

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR R924 041668-1318 - Hydraulic System

Sample No: LH0135477

Oil Type: LIEBHERR HYDRAULIC HVI



SAMPLE INFORMATION

| | | | | |
|---------------|-------------|-------------|-------------|-------------|
| Sample Number | LH0135477 | LH | LH | LH0135487 |
| Sample Date | 29 Sep 2023 | 21 Dec 2022 | 21 Jan 2021 | 15 Apr 2019 |
| Machine Hours | 3700 | 3256 | 2000 | 0 |
| Oil Hours | 0 | 0 | 0 | 520 |
| Oil Changed | Changed | Not Changd | Not Changd | N/A |
| Sample Status | MARGINAL | MARGINAL | NORMAL | ABNORMAL |

Norstone Excavating
 2239 - 165 Street
 Surrey, BC
 CA V3Z 0L8
 Contact: Gerrard White
 gerrardbwhite@gmail.com
 T:
 F:



OIL CONDITION

| | | | | | |
|------------------|----------|------|------|------|------|
| Visc @ 40°C | cSt | 41.9 | 41.7 | 43.2 | 44.6 |
| Acid Number (AN) | mg KOH/g | 1.22 | --- | --- | 1.22 |



CONTAMINATION

| | | | | | |
|-------------------|-----|----------|----------|----------|----------|
| Particles >4µm | | 4466 | 18401 | 7707 | 73340 |
| Particles >6µm | | 423 | 1125 | 527 | 14866 |
| Particles >14µm | | 23 | 30 | 31 | 480 |
| ISO 4406:1999 (c) | | 19/16/12 | 21/17/12 | 20/16/12 | 23/21/16 |
| Silicon | ppm | 7 | 7 | 6 | 4 |
| Sodium | ppm | 3 | 3 | 3 | 2 |
| Potassium | ppm | 1 | 1 | 2 | 2 |



WEAR METALS

| | | | | | |
|------------|-----|----|----|----|----|
| Iron | ppm | 17 | 15 | 16 | 7 |
| Copper | ppm | 17 | 16 | 12 | 5 |
| Lead | ppm | 3 | 5 | 3 | 1 |
| Tin | ppm | 0 | <1 | <1 | 0 |
| Aluminum | ppm | 1 | <1 | <1 | <1 |
| Chromium | ppm | 2 | 1 | 1 | 0 |
| Molybdenum | ppm | 0 | 0 | 0 | 0 |
| Nickel | ppm | 0 | <1 | 0 | 0 |
| Titanium | ppm | 0 | <1 | <1 | 0 |
| Silver | ppm | <1 | 0 | <1 | 0 |
| Manganese | ppm | 0 | <1 | <1 | <1 |
| Vanadium | ppm | 0 | 0 | 0 | 0 |



ADDITIVES

| | | | | | |
|------------|-----|-----|------|------|------|
| Calcium | ppm | 990 | 1070 | 1062 | 1341 |
| Magnesium | ppm | 4 | 4 | 4 | 6 |
| Zinc | ppm | 729 | 702 | 713 | 709 |
| Phosphorus | ppm | 582 | 623 | 553 | 587 |
| Barium | ppm | <1 | 0 | <1 | 0 |
| Boron | ppm | 2 | 1 | 1 | <1 |

Diagnosis

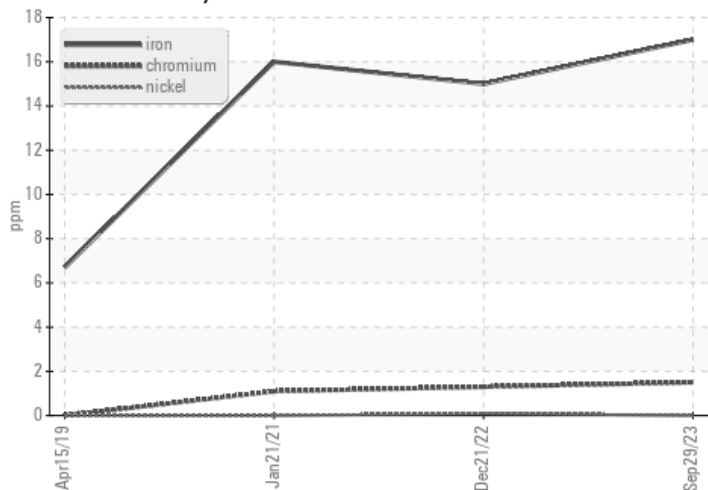
We recommend an early resample to monitor this condition. Please specify the brand, type, and viscosity of the oil on your next sample. Copper ppm levels are marginal. All other component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The condition of the oil is acceptable for the time in service.

