

OIL CONDITION MONITORING REPORT

ENGINE PARTICULARS (Information provided by the customer)		
	Port Main Engine	Stbd Main Engine
Make:		MAN
Model:		B&W CXZ 8L20/27
Sr. No's:	10463	10464
Date sampling:	12 Aug 25	16 Aug 25
Sampling point:	Before Lub oil filter	
Sampling Method:	Extraction	
Type of Lubricant :	Shell Gaduria S3 40	
System Capacity:	210 Ltrs	

RUNNING HRS DETAILS (Information provided by the customer)		
	Port Main Engine	Stbd Main Engine
Sample ID	M010660	M010661
Oil Running Hours	100.00	500.25
After Major Overhaul Running Hours	8726.35	2011.25
Total Running Hours of the Machinery	29230.20	29052.05

ANALYSIS RESULTS

Description	Method	Fresh Oil (As per OEM datasheet)	Uncertainty (K=2)	Port Main Engine	Stbd Main Engine
				M010660	M010661
Viscosity@40°C (cSt)	ASTMD445	128.0	0.006	138.48	136.93
Viscosity@100°C (cSt)		13.70	0.005	15.30	15.73
Viscosity Index	ASTMD2270	103	N/A	113.20	119.89
Water content %	ASTM D95	< 0.2	0.082	< 0.1	< 0.1

Elemental Concentration as per ASTM D 5185 (ppm)

Element	Maximum Permissible Limit	Fresh Oil Sample	Uncertainty (K=2)	Port Main Engine	Stbd Main Engine
				M010660	M010661
Fe	80	<1.000	0.15	5.114	5.895
Cr	10	<1.000	0.18	<1.000	1.126
Si	15	<1.000	0.17	<1.000	<1.000
Al	20	<1.000	0.28	1.762	<1.000
Pb	20	<1.000	0.13	<1.000	<1.000
Cu	25	<1.000	0.17	3.195	11.200
Sn	10	<1.000	0.20	<1.000	<1.000
Ni	10	<1.000	0.08	<1.000	<1.000

TREND ANALYSIS WITH PREVIOUS REPORTS

	Fresh Oil Sample	Port Main Engine														
		S/I-M000019	S/I-M000386	S/I-M000386	S/I-M001659	S/I-M002460	S/I-M002848	S/I-M002957	S/I-M003360	S/I-M003944	S/I-M004538	S/I-M004656	S/I-M005158	S/I-M005231	S/I-M005261	S/I-M005886
Oil Running Hrs	-	134.25	139.00	102.30	500.05	242.15	485.05	94.35	476.15	436.45	490.40	145.15	252.35	298.55	298.55	06.50
T/R/H of Machinery	-	22240.35	23004.40	23950.30	24856.10	25102	25344.50	25453.55	25976.55	26440.30	26988.40	27133.55	27241.15	27287.35	27287.35	27294.55
Basic Properties																
Viscosity@40°C (cSt)	104.05	N/C	N/C	98.01	98.13	96.02	95.00	97.11	102.99	102.60	101.98	95.83	102.05	100.47	100.14	93.22
Viscosity@100°C (cSt)	11.5	N/C	N/C	11.04	11.23	11.15	11.41	11.59	11.40	11.66	11.31	10.81	11.8	11.54	11.99	11.25
Viscosity Index	97	N/C	N/C	97.07	99.94	101.47	107.46	107.52	101.54	101.25	101.98	96.00	104.27	102.05	109.98	107.28
Total Base No.(mgKOH/g)	7.85	N/C	N/C	7.37	5.82	N/C	N/C	6.45	N/C							
Water content(%)	<0.2	N/C	N/C	<0.1	<0.1	N/C	N/C	<0.1	N/C							
Flash Point(°C)	240	N/C	N/C	214	N/C	N/C	N/C	200	N/C	N/C	N/C	N/C	N/C	0.7	N/C	N/C

Elemental Concentration as per ASTM D5185(ppm)

