



# LIEBHERR

## OIL ANALYSIS REPORT

|                 |               |
|-----------------|---------------|
| WEAR            | <b>NORMAL</b> |
| CONTAMINATION   | <b>NORMAL</b> |
| FLUID CONDITION | <b>NORMAL</b> |



Machine Id  
**LIEBHERR LH40M 116354-1215**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA SUPREME 5W30 (32 LTR)**

### RECOMMENDATION

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>LH0289656</b>   | LH0261417   | LH0277625   |
| Sample Date    |     | Client Info |           | <b>05 Jun 2024</b> | 22 Mar 2024 | 25 Jan 2024 |
| Machine Age    | hrs | Client Info |           | <b>11257</b>       | 10603       | 10001       |
| Oil Age        | hrs | Client Info |           | <b>0</b>           | 0           | 0           |
| Filter Age     | hrs | Client Info |           | <b>0</b>           | 0           | 0           |
| Oil Changed    |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Filter Changed |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Sample Status  |     |             |           | <b>NORMAL</b>      | NORMAL      | NORMAL      |

### WEAR

All component wear rates are normal.

|              |        |               |      |              |     |     |
|--------------|--------|---------------|------|--------------|-----|-----|
| Iron         | ppm    | ASTM D5185(m) | >100 | <b>4</b>     | 3   | 3   |
| Chromium     | ppm    | ASTM D5185(m) | >5   | <b>0</b>     | 0   | 0   |
| Nickel       | ppm    | ASTM D5185(m) | >5   | <b>0</b>     | 0   | <1  |
| Titanium     | ppm    | ASTM D5185(m) |      | <b>0</b>     | 0   | 0   |
| Silver       | ppm    | ASTM D5185(m) | >3   | <b>0</b>     | 0   | 0   |
| Aluminum     | ppm    | ASTM D5185(m) | >15  | <b>&lt;1</b> | 1   | 1   |
| Lead         | ppm    | ASTM D5185(m) | >30  | <b>0</b>     | 0   | <1  |
| Copper       | ppm    | ASTM D5185(m) | >125 | <b>1</b>     | <1  | 1   |
| Tin          | ppm    | ASTM D5185(m) | >5   | <b>0</b>     | 0   | 0   |
| Vanadium     | ppm    | ASTM D5185(m) |      | <b>0</b>     | 0   | 0   |
| White Metal  | scalar | Visual*       | NONE | <b>NONE</b>  | --- | --- |
| Yellow Metal | scalar | Visual*       | NONE | <b>NONE</b>  | --- | --- |

