

Lubricant Condition

Normal

Equipment Information

UNION MARITIME LTD KEMEL **Equipment Make Company Name** CAPE SARINA **Equipment Model** DX-750 Vessel Name **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

| Ample No 24000326 24509187 60273104 60273077 60273104 60273077 60273104 60273077 60273104 60273077 6027307 60273077 | | | |
|--|-------------------------------|-----------|-----------|
| Section Sect | Sample Information | | |
| Decided Deci | Sample No | | |
| 19-Dec-23 02-Feb-24 19-Dec-23 102-Feb-24 19-Dec-23 19-Dec-24 19-Dec-24 19-Dec-25 19-Dec-25 19-Dec-26 19- | Bottle No | _ | |
| Singapore Indonesia HyDROX BIO HyDROX BIO HyDROX BIO 100 1 | Date Received | _ | |
| By DROX BIO HYDROX BIO HYDROX BIO 100 | Sampled Date | 19-Dec-23 | 02-Feb-24 |
| 100 100 100 100 100 100 100 100 101 | Port of Origin | _ | |
| Satistance Sat | Oil on Label | | |
| ubricant Hours ubricant Condition esults malysis V@40°C [mm²/s] Vater [/wt] 0.28 0.15 0.xidation [Abs/0.1mm] No [mgKOH/g] 10.4 5.04 Q Index/2ml 10.4 5.04 Q Index/2ml 3 3 <1 iilver (Ag) iilver (Ag) iilver (Ag) 7 on (Fe) 2 add (Pb) 1 in (Sn) 2 in (Sn) 2 in (Sn) 3 in (Sn) 3 in (Sn) 4 in (Sn) 4 in (Sn) 5 in (Sn) 5 in (Sn) 6 in (Sn) 6 in (Sn) 7 in (Sn) 8 in (Sn) 8 in (Sn) 9 in (Sn) 9 in (Sn) 10 in (Sn) 10 in (Sn) 11 in (Sn) 12 in (Sn) 13.7.5 114.8 14.8 15.0.1 16.0.1 17 in (Sn) 18 in (Sn) 19 in (Sn) 10 in (Sn) 10 in (Sn) 11 in (Sn) 12 in (Sn) 13 in (Sn) 14 in (Sn) 15 in (Sn) 16 in (Sn) 17 in (Sn) 18 in (Sn) 19 in (Sn) 10 in (Sn) 11 in (Sn) 11 in (Sn) 12 in (Sn) 13 in (Sn) 14 in (Sn) 15 in (Sn) 16 in (Sn) 17 in (Sn) 18 in (Sn) 19 in (Sn) 10 in (Sn) 10 in (Sn) 11 in (Sn) 11 in (Sn) 12 in (Sn) 13 in (Sn) 14 in (Sn) 15 in (Sn) 16 in (Sn) 17 in (Sn) 18 in (Sn) 19 in (Sn) 10 in (Sn) 11 in (Sn) 11 in (Sn) 12 in (Sn) 13 in (Sn) 14 in (Sn) 15 in (Sn) 16 in (Sn) 17 in (Sn) 18 in (Sn) 19 in (Sn) 10 in (Sn) 10 in (Sn) 10 in (Sn) 11 in (Sn) 11 in (Sn) 12 in (Sn) 13 in (Sn) 14 in (Sn) 15 in (Sn) 16 in (Sn) 17 in (Sn) 18 in (Sn) 19 in (Sn) 10 in (Sn) 10 in (Sn) 10 in (Sn) 11 in (Sn) 11 in (Sn) 12 in (Sn) 13 in (Sn) 14 in (Sn) 15 in (Sn) 16 in (Sn) 17 in (Sn) 18 in (Sn) 18 in (Sn) 19 in (Sn) 10 in (Sn) 10 in (Sn) 10 in (Sn) 11 in (Sn) 11 in (Sn) 11 in (Sn) 12 in (Sn) 13 in (Sn) 14 in (Sn) 15 in (Sn) 16 in (Sn) 17 in (Sn) 18 in (Sn) 18 in (Sn) 18 in (Sn) 19 in (Sn) 10 in (Sn) | Fuel In Use (Sulphur) | | |