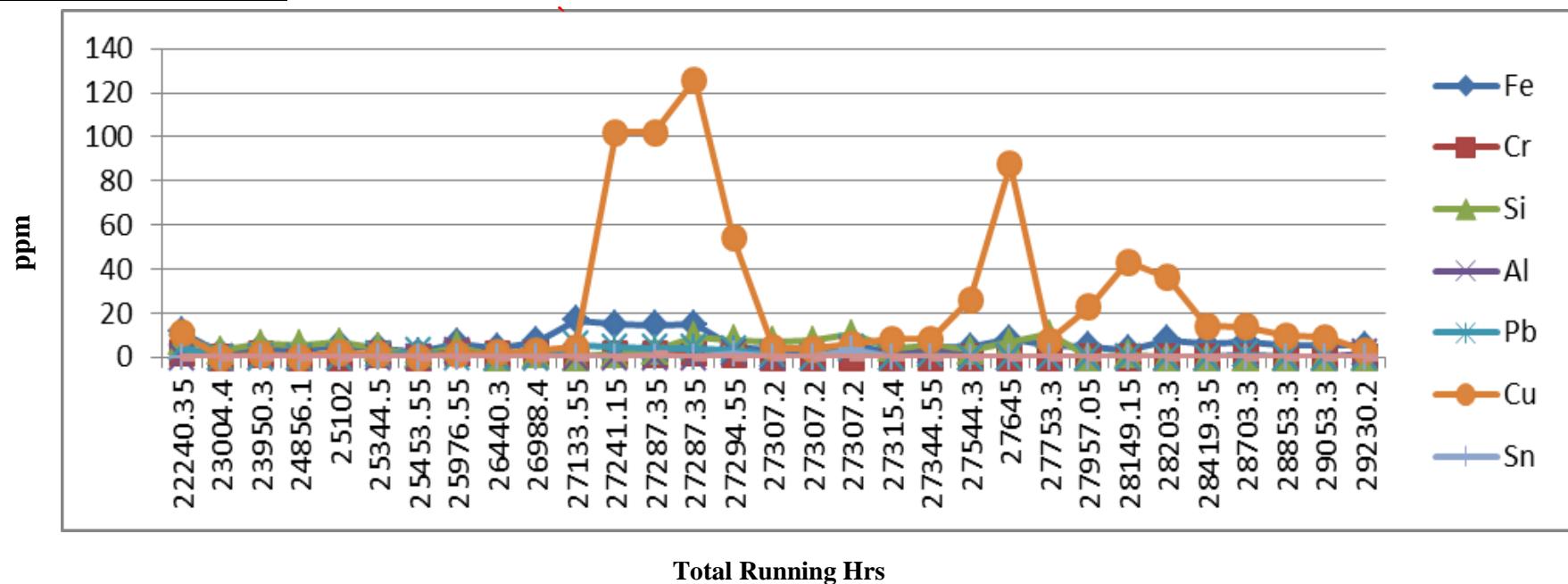
Element	Max. Permissible Limit	Test Results (ppm)															
		Fe	Cr	Si	Al	Pb	Cu	Sn	Ni								
Fe	80	< 1.000	11.620	1.890	4.232	3.310	5.607	3.973	2.182	6.431	4.011	7.056	16.908	14.886	14.573	15.115	4.910
Cr	10	< 1.000	2.289	<1.000	1.139	<1.000	<1.000	1.150	<1.000	1.888	1.066	1.582	<1.000	1.350	1.662	1.904	1.599
Si	15	< 1.000	7.571	2.963	5.912	5.456	6.665	4.169	1.234	4.805	<1.000	1.257	<1.000	1.722	2.939	9.534	7.922
Al	20	< 1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	2.542	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	2.010
Pb	20	< 1.000	4.379	<1.000	<1.000	<1.000	<1.000	1.069	2.551	<1.000	<1.000	<1.000	5.522	4.407	4.247	4.313	3.576
Cu	25	< 1.000	10.739	<1.000	1.224	<1.000	2.297	1.327	<1.000	1.575	1.994	2.874	4.436	101.892	102.153	125.877	53.931
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	1.554
Ni	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	1.325	N/C	N/C