Depot: NORSUR
 Unique No: 5656255
 Signed: Kevin Marson
 Report Date: 06 Oct 2023

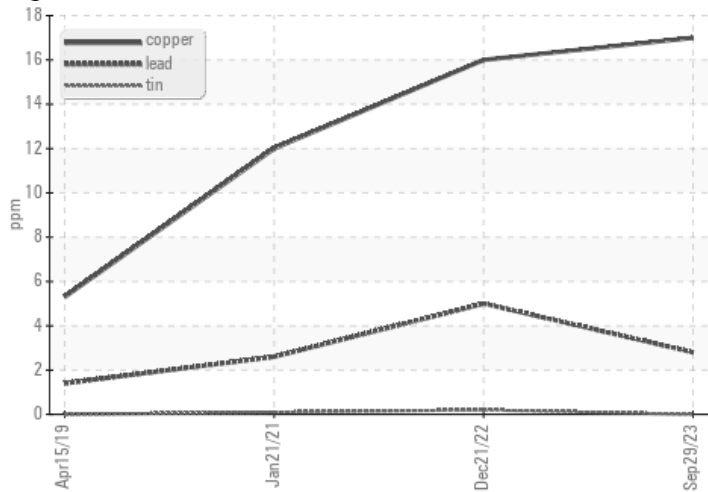


GRAPHS

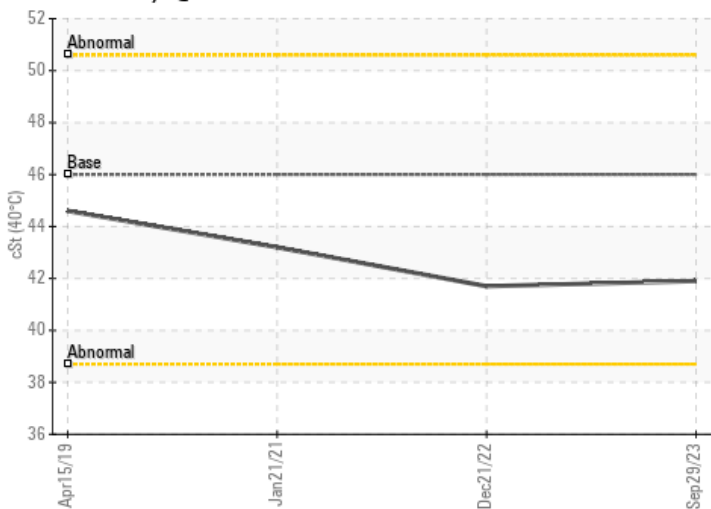
Ferrous Alloys



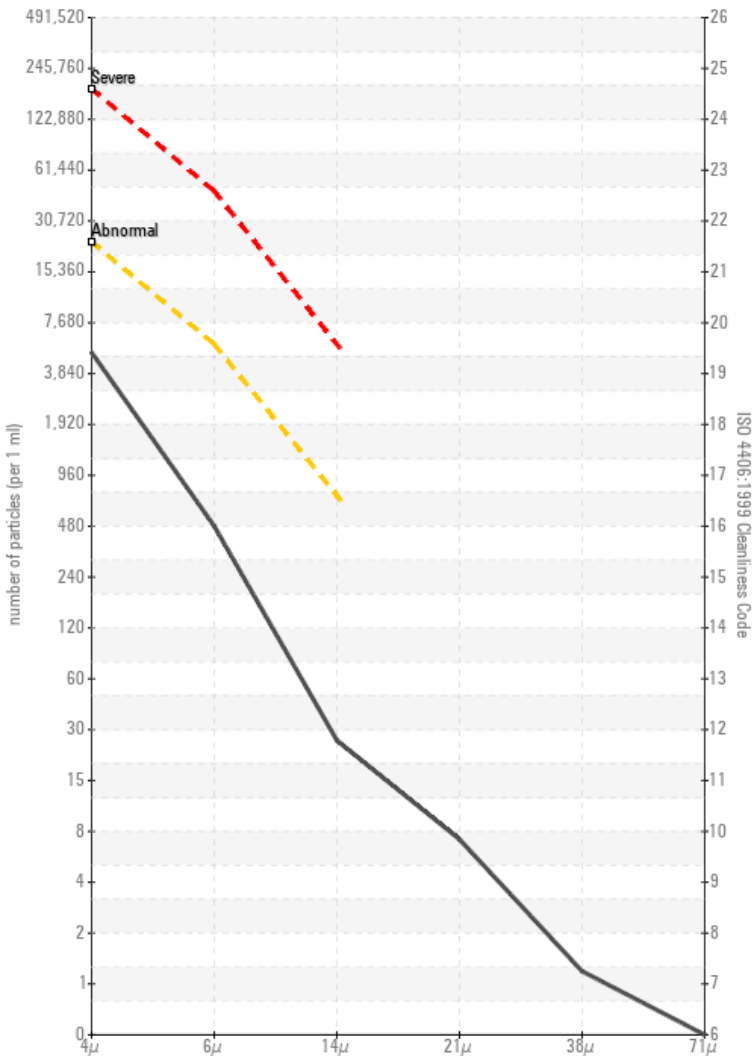
Non-ferrous Metals



Viscosity @ 40°C



Particle Count



Acid Number

