# OIL ANALYSIS REPORT

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

Machine Id
## KALMAR 840819
Component
## Diesel Engine
Fluid
## CHEVRON DELO 400 MULTIGRADE 15W40 (--- QTS)

## RECOMMENDATION

Resample at the next service interval to monitor.

## WEAR

All component wear rates are normal.

## CONTAMINATION

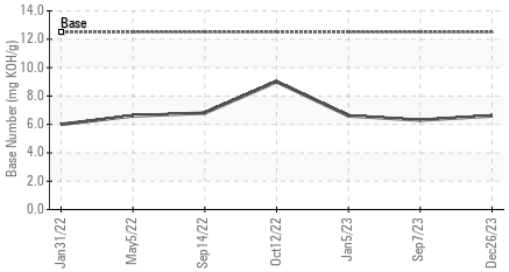
There is no indication of any contamination in the oil.

## FLUID CONDITION

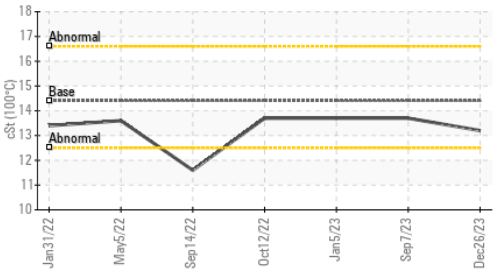
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | WC0882091 | WC0831756 | WC0625600 |
| Sample Date | | Client Info | | 26 Dec 2023 | 07 Sep 2023 | 05 Jan 2023 |
| Machine Age | hrs | Client Info | | 437 | 5907 | 4862 |
| Oil Age | hrs | Client Info | | 437 | 480 | 465 |
| Filter Age | hrs | Client Info | | 437 | 480 | 465 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| Iron | ppm | ASTM D5185m | >100 | 30 | 33 | 16 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | <1 | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 2 | 2 | <1 |
| Lead | ppm | ASTM D5185m | >40 | 0 | <1 | 0 |
| Copper | ppm | ASTM D5185m | >330 | 1 | <1 | <1 |
| Tin | ppm | ASTM D5185m | >15 | <1 | <1 | 0 |
| Vanadium | ppm | ASTM D5185m | | 0 | <1 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Silicon | ppm | ASTM D5185m | >25 | 6 | 7 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | 4 | 6 | 3 |
| Fuel | | WC Method | >5 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 0.8 | 0.8 | 0.6 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 10.7 | 10.2 | 9.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 21.2 | 21.0 | 19.9 |
| 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 |
| Sodium | ppm | ASTM D5185m | | <1 | 3 | <1 |
| Boron | ppm | ASTM D5185m | 151 | 68 | 68 | 97 |
| Barium | ppm | ASTM D5185m | 0.4 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 250 | 11 | 12 | 12 |
| Manganese | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 0 | 634 | 726 | 626 |
| Calcium | ppm | ASTM D5185m | 2046 | 1208 | 1449 | 1286 |
| Phosphorus | ppm | ASTM D5185m | 1043 | 708 | 706 | 659 |
| Zinc | ppm | ASTM D5185m | 943 | 754 | 834 | 771 |
| Sulfur | ppm | ASTM D5185m | 5012 | 2883 | 3474 | 2623 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 16.5 | 16.6 | 15.0 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 12.5 | 6.6 | 6.3 | 6.6 |
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | 13.2 | 13.7 | 13.7 |

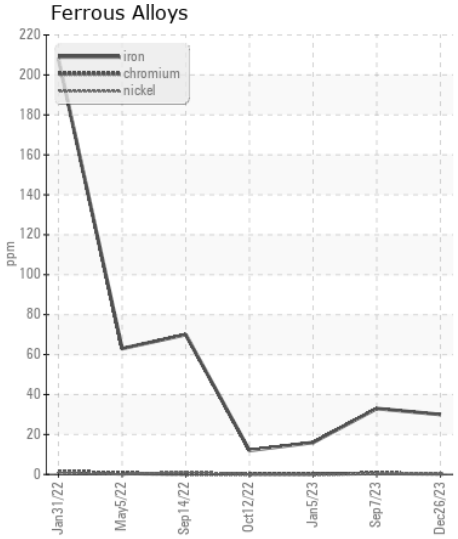
Base Number



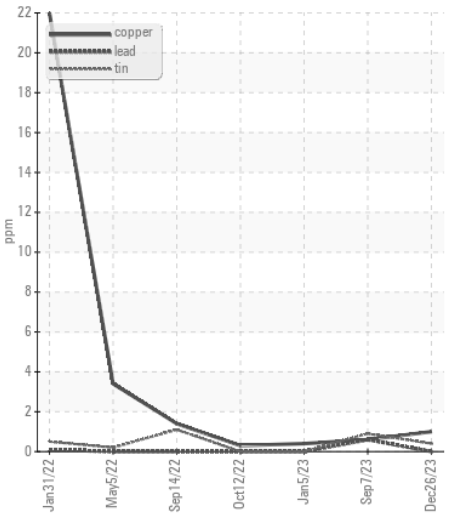

Viscosity @ 100°C



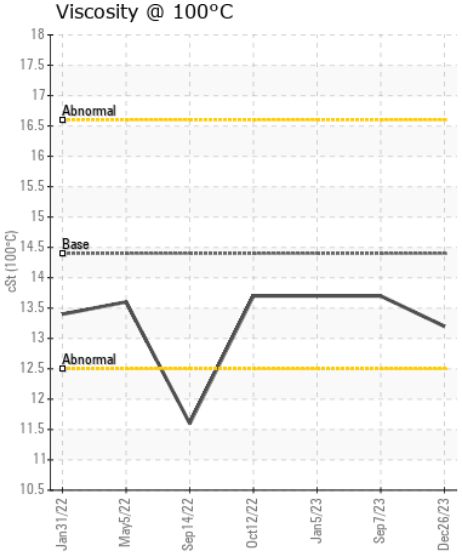

Ferrous Alloys



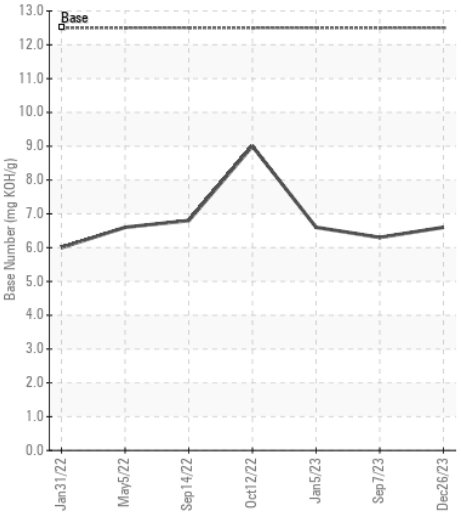

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : WC0882091 **Recieved** : 11 Jan 2024
**Lab Number** : 06058652 **Diagnosed** : 14 Jan 2024
**Unique Number** : 10830034 **Diagnostician** : Don Baldridge
**Test Package** : FLEET

*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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