Basic Properties

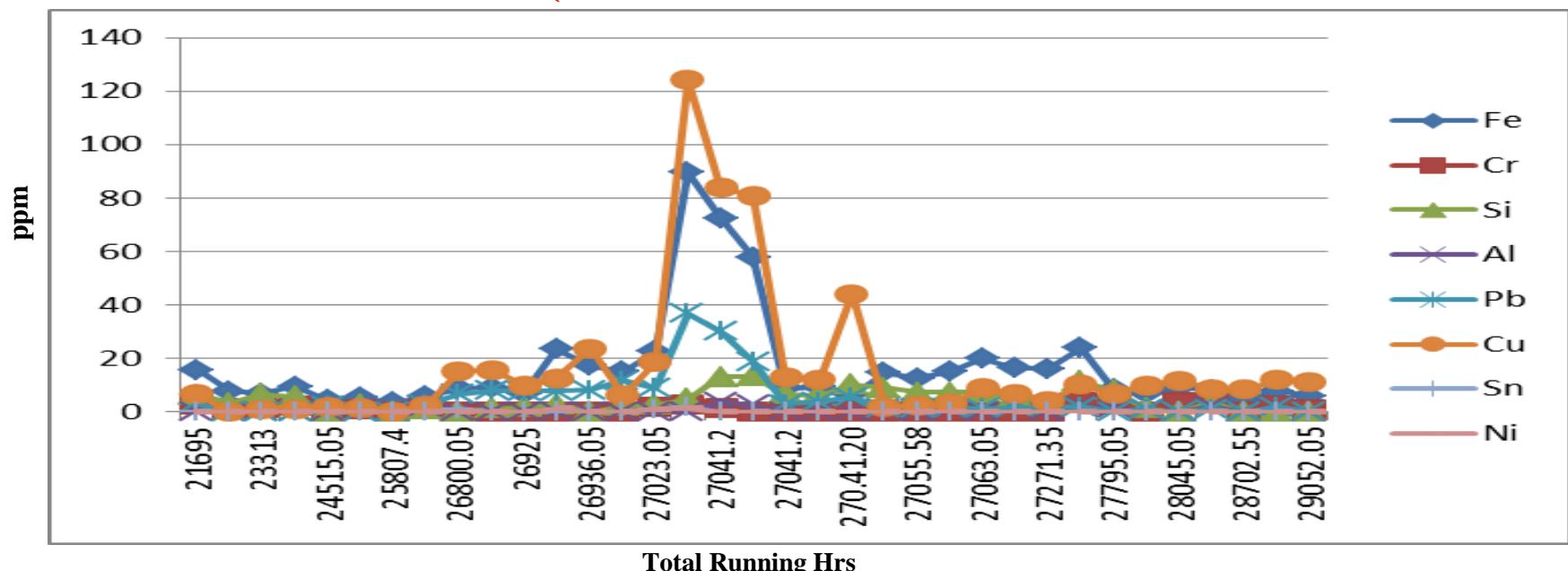
Elemental Concentration as per ASTM D5185 (ppm)

Stbd Main Engine																				
	F. Oil Sample	S/I-M000020	S/I-M000387	S/I-M000924	S/I-M001660	S/I-M002461	S/I-M002688	S/I-M003268	S/I-M003943	S/I-M004539	S/I-M004598	S/I-M004599	S/I-M004600	S/I-M004657	S/I-M004706	S/I-M005159	S/I-M005224	S/I-M005887	S/I-M005888	
Oil Running Hrs	-	223.10	262.20	115.25	506.05	126.20	54.24	422.35	498.00	484.55	122.55	02.05	00.45	10.00	34.15	97.00	114.30	00.45	00.45	
T/R/H of Machinery	-	21695	22480	23313	24295	24515.05	24703.20	25807.40	26307.25	26800.05	26923.00	26925.0	26925.50	26936.05	26960.20	27023.05	27040.35	27041.20	27041.20	
Basic Properties																				
Viscosity@40°C (cSt)	104.05	N/C	N/C	98.87	101.74	94.24	97.08	104.47	106.12	98.67	96.57	60.45	99.45	97.41	98.51	103.46	104.24	103.16	95.09	
Viscosity@100°C (cSt)	11.5	N/C	N/C	11.63	11.31	11.02	10.85	12.20	11.78	10.94	11.78	10.26	11.65	10.94	11.51	11.21	11.38	12.07	11.49	
Viscosity Index	97	N/C	N/C	105.72	96.82	101.71	95.05	107.66	98.91	94.54	111.55	158.40	105.27	96.16	96.59	93.12	94.94	107.27	108.69	
Total Base No.(mgKOH/g)	7.85	N/C	N/C	7.22	6.14	N/C	5.77	6.02	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
Water content (%)	< 0.2	N/C	N/C	< 0.1	< 0.1	N/C	< 0.1	< 0.1	N/C	N/C	N/C	0.2	N/C	N/C	N/C	N/C	1.20	0.3	0.4	
Flash Point (°C)	240	N/C	N/C	212	N/C	N/C	195	180	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C		
Element	Max. Permissible Limit																			
Fe	80	<1.000	15.732	7.684	6.791	9.471	4.361	5.237	3.451	5.856	8.963	9.205	6.869	23.606	17.284	15.123	22.693	89.557	72.525	57.928
Cr	10	<1.000	2.703	1.379	1.366	2.176	<1.000	1.074	<1.000	1.308	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.879	2.984	1.255	<1.000
Si	15	<1.000	6.486	3.448	6.629	5.815	<1.000	2.941	<1.000	1.026	<1.000	1.433	1.846	2.808	<1.000	2.139	2.739	4.953	13.108	13.316
Al	20	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	2.092	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	3.817	2.574	
Pb	20	<1.000	3.220	<1.000	<1.000	<1.000	2.168	<1.000	<1.000	2.851	6.560	8.096	7.842	7.805	8.129	11.704	8.871	36.933	30.155	18.763
Cu	25	<1.000	6.670	<1.000	1.229	1.098	1.835	1.545	<1.000	2.527	15.055	15.810	9.988	12.560	23.850	6.208	18.560	124.286	83.866	81.045
Sn	10	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	<1.000	1.027	<1.000	<1.000	<1.000	<1.000	1.162	1.754	<1.000	<1.000	
Ni	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	1.111	1.325	N/C	N/C	