| Critical Normal | Total Machine Hours | | 83114 |
| Inalysis Inalysis | Lubricant Hours | | |
| Manaysis 137.5 114.8 Weldo*C [mm²/s] 0.28 0.15 Dividation [Abs/0.1mm] 3.70 2.36 N [mgKOH/g] 10.4 5.04 O [Index/2ml -10 -10 Wear Elemental Analysis [ppm] -10 Dividinium (Al) 3 -1 Dividinium (Cr) -1 -1 Dividitium (Cr) -1 | Lubricant Condition | Critical | Normal |
| 137.5 114.8 Valer [%wt] 0.28 0.15 Dividation [Abs/0.1mm] 3.70 2.36 N [mgKOH/g] 10.4 5.04 Old Index/2ml < 10 <10 Vear Elemental Analysis [ppm] Unuminium (Al) 3 <1 <1 Chromium (Cr) 39 17 Chromium (Cr) 145 218 cad (Pb) 145 218 cad (Pb) 1 1 chron (B) 30 39 dickel (Ni) 1 <1 chron (B) 30 39 dagnesium (Mg) 5 2 danganese (Mn) 1 1 totassium (K) 4 <1 chrom (Ba) 4 <1 chrom | Results | | |
| Vater [%wt] 0.28 0.15 Dixidation [Abs/0.1mm] 3.70 2.36 IN [mgKOH/g] 10.4 5.04 IQ Index/2ml <10 | <u>Analysis</u> | | |
| Distribution Dist | KV@40°C [mm²/s] | 137.5 | 114.8 |
| N [mgKOH/g] | Water [%wt] | 0.28 | 0.15 |
| | Oxidation [Abs/0.1mm] | 3.70 | 2.36 |
| Wear Elemental Analysis [ppm] 3 <1 | AN [mgKOH/g] | 10.4 | 5.04 |
| Subminium (Al) 3 1 1 1 1 1 1 1 1 1 | PQ Index/2ml | <10 | <10 |
| Intermediate Inte | Wear Elemental Analysis [ppm] | | |
| Chromium (Cr) | Aluminium (Al) | 3 | <1 |
| Sopper (Cu) 39 17 Yon (Fe) 145 218 ead (Pb) <1 | Silver (Ag) | <1 | <1 |
| Search (Pe) Search (Pe) Search (Pe) Search (Pe) Search (Po) | Chromium (Cr) | <1 | <1 |
| ead (Pb) | Copper (Cu) | 39 | 17 |
| sin (Sn) 5 4 sickel (Ni) 1 <1 | Iron (Fe) | 145 | 218 |
| Scott. Elements [ppm] Scott. Elements [ppm] Scott. Elements [ppm] Scott. Elements [ppm] Scott Scot | Lead (Pb) | <1 | 1 |
| Sont. Elements [ppm] <1 | Tin (Sn) | 5 | 4 |
| Soron (B) | Nickel (Ni) | 1 | <1 |
| dodium (Na) 30 39 Magnesium (Mg) 5 2 dilicon (Si) 4 <1 | Cont. Elements [ppm] | | |
| Magnesium (Mg) 5 2 dilicon (Si) 4 <1 | Boron (B) | <1 | <1 |
| | Sodium (Na) | 30 | 39 |
| Alanganese (Mn) 1 1 Potassium (K) <1 | Magnesium (Mg) | 5 | 2 |
| Potassium (K) <1 | Silicon (Si) | 4 | <1 |
| Barium (Ba) <1 | Manganese (Mn) | 1 | 1 |
| Barium (Ba) <1 | Potassium (K) | <1 | <1 |
| | Barium (Ba) | <1 | <1 |
| Nalaium (Ca) | Additive Elements [ppm] | | |
| aicium (Ca) | 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.