

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR LH60M 1204-74217 - Diesel Engine

Sample No: LH0268899

Oil Type: DIESEL ENGINE OIL SAE 5W40



MIDDLE RIVER MARINE
 1771 SOUTH TORRENCE AVE
 CHICAGO, IL
 US 60617
 Contact: Scott Molitor
 scottmolitor@gomiddleriver.com
 T:
 F:



Sample Information

| | | | | |
|---------------|-------------|-------------|-------------|-------------|
| Sample Number | LH0268899 | LH0235837 | LHMC118459 | LHMC121037 |
| Sample Date | 09 Apr 2024 | 26 Aug 2022 | 27 Sep 2017 | 10 Aug 2017 |
| Machine Hours | 14693 | 0 | 9103 | 8752 |
| Oil Hours | 500 | 0 | 0 | 0 |
| Oil Changed | Changed | N/A | Changed | Changed |
| Sample Status | NORMAL | NORMAL | NORMAL | NORMAL |



Oil Condition

| | | | | | |
|------------------|----------|------|------|-------|------|
| Visc @ 100°C | cSt | 14.0 | 11.4 | 11.95 | 11.9 |
| Base Number (BN) | mg KOH/g | 7.2 | 10.1 | --- | --- |
| Oxidation (PA) | % | 60 | 68 | 52 | 52 |



Contamination

| | | | | | |
|----------------|-----|------|------|------|------|
| Water | % | NEG | NEG | NEG | NEG |
| Soot % | % | 1.7 | 1.1 | 0.8 | 0.7 |
| Nitration (PA) | % | 88 | 82 | 75 | 75 |
| Sulfation (PA) | % | 58 | 58 | 53 | 58 |
| Glycol | % | NEG | NEG | NEG | NEG |
| Fuel | % | <1.0 | <1.0 | <1.0 | <1.0 |
| Silicon | ppm | 8 | 6 | 6 | 8 |
| Sodium | ppm | 4 | 5 | 3 | 4 |
| Potassium | ppm | 4 | 1 | <1 | 2 |



Wear Metals

| | | | | | |
|------------|-----|----|----|----|----|
| Iron | ppm | 30 | 17 | 9 | 8 |
| Copper | ppm | 3 | 5 | 9 | 2 |
| Lead | ppm | <1 | <1 | <1 | <1 |
| Tin | ppm | <1 | <1 | 6 | <1 |
| Aluminum | ppm | 13 | 4 | 2 | 2 |
| Chromium | ppm | 2 | <1 | <1 | <1 |
| Molybdenum | ppm | 13 | 58 | 2 | 4 |
| Nickel | ppm | 1 | 0 | 0 | <1 |
| Titanium | ppm | <1 | 4 | 0 | 0 |
| Silver | ppm | <1 | 0 | 0 | 0 |
| Manganese | ppm | <1 | <1 | <1 | <1 |
| Vanadium | ppm | <1 | 0 | 0 | 0 |



Additives

| | | | | | |
|------------|-----|------|------|------|------|
| Calcium | ppm | 1243 | 1207 | 1435 | 1382 |
| Magnesium | ppm | 665 | 655 | 684 | 651 |
| Zinc | ppm | 806 | 912 | 782 | 786 |
| Phosphorus | ppm | 699 | 756 | 662 | 717 |
| Barium | ppm | 2 | 0 | 0 | 0 |
| Boron | ppm | 46 | 31 | 46 | 31 |

Diagnosis

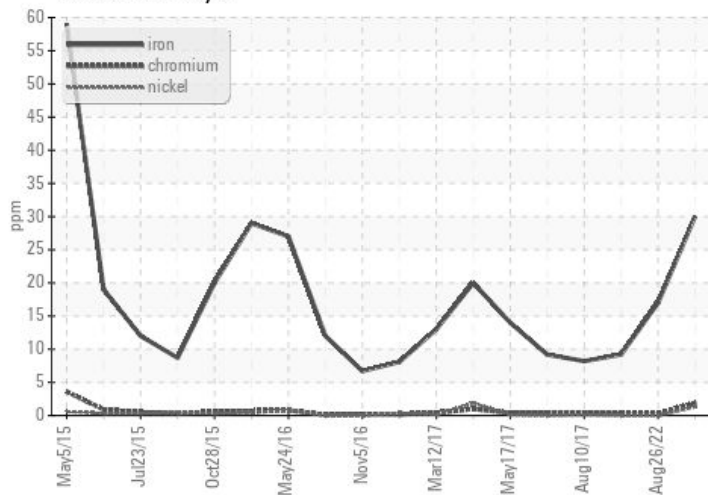
Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Depot: MIDCHIL
 Unique No: 11004533
 Signed: Don Baldrige
 Report Date: 01 May 2024

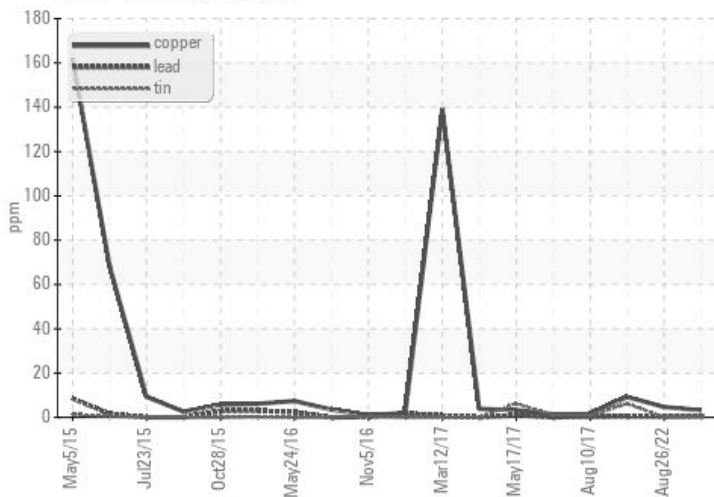


Graphs

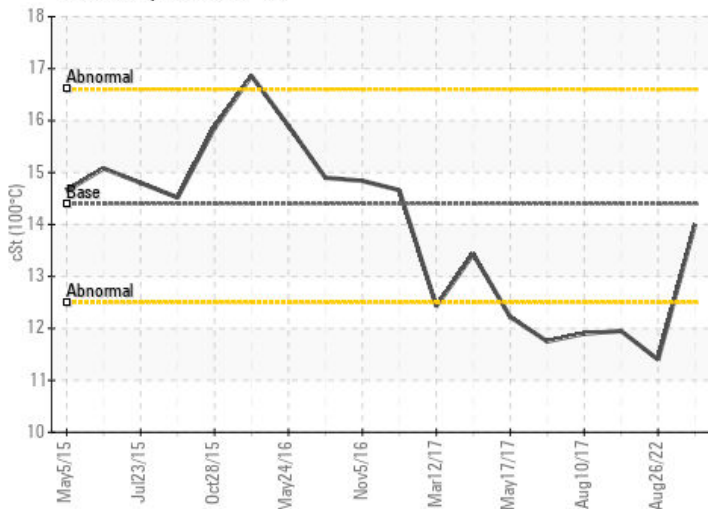
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Base Number