Wear Metals (Port M/E)

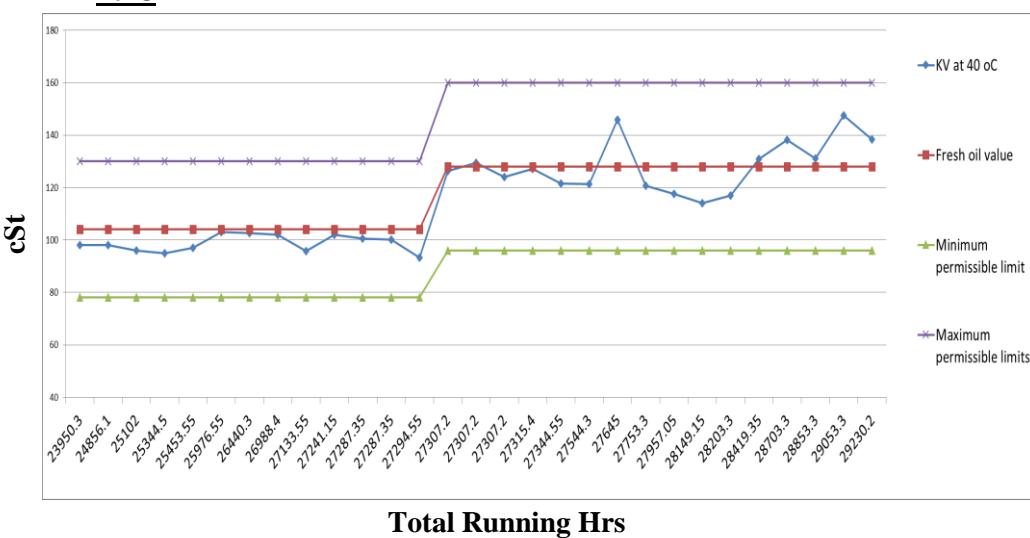


Wear Metals (Stbd M/E)



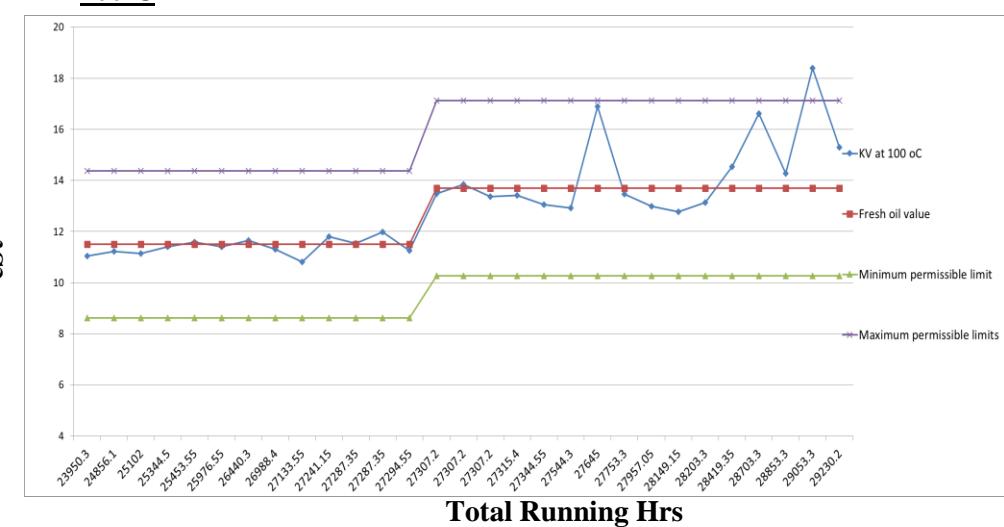
Viscosity (Port M/E)

