



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



Machine Id
CATERPILLAR D89
Component
Diesel Engine
Fluid
PETRO CANADA 15W40 (--- QTS)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | PCA0079182 | PCA0079203 | PCA0061611 |
| Sample Date | | Client Info | | 21 Jun 2024 | 15 Mar 2024 | 20 Jul 2022 |
| Machine Age | hrs | Client Info | | 0 | 0 | 0 |
| Oil Age | hrs | Client Info | | 0 | 0 | 0 |
| 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 | MARGINAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >100 | 12 | 17 | 12 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | 0 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | <1 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | 2 | 9 | 0 |
| Silver | ppm | ASTM D5185m | >2 | <1 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | 3 | 2 | 2 |
| Lead | ppm | ASTM D5185m | >40 | <1 | 0 | 1 |
| Copper | ppm | ASTM D5185m | >330 | 2 | <1 | 1 |
| Tin | ppm | ASTM D5185m | >15 | <1 | 0 | <1 |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

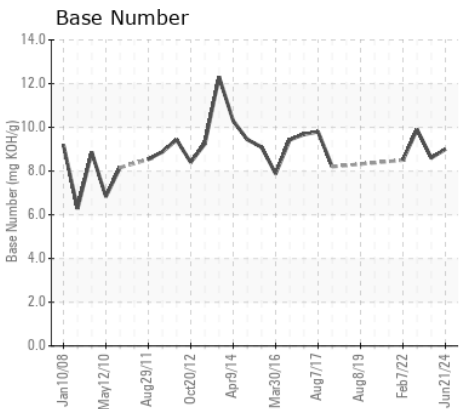
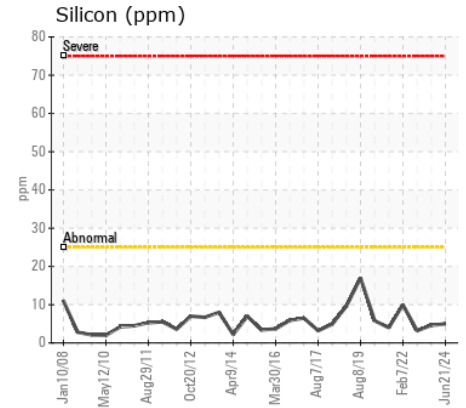
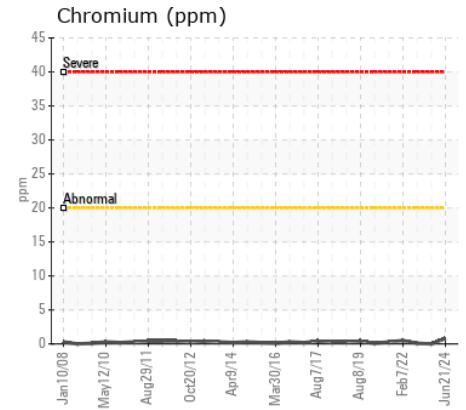
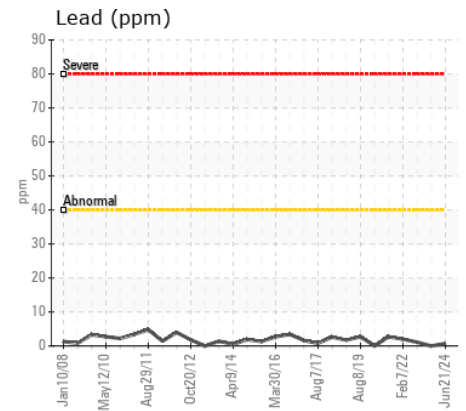
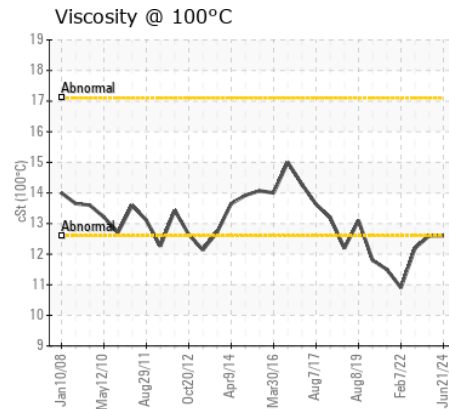
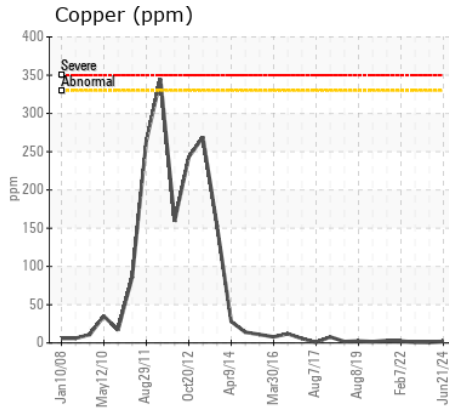
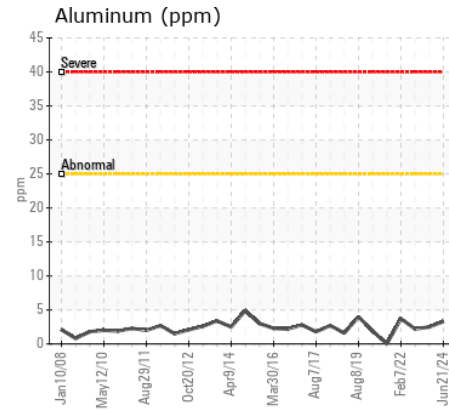
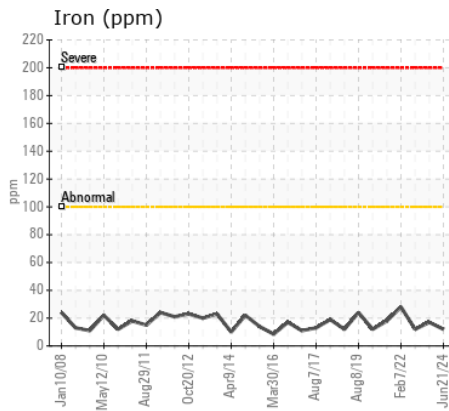
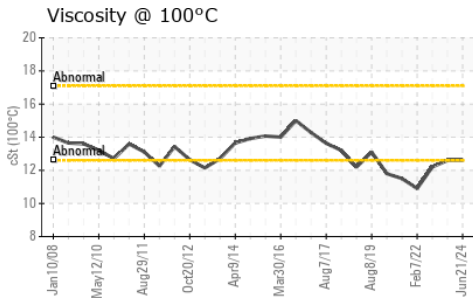
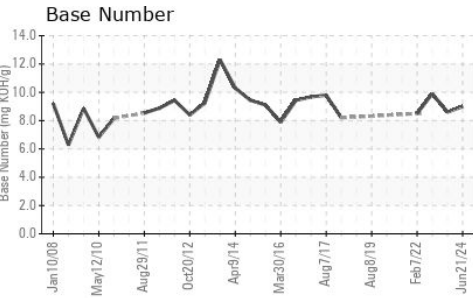
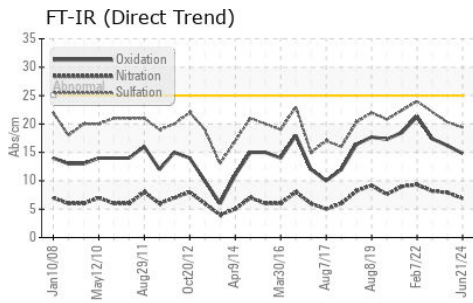
