

# LIEBHERR

## CONSTRUCTION EQUIPMENT



### LIEBHERR 333 - Diesel Engine

Sample No: LH0178202

Oil Type: KENDALL 10W30



#### Sample Information

Sample Number	LH0178202	LH0178236	LH0247112	LH0247108
Sample Date	14 Feb 2024	11 Jul 2023	21 Jun 2023	15 May 2023
Machine Hours	17500	0	17030	16950
Oil Hours	500	40	200	150
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	ABNORMAL	NORMAL	NORMAL	NORMAL

**DOMINION NICKEL ALLOYS LTD.**

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#### Oil Condition

Visc @ 100°C	cSt	16.4	11.4	11.5	11.5
Oxidation (PA)	%	68	53	55	55



#### Contamination

Water	%	0.072	NEG	NEG	NEG
Soot %	%	2.7	0.2	0.3	0.3
Nitration (PA)	%	83	41	43	45
Sulfation (PA)	%	72	52	52	54
Glycol	%	0.0	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	2	4	3	4
Sodium	ppm	2	2	1	1
Potassium	ppm	4	<1	0	0

#### Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. The water content is negligible. There is no indication of any contamination in the oil. Viscosity of sample indicates oil is within SAE 50 range, advise investigate. The condition of the oil is acceptable for the time in service.



#### Wear Metals

Iron	ppm	17	3	4	4
Copper	ppm	2	1	2	<1
Lead	ppm	0	0	0	0
Tin	ppm	0	0	0	0
Aluminum	ppm	1	<1	<1	1
Chromium	ppm	0	0	0	0
Molybdenum	ppm	17	62	62	63
Nickel	ppm	<1	0	0	0
Titanium	ppm	0	<1	<1	<1
Silver	ppm	0	0	0	0
Manganese	ppm	<1	0	<1	<1
Vanadium	ppm	0	0	0	0



#### Additives

Calcium	ppm	2235	1682	1689	1729
Magnesium	ppm	113	435	431	414
Zinc	ppm	1155	1148	1151	1115
Phosphorus	ppm	891	1027	1021	1023
Barium	ppm	0	0	0	0
Boron	ppm	102	121	112	113

Depot: DOMBUR  
Unique No: 5763619  
Signed: Kevin Marson  
Report Date: 24 Apr 2024



### Graphs