40°C



Total Running Hrs

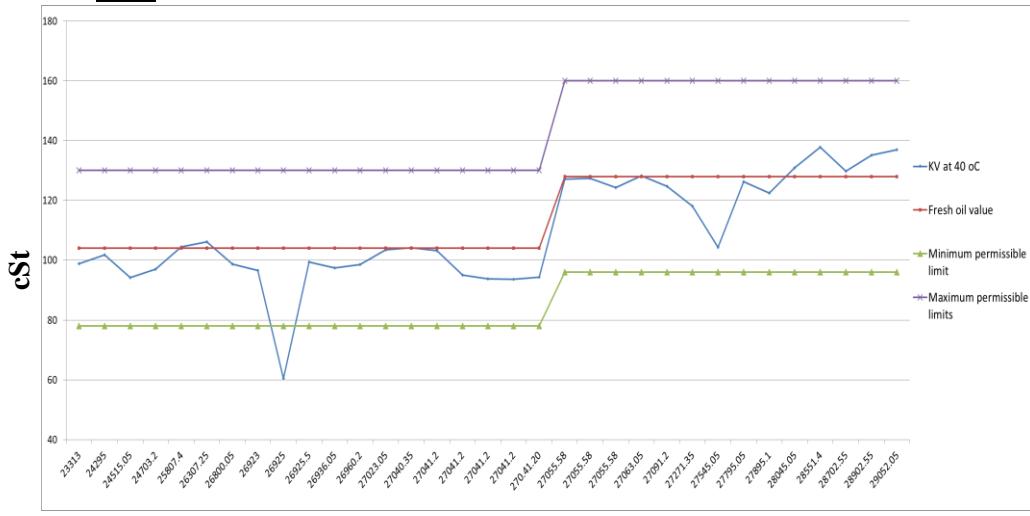
100°C



Total Running Hrs

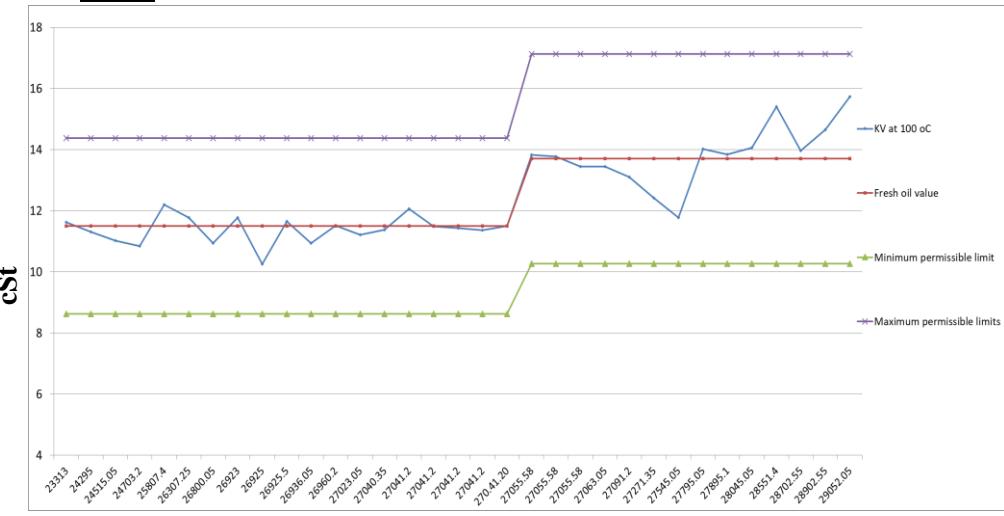
Viscosity (Stbd M/E)

40°C



Total Running Hrs

100°C



Total Running Hrs