Gulf Marine

Lubricant Condition — Normal

Equipment Information

Company Name	UNION MARITIME LTD	**Equipment Make**	KEMEL
Vessel Name	CAPE SARINA	**Equipment Model**	DX-750
IMO Number	9490612	**Machinery Unit**	STERN TUBE
Report Date	18-Mar-2024	**Equipment S/N**	X-38961
Product Name	GULFSEA SUPERBEAR 3006	**Sample Location**	SEAL STAND PIPE DRAIN POINT #3

Sample Information	1	2
Sample No	24000326	24509187
Bottle No	60273104	60237077
Date Received	02-Jan-24	08-Feb-24
Sampled Date	19-Dec-23	02-Feb-24
Port of Origin	Singapore	Indonesia
Oil on Label	HYDROX BIO 100	HYDROX BIO 100
Fuel In Use (Sulphur)		
Total Machine Hours		83114
Lubricant Hours		
Lubricant Condition	Critical	Normal
Results		
Analysis		
KV@40°C [mm²/s]	137.5	114.8
Water [%wt]	0.28	0.15
Oxidation [Abs/0.1mm]	3.70	2.36
AN [mgKOH/g]	10.4	5.04
PQ Index/2ml	<10	<10
Wear Elemental Analysis [ppm]		
Aluminium (Al)	3	<1
Silver (Ag)	<1	<1
Chromium (Cr)	<1	<1
Copper (Cu)	39	17
Iron (Fe)	145	218
Lead (Pb)	<1	1
Tin (Sn)	5	4
Nickel (Ni)	1	<1
Cont. Elements [ppm]		
Boron (B)	<1	<1
Sodium (Na)	30	39
Magnesium (Mg)	5	2
Silicon (Si)	4	<1
Manganese (Mn)	1	1
Potassium (K)	<1	<1
Barium (Ba)	<1	<1
Additive Elements [ppm]		
Calcium (Ca)	112	98

Recommendations

Viscosity result is within the normal limit. Please note the increase in Acid number. Oil oxidation reaction, Hydrolysis, mix-up with another oil grade etc are the typical reasons for Acid number increase. Apart from degrading the oil quality, increased acidity can create issues on seal lips. Presence of lube oil additive metal presence in this sample is indicative of other oil grade mix up which might have been caused either by the inadequate flushing during the transition or during top up.

Elemental analysis shows significant wear rate of Iron. High Fe and low PQ results indicates corrosive wear (rust) on the ferrous components.

As the current oil in use is a Non-Gulf Marine product, therefore, the results are for REFERENCE ONLY.