### CONTAMINATION

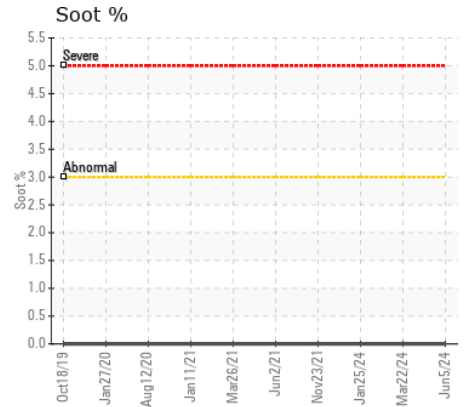
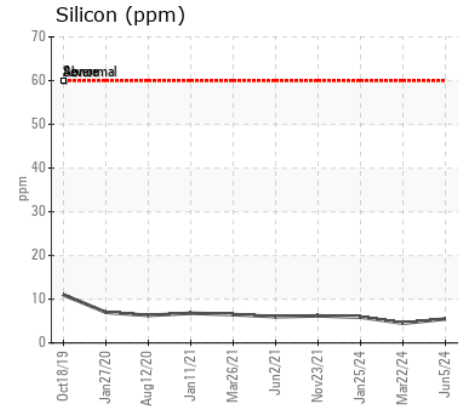
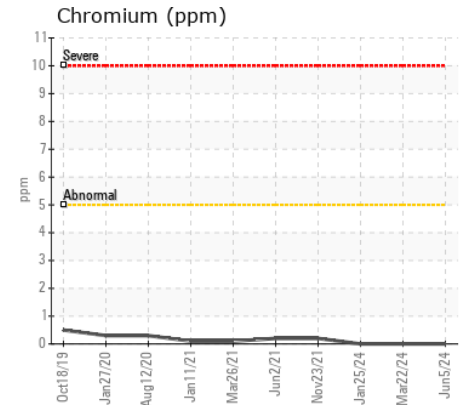
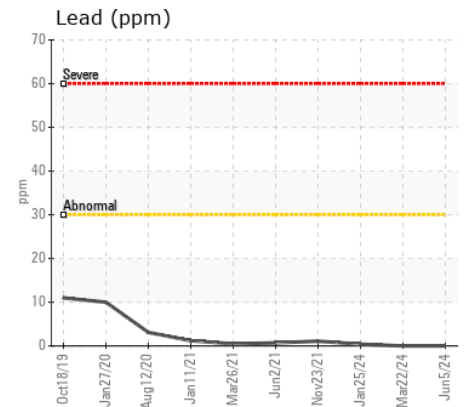
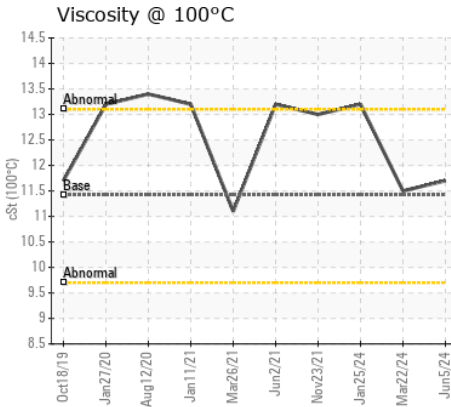
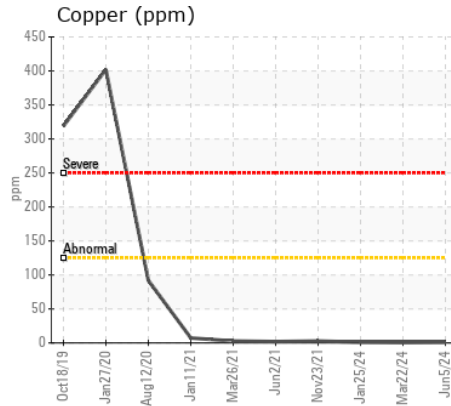
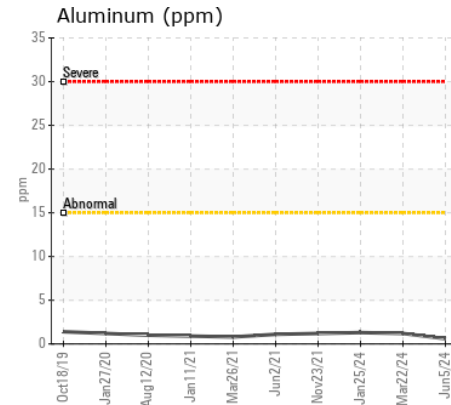
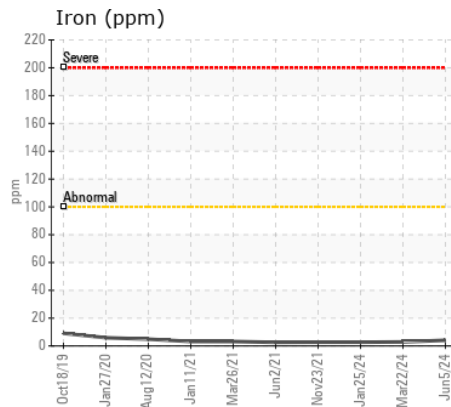
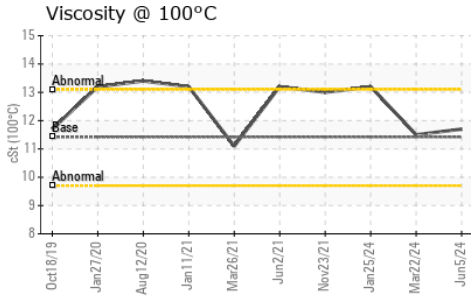
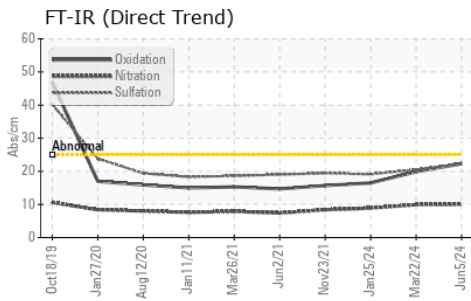
There is no indication of any contamination in the oil.

