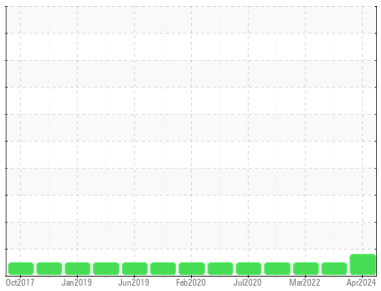
# OIL ANALYSIS REPORT

Area
**KANSAS/44/EG - OTHER SERVICE**
Machine Id
**88.13L [KANSAS^44^EG - OTHER SERVICE]**
Component
**Diesel Engine**
Fluid
**MOBIL DELVAC 1300 SUPER15W40 (--- GAL)**

Sample Rating Trend




**FUEL**

## DIAGNOSIS

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

**Wear**
All component wear rates are normal.

**Contamination**
Light fuel dilution occurring. No other contaminants were detected 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 | | **WC0918155** | WC0712203 | WC0665294 |
| Sample Date | | Client Info | | **08 Apr 2024** | 23 Aug 2022 | 01 Mar 2022 |
| Machine Age | hrs | Client Info | | **5277** | 5058 | 4779 |
| Oil Age | hrs | Client Info | | **219** | 279 | 4527 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **MARGINAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.2 | **NEG** | NEG | NEG |
| Glycol | | WC Method | | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **4** | 4 | 4 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | 0 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | **0** | <1 | 0 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 1 | <1 |
| Aluminum | ppm | ASTM D5185m | >25 | **1** | <1 | <1 |
| Lead | ppm | ASTM D5185m | >40 | **0** | <1 | <1 |
| Copper | ppm | ASTM D5185m | >330 | **1** | 1 | 1 |
| Tin | ppm | ASTM D5185m | >15 | **0** | <1 | <1 |
| Antimony | ppm | ASTM D5185m | | **---** | --- | 0 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **63** | 95 | 77 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 0 | **39** | 18 | 17 |
| Manganese | ppm | ASTM D5185m | | **0** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 0 | **489** | 586 | 624 |
| Calcium | ppm | ASTM D5185m | | **1754** | 1394 | 1503 |
| Phosphorus | ppm | ASTM D5185m | | **852** | 678 | 752 |
| Zinc | ppm | ASTM D5185m | | **942** | 815 | 878 |
| Sulfur | ppm | ASTM D5185m | | **2724** | 2542 | 2387 |

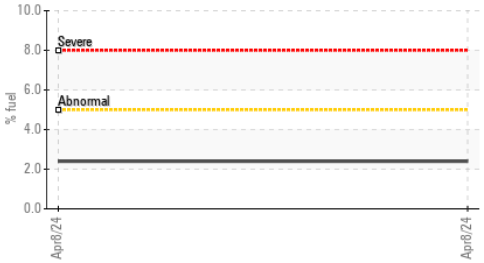
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **20** | 4 | 4 |
| Sodium | ppm | ASTM D5185m | | **2** | 3 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | <1 | 2 |
| Fuel | % | ASTM D3524 | >5 | ▲ **2.4** | <1.0 | <1.0 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.1** | 0.1 | 0.1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **5.6** | 7.5 | 6.8 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **21.6** | 21.7 | 21.2 |

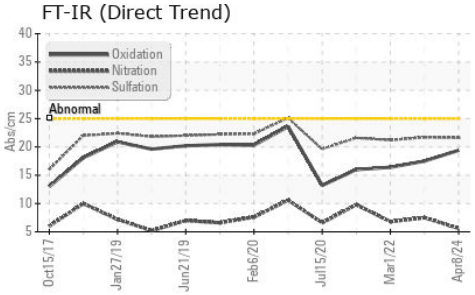
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **19.4** | 17.5 | 16.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.4 | **10.2** | 10.7 | 10.6 |

# OIL ANALYSIS REPORT

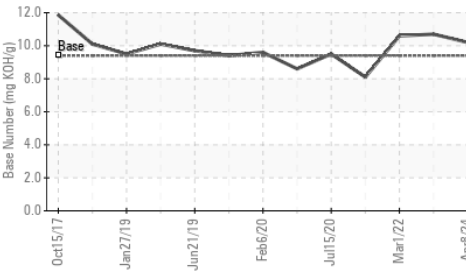
Fuel Dilution



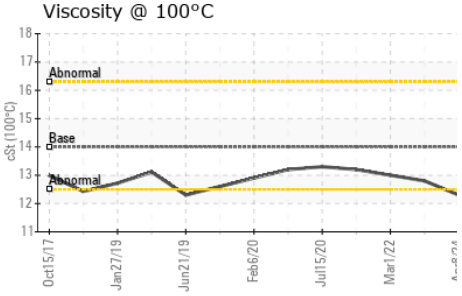

FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

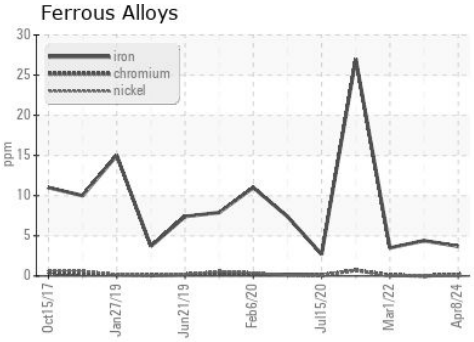



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 | >0.2 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

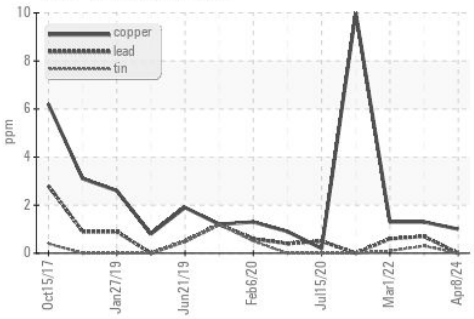
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 14 | **12.3** | 12.8 | 13.0 |

## GRAPHS

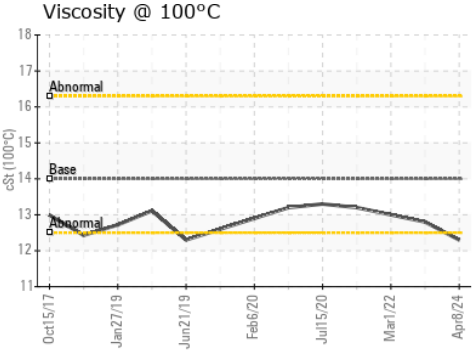
Ferrous Alloys



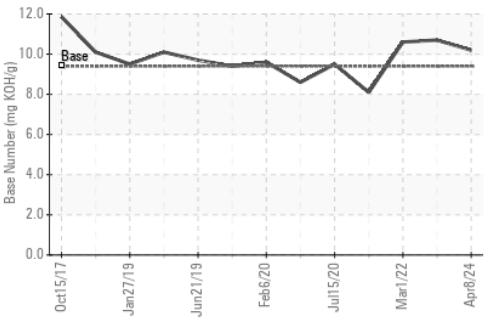

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : WC0918155
**Lab Number** : 06151841
**Unique Number** : 10981919
**Test Package** : CONST ( Additional Tests: FuelDilution, PercentFuel, TBN )

**Received** : 17 Apr 2024
**Tested** : 22 Apr 2024
**Diagnosed** : 22 Apr 2024 - Wes Davis

*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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Report Id: SHEWIC [WUSCAR] 06151841 (Generated: 04/22/2024 08:04:56) Rev: 1

Submitted By: JAMES MOORE