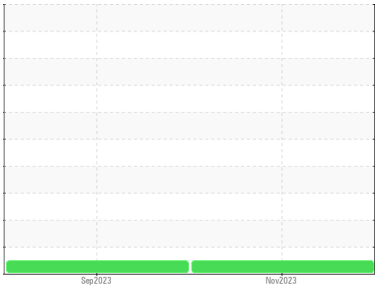
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
## CATERPILLAR RH BEYMER
Component
**Port Main Engine**
Fluid
**KENDALL SUPER-D XA 15W40 (--- GAL)**

## DIAGNOSIS

**Recommendation**
Resample at the next service interval to monitor.

**Wear**
All 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 | | **WC0843968** | WC0843980 | --- |
| Sample Date | | Client Info | | **15 Nov 2023** | 19 Sep 2023 | --- |
| Machine Age | hrs | Client Info | | **33273** | 32019 | --- |
| Oil Age | hrs | Client Info | | **500** | 500 | --- |
| Oil Changed | | Client Info | | **Changed** | Changed | --- |
| Sample Status | | | | **NORMAL** | NORMAL | --- |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >4.0 | **<1.0** | <1.0 | --- |
| Water | | WC Method | >0.1 | **NEG** | NEG | --- |
| Glycol | | WC Method | | **NEG** | NEG | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >120 | **16** | 16 | --- |
| Chromium | ppm | ASTM D5185m | >10 | **<1** | <1 | --- |
| Nickel | ppm | ASTM D5185m | >5 | **<1** | 0 | --- |
| Titanium | ppm | ASTM D5185m | | **40** | 30 | --- |
| Silver | ppm | ASTM D5185m | >5 | **0** | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >20 | **2** | <1 | --- |
| Lead | ppm | ASTM D5185m | >40 | **1** | 2 | --- |
| Copper | ppm | ASTM D5185m | >300 | **5** | 5 | --- |
| Tin | ppm | ASTM D5185m | >10 | **<1** | <1 | --- |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | --- |
| Cadmium | ppm | ASTM D5185m | | **<1** | 0 | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 50 | **60** | 46 | --- |
| Barium | ppm | ASTM D5185m | | **9** | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | | **40** | 58 | --- |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | --- |
| Magnesium | ppm | ASTM D5185m | 270 | **210** | 205 | --- |
| Calcium | ppm | ASTM D5185m | 1900 | **2202** | 2084 | --- |
| Phosphorus | ppm | ASTM D5185m | 1000 | **1023** | 1034 | --- |
| Zinc | ppm | ASTM D5185m | 1260 | **1179** | 1310 | --- |
| Sulfur | ppm | ASTM D5185m | 3400 | **4225** | 3993 | --- |

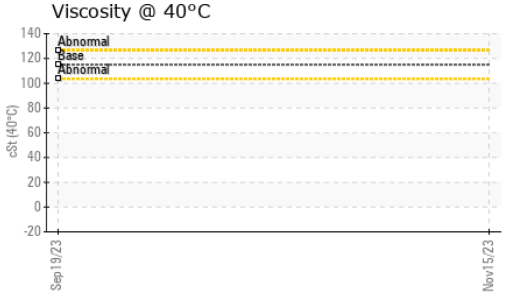
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **4** | 4 | --- |
| Sodium | ppm | ASTM D5185m | | **2** | 2 | --- |
| Potassium | ppm | ASTM D5185m | >20 | **4** | 2 | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | | **0.4** | 0.4 | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **8.9** | 9.4 | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **20.3** | 20.3 | --- |

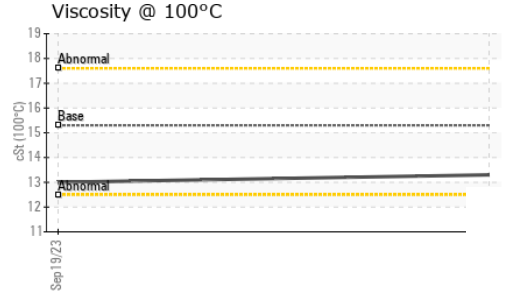
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **14.9** | 15.1 | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.5 | **7.2** | 6.6 | --- |

