# OIL ANALYSIS REPORT

Sample Rating Trend


**WEAR**

Machine Id
## CATERPILLAR 980G FRONT END LOADER 980G
Component
**Diesel Engine**
Fluid
**TRC MOLY XL PROSPEC III 15W40 (10 GAL)**

## DIAGNOSIS

**Recommendation**
Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

**Wear**
The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal.

**Contamination**
There is no indication of any contamination in the oil.

**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.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **TR06159863** | --- | --- |
| Sample Date | | Client Info | | **16 Apr 2024** | --- | --- |
| Machine Age | hrs | Client Info | | **20197** | --- | --- |
| Oil Age | hrs | Client Info | | **280** | --- | --- |
| Oil Changed | | Client Info | | **Changed** | --- | --- |
| Sample Status | | | | **ABNORMAL** | --- | --- |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<1.0** | --- | --- |
| Water | | WC Method | >0.2 | **NEG** | --- | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **18** | --- | --- |
| Chromium | ppm | ASTM D5185m | >20 | **1** | --- | --- |
| Nickel | ppm | ASTM D5185m | >2 | **1** | --- | --- |
| Titanium | ppm | ASTM D5185m | >2 | **<1** | --- | --- |
| Silver | ppm | ASTM D5185m | >2 | **<1** | --- | --- |
| Aluminum | ppm | ASTM D5185m | >25 | **4** | --- | --- |
| Lead | ppm | ASTM D5185m | >40 | **3** | --- | --- |
| Copper | ppm | ASTM D5185m | >330 | ▲ **606** | --- | --- |
| Tin | ppm | ASTM D5185m | >15 | **1** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **<1** | --- | --- |
| Cadmium | ppm | ASTM D5185m | | **<1** | --- | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **148** | --- | --- |
| Barium | ppm | ASTM D5185m | | **1** | --- | --- |
| Molybdenum | ppm | ASTM D5185m | | **187** | --- | --- |
| Manganese | ppm | ASTM D5185m | | **1** | --- | --- |
| Magnesium | ppm | ASTM D5185m | | **362** | --- | --- |
| Calcium | ppm | ASTM D5185m | 4500 | **3557** | --- | --- |
| Phosphorus | ppm | ASTM D5185m | | **936** | --- | --- |
| Zinc | ppm | ASTM D5185m | 1400 | **1049** | --- | --- |
| Sulfur | ppm | ASTM D5185m | | **4471** | --- | --- |

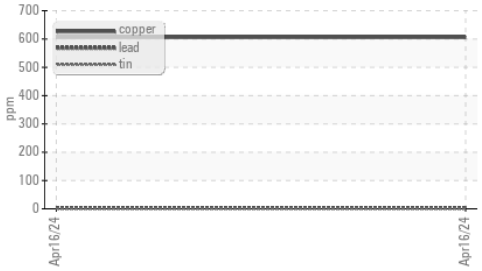
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **10** | --- | --- |
| Sodium | ppm | ASTM D5185m | | **42** | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | **10** | --- | --- |
| Glycol | % | *ASTM D2982 | | **NEG** | --- | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.6** | --- | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **8.1** | --- | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **20.8** | --- | --- |

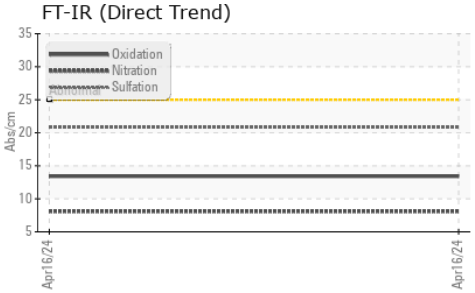
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **13.4** | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 15 | **12.98** | --- | --- |

# OIL ANALYSIS REPORT

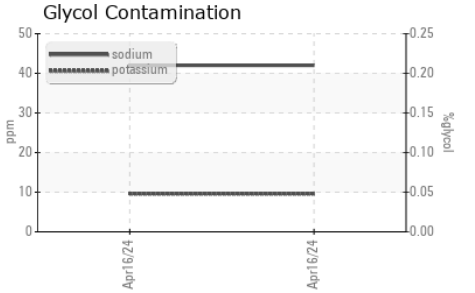
Non-ferrous Metals



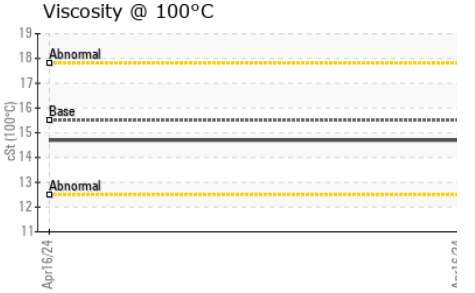

FT-IR (Direct Trend)