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >25 | 5 | 5 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | 3 | <1 | <1 |
| Fuel | | WC Method | >5 | <1.0 | <1.0 | ▲ 3.6 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 0.2 | 0.3 | 0.4 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 6.9 | 7.9 | 8.2 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 19.4 | 20.3 | 22.1 |
| 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 |

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 | 2 | 2 |
| Boron | ppm | ASTM D5185m | | 7 | 16 | 9 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | 61 | 54 | 60 |
| Manganese | ppm | ASTM D5185m | | <1 | 0 | <1 |
| Magnesium | ppm | ASTM D5185m | | 1009 | 950 | 922 |
| Calcium | ppm | ASTM D5185m | | 1261 | 1387 | 1171 |
| Phosphorus | ppm | ASTM D5185m | | 1118 | 1110 | 1080 |
| Zinc | ppm | ASTM D5185m | | 1364 | 1308 | 1281 |
| Sulfur | ppm | ASTM D5185m | | 3335 | 3909 | 3850 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 14.8 | 16.2 | 17.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | 9.0 | 8.6 | 9.9 |
| Visc @ 100°C | cSt | ASTM D445 | | 12.6 | 12.6 | ▲ 12.2 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0079182
Lab Number : 06229692
Unique Number : 11113185
Test Package : MOB 1 (Additional Tests: TBN)

Received : 08 Jul 2024
Tested : 09 Jul 2024
Diagnosed : 09 Jul 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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