MAR II

WEAR CHECK Inland Marine Oil Analysis Program

# OIL ANALYSIS REPORT

| | |
|---|---|
| WEAR | NORMAL |
| CONTAMINATION | ATTENTION |
| FLUID CONDITION | ATTENTION |

Machine Id
## Capt Greg Smith (S/N 74-L1-1520)
Component
## Starboard Main Engine
Fluid
## CHEVRON DELO 710 LS (350 GAL)

## RECOMMENDATION

We recommend an early resample to monitor this condition.

## WEAR

All component wear rates are normal.

## CONTAMINATION

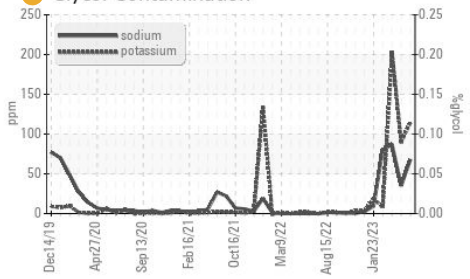
Sodium and/or potassium levels are high. Elemental level of sodium (Na) and/or boron (B) indicates a possible cooling water leak.

## FLUID CONDITION

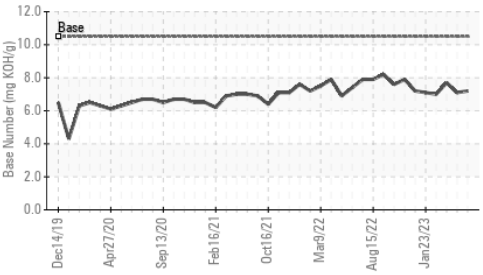
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | MW0056140 | MW0056119 | MW0037548 |
| Sample Date | | Client Info | | 14 Aug 2023 | 27 Jun 2023 | 15 May 2023 |
| Machine Age | hrs | Client Info | | 15326 | 14224 | 13237 |
| Oil Age | hrs | Client Info | | 12437 | 11336 | 10329 |
| Filter Age | hrs | Client Info | | 956 | 1372 | 432 |
| Oil Changed | | Client Info | | Not Changd | Not Changd | Not Changd |
| Filter Changed | | Client Info | | Not Changd | Not Changd | Changed |
| Sample Status | | | | ATTENTION | NORMAL | ATTENTION |
| Iron | ppm | ASTM D5185m | >75 | 14 | 13 | 13 |
| Chromium | ppm | ASTM D5185m | >8 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >3 | 0 | <1 | <1 |
| Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >15 | 2 | <1 | 1 |
| Lead | ppm | ASTM D5185m | >18 | 6 | 6 | 7 |
| Copper | ppm | ASTM D5185m | >80 | 11 | 12 | 11 |
| Tin | ppm | ASTM D5185m | >14 | 3 | 4 | 3 |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Silicon | ppm | ASTM D5185m | >20 | 3 | 3 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | 115 | 90 | 203 |
| Fuel | | WC Method | >4.0 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.1 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 0.4 | 0.4 | 0.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 7.9 | 8.4 | 7.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 16.4 | 16.7 | 16.3 |
| Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.1 | NEG | NEG | NEG |
| Sodium | ppm | ASTM D5185m | >75 | 68 | 35 | 87 |
| Boron | ppm | ASTM D5185m | | 39 | 42 | 39 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | 61 | 56 | 66 |
| Manganese | ppm | ASTM D5185m | | <1 | 1 | <1 |
| Magnesium | ppm | ASTM D5185m | | 3 | 16 | 12 |
| Calcium | ppm | ASTM D5185m | | 3303 | 3654 | 3406 |
| Phosphorus | ppm | ASTM D5185m | | 0 | 10 | 2 |
| Zinc | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Sulfur | ppm | ASTM D5185m | | 2492 | 2807 | 2626 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 8.1 | 8.7 | 8.0 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.5 | 7.2 | 7.1 | 7.7 |
| Visc @ 100°C | cSt | ASTM D445 | 15.5 | 14.7 | 14.8 | 14.8 |