# OIL ANALYSIS REPORT

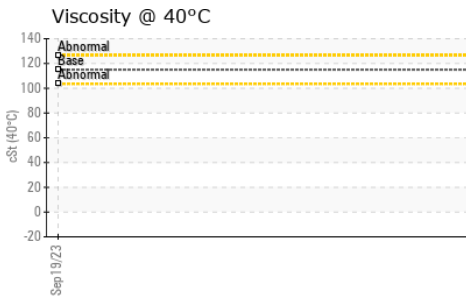
Viscosity @ 40°C




Viscosity @ 100°C




Viscosity @ 40°C

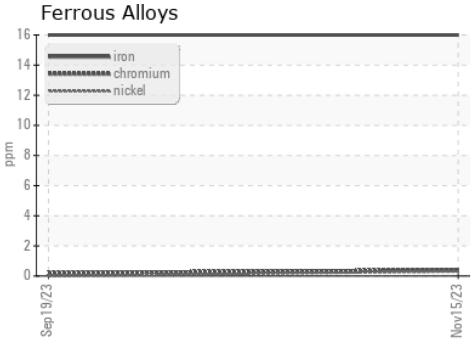



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Debris | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Appearance | scalar | *Visual | NORML | **NORML** | NORML | --- |
| Odor | scalar | *Visual | NORML | **NORML** | NORML | --- |
| Emulsified Water | scalar | *Visual | >0.1 | **NEG** | NEG | --- |
| Free Water | scalar | *Visual | | **NEG** | NEG | --- |

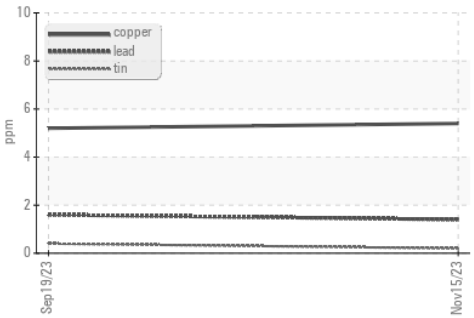
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.3 | **13.3** | 13.0 | --- |

## GRAPHS

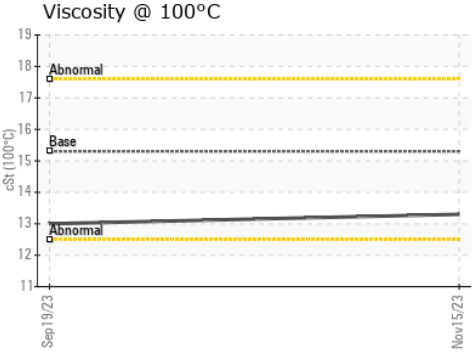
Ferrous Alloys



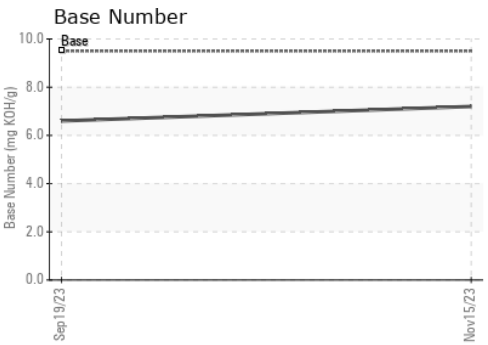

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : WC0843968 **Received** : 20 Nov 2023
**Lab Number** : 06013166 **Diagnosed** : 24 Nov 2023
**Unique Number** : 10752310 **Diagnostician** : Jonathan Hester
**Test Package** : FLEET ( Additional Tests: KV40 )

*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)*

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