



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

Machine Id
MRC
Component
Starboard Genset
Fluid
CHEVRON URSA SUPER PLUS 40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | MW06237525 | MW06207245 | MW06151655 |
| Sample Date | | Client Info | | 15 Jul 2024 | 11 Jun 2024 | 16 Apr 2024 |
| Machine Age | hrs | Client Info | | 9807 | 9363 | 8751 |
| Oil Age | hrs | Client Info | | 0 | 612 | 539 |
| Filter Age | hrs | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | N/A | N/A | N/A |
| Filter Changed | | Client Info | | N/A | N/A | N/A |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >50 | 5 | 7 | 4 |
| Chromium | ppm | ASTM D5185m | >4 | 0 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Silver | ppm | ASTM D5185m | >5 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >12 | 2 | 3 | 2 |
| Lead | ppm | ASTM D5185m | >17 | 0 | <1 | 0 |
| Copper | ppm | ASTM D5185m | >70 | 0 | <1 | 0 |
| Tin | ppm | ASTM D5185m | >15 | 0 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | 0 | <1 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

There is no indication of any contamination in the oil.

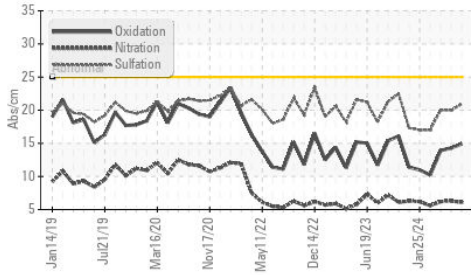
| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >25 | 3 | 4 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | <1 | 2 | 0 |
| Fuel | | WC Method | >4.0 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.1 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | | 0.1 | 0.1 | 0.1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 6.1 | 6.3 | 6.2 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 20.9 | 20.0 | 20.0 |
| Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | LIGHT | 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 |

FLUID CONDITION

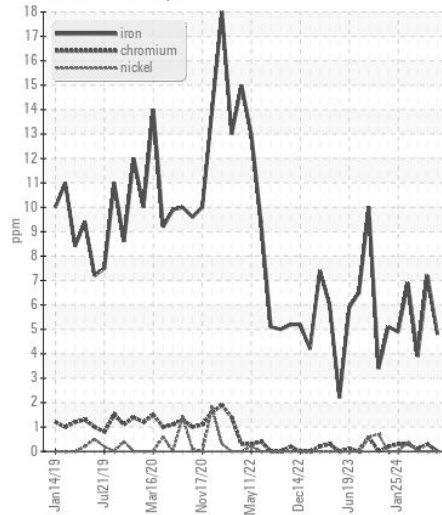
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| | | | | | | |
|------------------|----------|-------------|------|--------------|------|------|
| Sodium | ppm | ASTM D5185m | | 2 | <1 | 0 |
| Boron | ppm | ASTM D5185m | | 352 | 343 | 319 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | 81 | 74 | 63 |
| Manganese | ppm | ASTM D5185m | | <1 | 0 | 0 |
| Magnesium | ppm | ASTM D5185m | | 403 | 356 | 314 |
| Calcium | ppm | ASTM D5185m | | 1577 | 1672 | 1815 |
| Phosphorus | ppm | ASTM D5185m | 1000 | 1011 | 893 | 928 |
| Zinc | ppm | ASTM D5185m | 1090 | 1200 | 1149 | 1093 |
| Sulfur | ppm | ASTM D5185m | | 3784 | 3472 | 3543 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 14.9 | 14.3 | 13.9 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 7.4 | 7.3 | 7.0 | 7.2 |
| Visc @ 100°C | cSt | ASTM D445 | 14.7 | 12.8 | 12.5 | 12.8 |

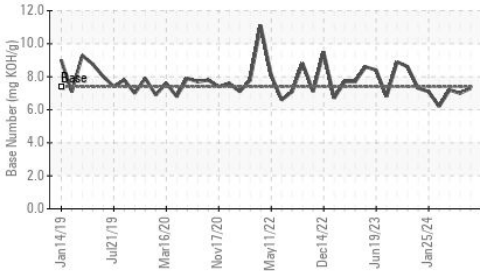
FT-IR (Direct Trend)



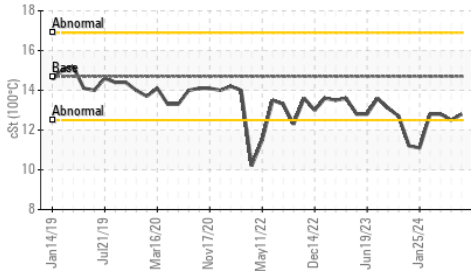
Ferrous Alloys



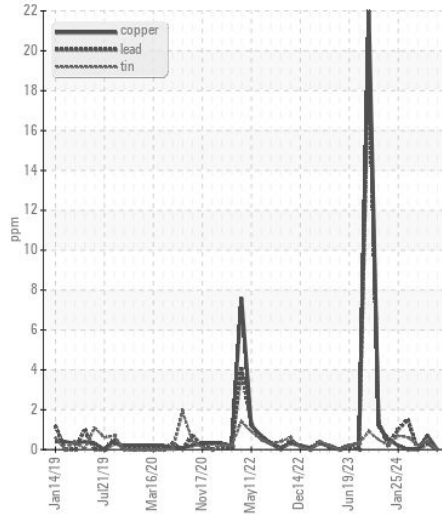
Base Number



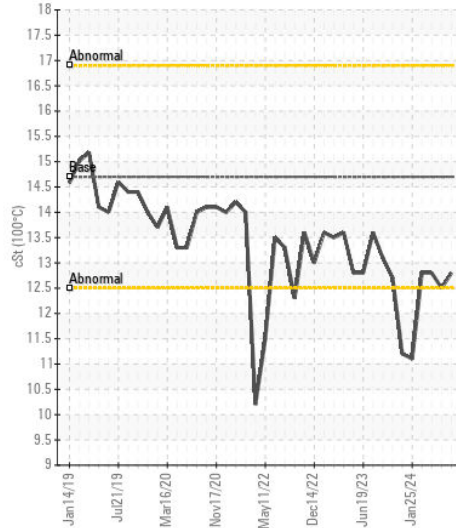
Viscosity @ 100°C



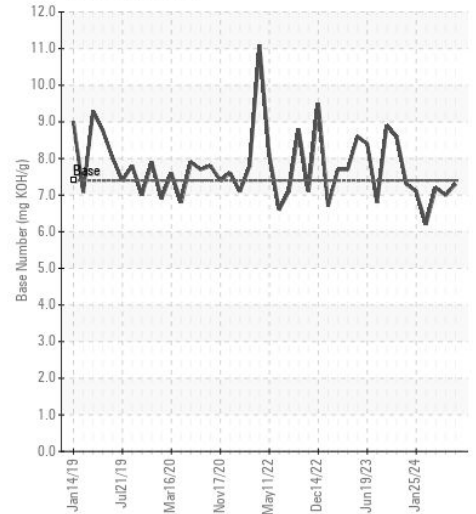
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW06237525
Lab Number : 06237525
Unique Number : 11126359
Test Package : MAR 2

Received : 16 Jul 2024
Tested : 17 Jul 2024
Diagnosed : 18 Jul 2024 - Sean Felton

ILLINOIS MARINE TOWING
 PO BOX 391
 LEMONT, IL
 US 60439
 Contact: RHETT DANIEL
 rdaniel@imtowing.com
 T: (630)280-4926
 F: (630)739-2041

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)