

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR R924 038847-1318 - Diesel Engine

Sample No: LH0242054

Oil Type: PETRO CANADA 10W40



#### SAMPLE INFORMATION

Sample Number	LH0242054	LH0260467	LH0246968	LH0234049
Sample Date	21 Nov 2023	25 Aug 2023	13 Jan 2023	09 Sep 2022
Machine Hours	10101	9529	8980	8644
Oil Hours	0	0	0	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	ABNORMAL	NORMAL	ABNORMAL	NORMAL

**ECOWASTE INDUSTRIES LTD.**  
 15111 WILLIAMS ROAD  
 RICHMOND, BC  
 CA V6W 1G9  
 Contact: Service Manager



#### OIL CONDITION

Visc @ 100°C	cSt	12.3	12.9	13.6	12.9
Oxidation (PA)	%	65	53	61	70

T: (604)277-1410  
 F:



#### CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.3	0.1	0.2	0.4
Nitration (PA)	%	75	65	63	78
Sulfation (PA)	%	56	53	56	59
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	11	9	9	9
Sodium	ppm	5	6	2	3
Potassium	ppm	6	14	<1	0

#### Diagnosis

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. Copper ppm levels are abnormal. A sharp increase in the copper level is noted. Bearing wear is indicated. There is no indication of any contamination in the oil. The oil is no longer serviceable as a result of the abnormal and/or severe wear.



#### WEAR METALS

Iron	ppm	25	28	12	15
Copper	ppm	154	19	2	3
Lead	ppm	7	4	1	4
Tin	ppm	2	2	<1	<1
Aluminum	ppm	5	5	17	4
Chromium	ppm	2	2	<1	<1
Molybdenum	ppm	57	48	59	61
Nickel	ppm	0	0	<1	<1
Titanium	ppm	0	<1	<1	0
Silver	ppm	<1	<1	0	0
Manganese	ppm	<1	1	<1	<1
Vanadium	ppm	0	0	0	0



#### ADDITIVES

Calcium	ppm	1389	1675	1114	1133
Magnesium	ppm	916	776	957	1006
Zinc	ppm	1235	1162	1216	1257
Phosphorus	ppm	992	1041	1079	1096
Barium	ppm	11	24	0	0
Boron	ppm	5	25	1	<1

Depot: ECORIC  
 Unique No: 5683723  
 Signed: Kevin Marson  
 Report Date: 24 Nov 2023



### GRAPHS

