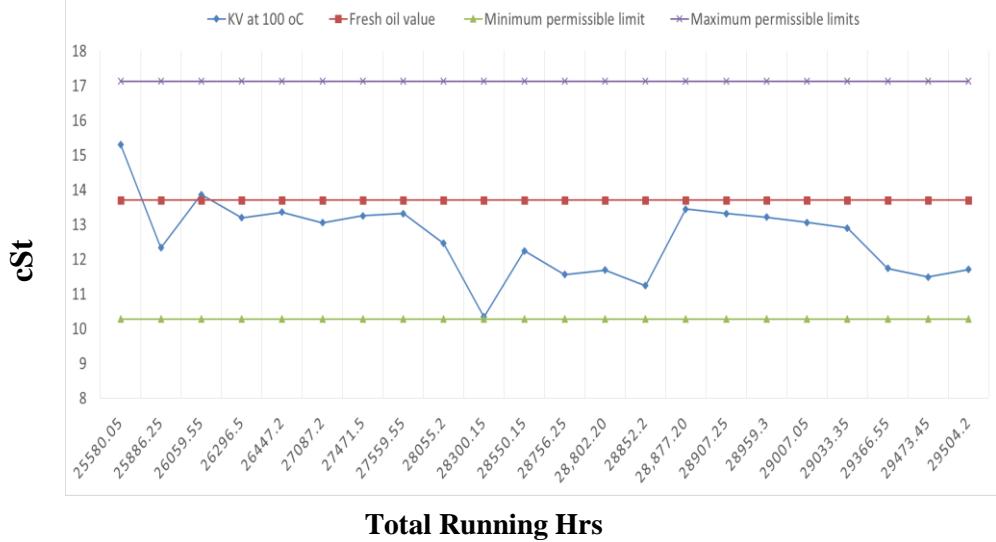
Element	Max. Permissible Limit									
Fe	80	< 1.000	6.944	8.346	8.121	6.639	15.958	36.200	22.759	18.468
Cr	10	< 1.000	< 1.000	< 1.000	< 1.000	2.021	< 1.000	< 1.000	< 1.000	< 1.000
Si	15	< 1.000	5.599	1.179	6.993	4.735	2.376	1.883	3.347	< 1.000
Al	20	< 1.000	1.485	1.195	1.195	< 1.000	1.645	1.833	2.314	2.373
Pb	20	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	1.630	2.239	2.741	1.802
Cu	25	< 1.000	1.466	< 1.000	3.387	< 1.000	4.861	3.461	4.618	5.886
Sn	10	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	1.957	1.395
Ni	10	< 1.000	< 1.000	< 1.000	< 1.000	N/C	< 1.000	< 1.000	< 1.000	< 1.000