|                  |          |               |       |                |       |       |
|------------------|----------|---------------|-------|----------------|-------|-------|
| Silicon          | ppm      | ASTM D5185(m) | >60   | <b>6</b>       | 4     | 6     |
| Potassium        | ppm      | ASTM D5185(m) | >20   | <b>&lt;1</b>   | <1    | <1    |
| Fuel             |          | WC Method     | >5    | <b>&lt;1.0</b> | <1.0  | <1.0  |
| Water            |          | WC Method     | >0.2  | <b>NEG</b>     | NEG   | NEG   |
| Glycol           |          | WC Method     |       | <b>NEG</b>     | 0.0   | NEG   |
| Soot %           | %        | ASTM D7844*   | >3    | <b>0</b>       | 0     | 0     |
| Nitration        | Abs/cm   | ASTM D7624*   | >20   | <b>10.0</b>    | 9.9   | 8.9   |
| Sulfation        | Abs/.1mm | ASTM D7415*   | >30   | <b>22.2</b>    | 20.5  | 19.1  |
| Silt             | scalar   | Visual*       | NONE  | <b>NONE</b>    | ---   | ---   |
| Debris           | scalar   | Visual*       | NONE  | <b>NONE</b>    | ---   | ---   |
| Sand/Dirt        | scalar   | Visual*       | NONE  | <b>NONE</b>    | ---   | ---   |
| Appearance       | scalar   | Visual*       | NORML | <b>NORML</b>   | ---   | ---   |
| Odor             | scalar   | Visual*       | NORML | <b>NORML</b>   | NORML | NORML |
| Emulsified Water | scalar   | Visual*       | >0.2  | <b>NEG</b>     | .2%   | NEG   |

### FLUID CONDITION

The condition of the oil is acceptable for the time in service.

|              |          |               |       |             |      |      |
|--------------|----------|---------------|-------|-------------|------|------|
| Sodium       | ppm      | ASTM D5185(m) |       | <b>4</b>    | 3    | 1    |
| Boron        | ppm      | ASTM D5185(m) | 186   | <b>18</b>   | 30   | <1   |
| Barium       | ppm      | ASTM D5185(m) | <1    | <b>0</b>    | 0    | 0    |
| Molybdenum   | ppm      | ASTM D5185(m) | 79    | <b>56</b>   | 55   | 59   |
| Manganese    | ppm      | ASTM D5185(m) | 0     | <b>0</b>    | 0    | 0    |
| Magnesium    | ppm      | ASTM D5185(m) | 578   | <b>1126</b> | 1113 | 971  |
| Calcium      | ppm      | ASTM D5185(m) | 1002  | <b>816</b>  | 837  | 1067 |
| Phosphorus   | ppm      | ASTM D5185(m) | 745   | <b>976</b>  | 993  | 1029 |
| Zinc         | ppm      | ASTM D5185(m) | 837   | <b>1185</b> | 1209 | 1183 |
| Sulfur       | ppm      | ASTM D5185(m) | 2502  | <b>2659</b> | 2713 | 2707 |
| Oxidation    | Abs/.1mm | ASTM D7414*   | >25   | <b>22.3</b> | 19.9 | 16.5 |
| Visc @ 100°C | cSt      | ASTM D7279(m) | 11.42 | <b>11.7</b> | 11.5 | 13.2 |



ISO 17025:2017  
Accredited  
Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : LH0289656  
**Lab Number** : 02640412  
**Unique Number** : 5789574  
**Test Package** : MOB 1 ( Additional Tests: Visual )

**Received** : 07 Jun 2024  
**Tested** : 07 Jun 2024  
**Diagnosed** : 07 Jun 2024 - Wes Davis

**KIMCO STEEL SALES LTD.**  
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To discuss this sample report, contact Customer Service at 1-800-268-2131.  
 Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.  
 Validity of results and interpretation are based on the sample and information as supplied.