

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR LH50M 1216-108671 - Diesel Engine

Sample No: LH0272710

Oil Type: CHEVRON DELO LE 5W40



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SAMPLE INFORMATION

| Sample Number | LH0272710 | LH0272537 | LH0272539 | LH0243417 |
|---------------|-------------|-------------|-------------|-------------|
| Sample Date | 17 Jan 2024 | 14 Dec 2023 | 01 Nov 2023 | 05 Sep 2023 |
| Machine Hours | 19562 | 19125 | 18598 | 17864 |
| Oil Hours | 0 | 1000 | 0 | 0 |
| Oil Changed | Changed | Changed | Changed | Changed |
| Sample Status | NORMAL | NORMAL | NORMAL | NORMAL |



OIL CONDITION

| Visc @ 100°C | cSt | 12.9 | 13.1 | 13.0 | 13.3 |
|------------------|----------|------|------|------|------|
| Base Number (BN) | mg KOH/g | 7.3 | 7.0 | 6.7 | 6.9 |
| Oxidation (PA) | % | 57 | 58 | 63 | 56 |



CONTAMINATION

| Water | % | NEG | NEG | NEG | NEG |
|----------------|-----|------|------|------|------|
| Soot % | % | 0.1 | 0.1 | 0.1 | 0.1 |
| Nitration (PA) | % | 69 | 70 | 73 | 69 |
| Sulfation (PA) | % | 54 | 54 | 59 | 53 |
| Glycol | % | NEG | NEG | NEG | NEG |
| Fuel | % | <1.0 | <1.0 | <1.0 | <1.0 |
| Silicon | ppm | 7 | 9 | 9 | 9 |
| Sodium | ppm | 3 | 0 | 2 | 4 |
| Potassium | ppm | 2 | 4 | 1 | 5 |



WEAR METALS

| | | | | | |
|------------|-----|----|----|----|----|
| Iron | ppm | 4 | 5 | 4 | 6 |
| Copper | ppm | 3 | 3 | 4 | 8 |
| Lead | ppm | 0 | 0 | 0 | 0 |
| Tin | ppm | 0 | <1 | <1 | 1 |
| Aluminum | ppm | 1 | 3 | 1 | 2 |
| Chromium | ppm | 0 | <1 | 0 | <1 |
| Molybdenum | ppm | 11 | 7 | 4 | 11 |
| Nickel | ppm | 0 | <1 | 0 | <1 |
| Titanium | ppm | 67 | 92 | 85 | 73 |
| Silver | ppm | 0 | 0 | <1 | <1 |
| Manganese | ppm | <1 | <1 | <1 | 1 |
| Vanadium | ppm | <1 | 1 | 1 | <1 |



ADDITIVES

| | | | | | |
|------------|-----|------|------|------|------|
| Calcium | ppm | 1456 | 1313 | 1341 | 1350 |
| Magnesium | ppm | 667 | 687 | 772 | 776 |
| Zinc | ppm | 1258 | 1165 | 1281 | 1264 |
| Phosphorus | ppm | 1021 | 1005 | 1073 | 1026 |
| Barium | ppm | 0 | 9 | 0 | 0 |
| Boron | ppm | 98 | 110 | 67 | 72 |

Diagnosis

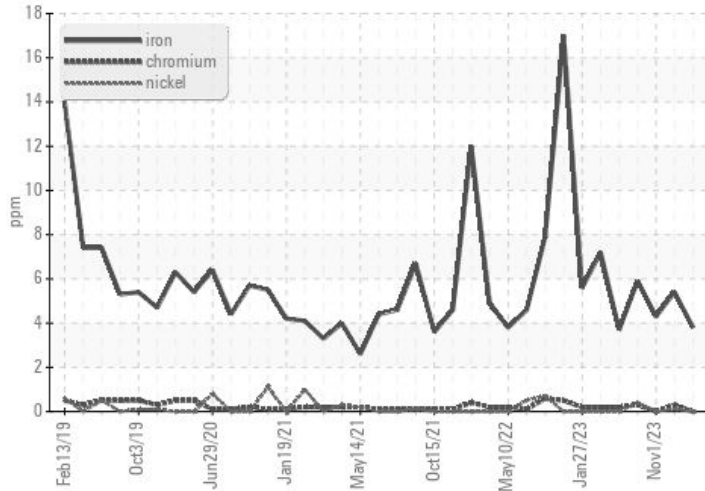
Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Depot: LEC0008
 Unique No: 10845681
 Signed: Wes Davis
 Report Date: 24 Jan 2024

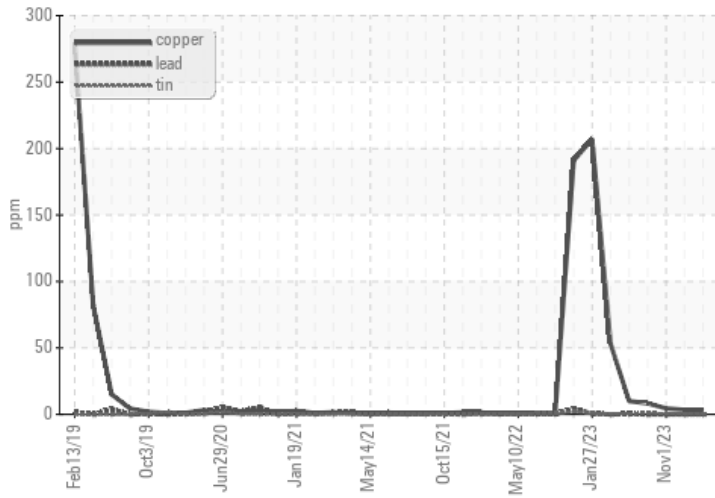


GRAPHS

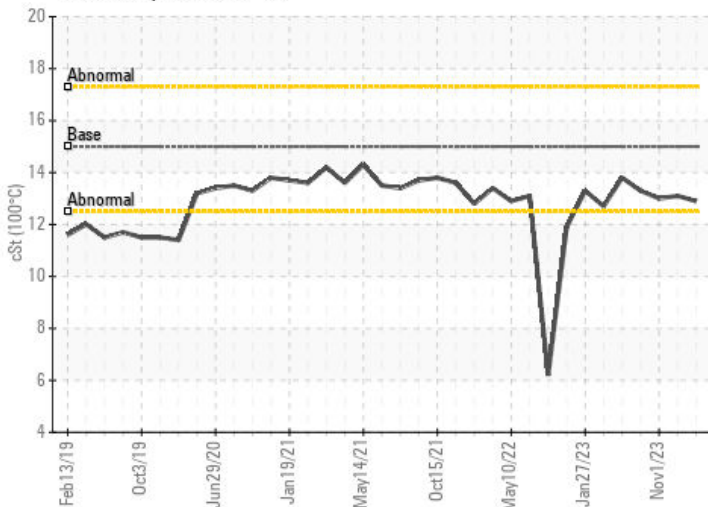
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