N/C-Not Conducted

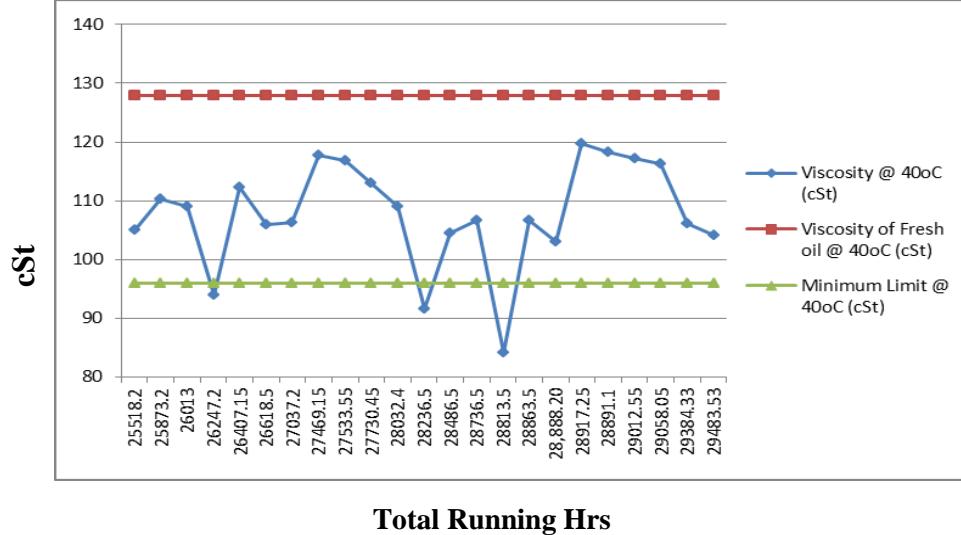
Viscosity Port M/E AT 40 °C



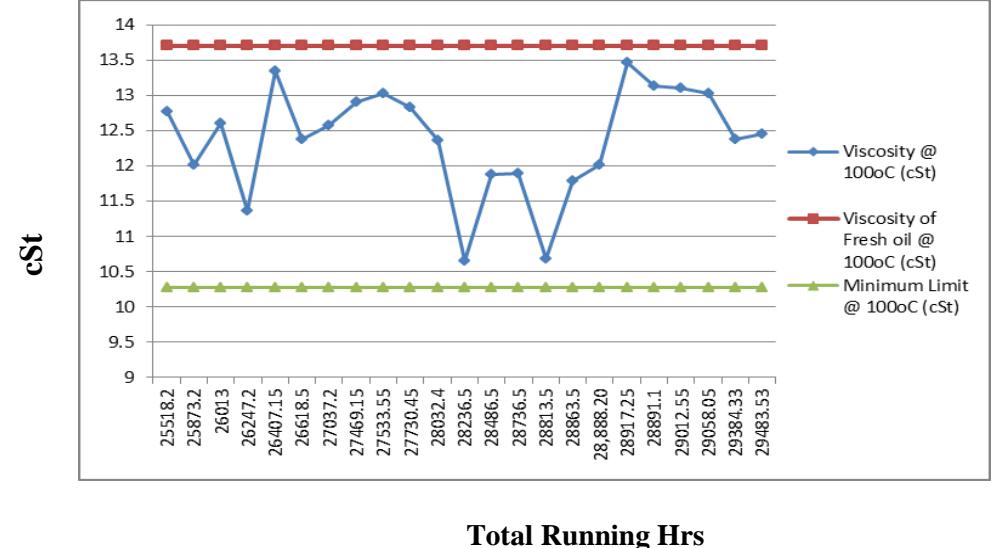
AT 100 °C



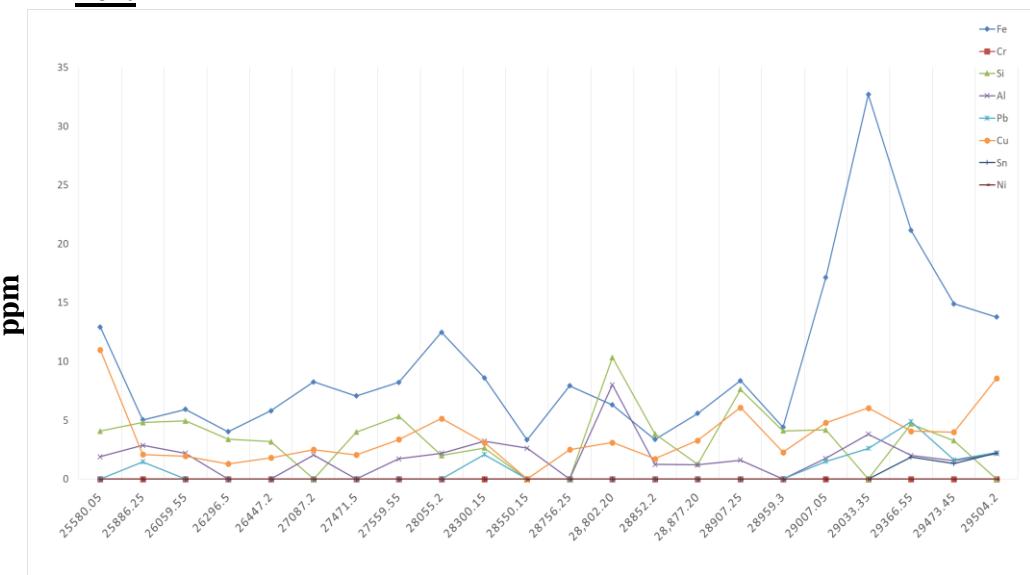
Viscosity Stbd M/E AT 40 °C



AT 100 °C

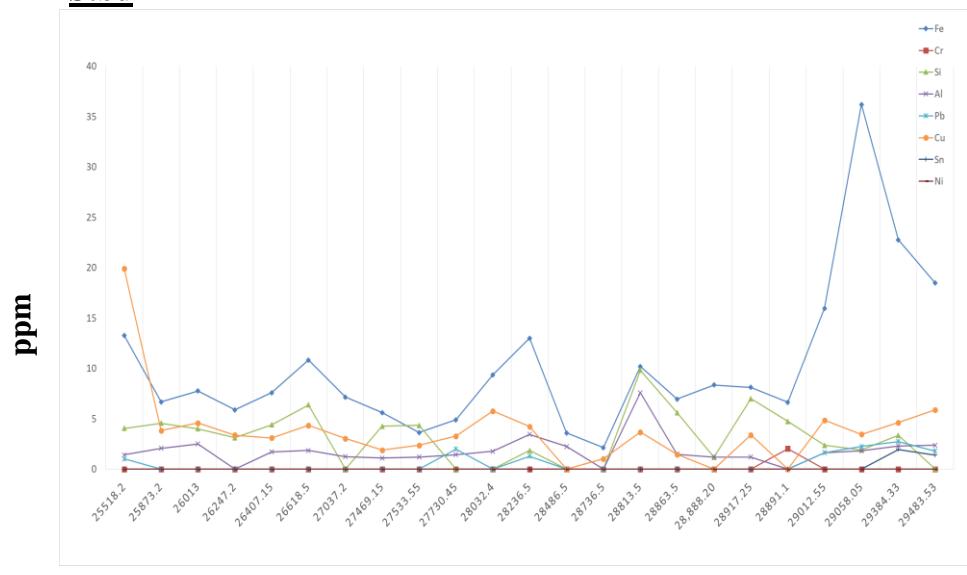


Wear Metals Port



Total Running Hrs

Stbd



Total Running Hrs