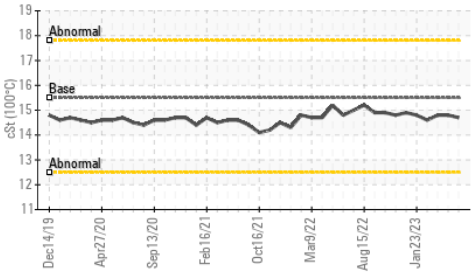
Glycol Contamination



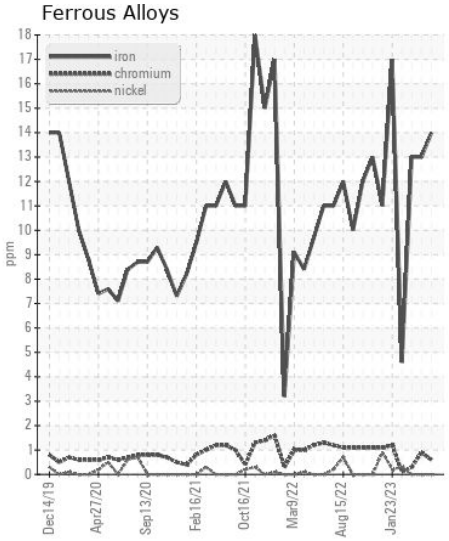

Base Number



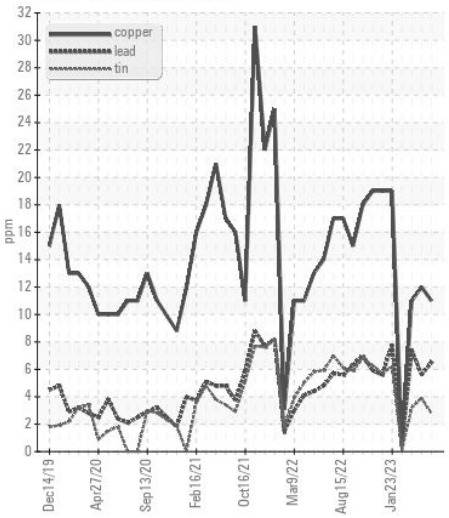

Viscosity @ 100°C



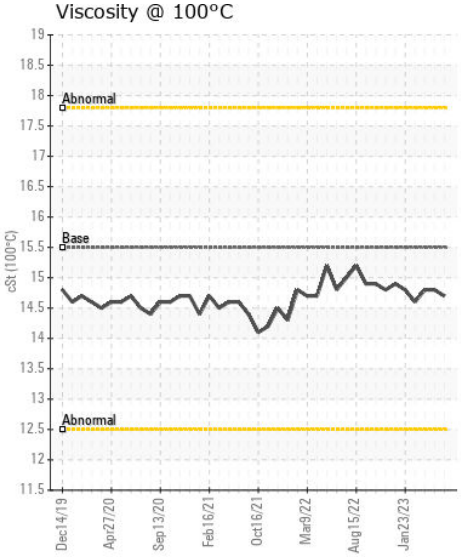

Ferrous Alloys



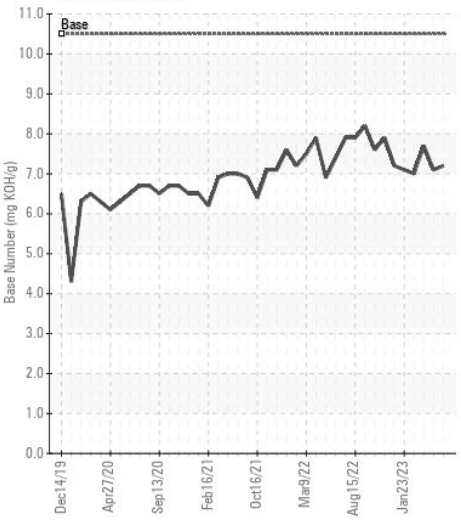

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : MW0056140
**Lab Number** : 05931898
**Unique Number** : 10617169
**Test Package** : MAR 2

**Received** : 23 Aug 2023
**Tested** : 24 Aug 2023
**Diagnosed** : 24 Aug 2023 - Doug Bogart

*To discuss this sample report, contact Customer Service at 1-800-237-1369.*
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
*Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)*

**AMERICAN COMMERCIAL LINES**
PO BOX 610, 1701 E. MARKET STREET
JEFFERSONVILLE, IN
US 47130
Contact: RONALD SCHNEIDER
ronald.schneider@bargeacbl.com
T:
F: (812)288-1644