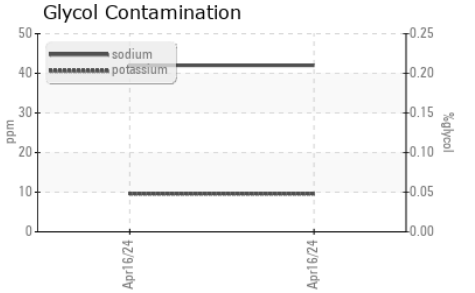

Glycol Contamination




Viscosity @ 100°C




Glycol Contamination

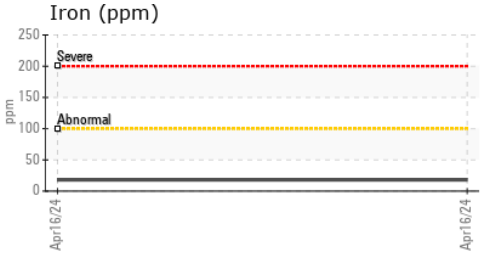



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | --- | --- |
| Silt | scalar | *Visual | NONE | **NONE** | --- | --- |
| Debris | scalar | *Visual | NONE | **NONE** | --- | --- |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | --- | --- |
| Appearance | scalar | *Visual | NORML | **NORML** | --- | --- |
| Odor | scalar | *Visual | NORML | **NORML** | --- | --- |
| Emulsified Water | scalar | *Visual | >0.2 | **NEG** | --- | --- |
| Free Water | scalar | *Visual | | **NEG** | --- | --- |

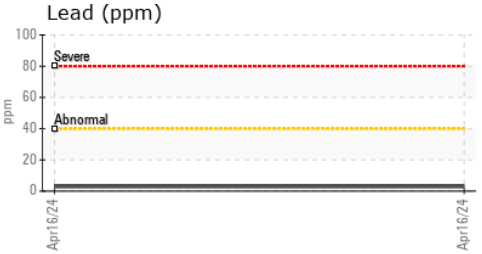
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.5 | **14.7** | --- | --- |

GRAPHS

Iron (ppm)

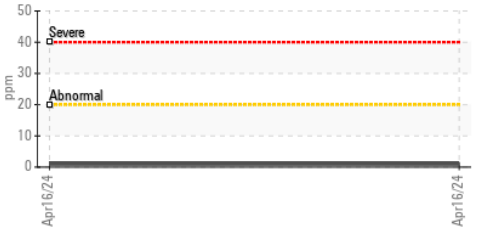



Lead (ppm)

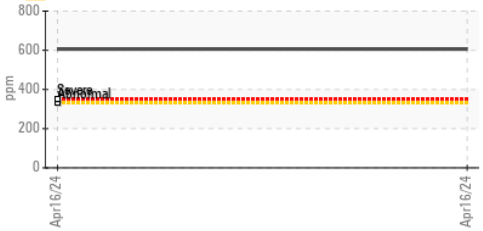



Aluminum (ppm)

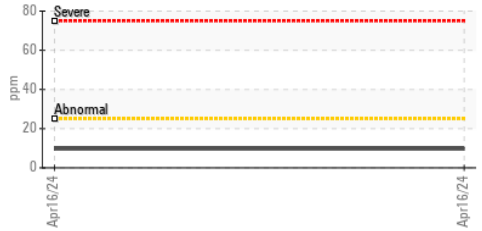

Chromium (ppm)




Copper (ppm)

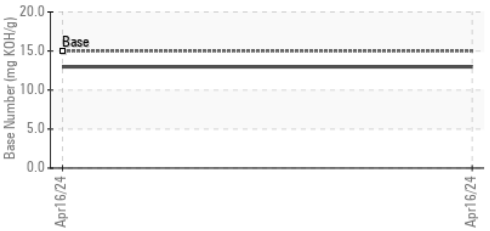



Silicon (ppm)




Viscosity @ 100°C


Base Number




ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : TR06159863 **Received** : 24 Apr 2024
**Lab Number** : 06159863 **Tested** : 26 Apr 2024
**Unique Number** : 10995286 **Diagnosed** : 26 Apr 2024 - Sean Felton
**Test Package** : MOB 2 ( Additional Tests: Glycol )

*To discuss this sample report, contact Customer Service at 1-800-827-0711.*
** - 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)*

**NOLL CONSTRUCTION**
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Report Id: NOLGOL [WUSCAR] 06159863 (Generated: 05/10/2024 17:47:16) Rev: 1
Contact/Location: KELLY ZIETTLOW - NOLGOL