

LIEBHERR

CONSTRUCTION EQUIPMENT



LIEBHERR PR776 15946 - Diesel Engine

Sample No: LHMC105777

Oil Type: MOBIL DELVAC 1300 SUPER 10W30



LIEBHERR MINING EQUIPMENT CO
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Sample Information

Sample Number	LHMC105777	LH0220501	LH0220569	LHMC147220
Sample Date	14 May 2024	14 Oct 2023	10 May 2023	24 Oct 2019
Machine Hours	11418	8488	9275	1129
Oil Hours	700	0	0	112
Oil Changed	Changed	Changed	Not Changd	Not Changd
Sample Status	ABNORMAL	NORMAL	NORMAL	NORMAL



Oil Condition

Visc @ 100°C	cSt	13.9	11.7	12.5	12.1
Base Number (BN)	mg KOH/g	1.7	9.8	7.1	---
Oxidation (PA)	%	92	73	57	45



Contamination

Water	%	NEG	NEG	NEG	NEG
Soot %	%	4.1	0.8	1.3	0.4
Nitration (PA)	%	122	51	75	78
Sulfation (PA)	%	92	61	58	45
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	5	7	9	4
Sodium	ppm	2	0	4	4
Potassium	ppm	3	2	3	1



Wear Metals

Iron	ppm	40	8	35	16
Copper	ppm	8	1	3	7
Lead	ppm	2	<1	0	0
Tin	ppm	0	0	<1	0
Aluminum	ppm	2	2	4	2
Chromium	ppm	1	<1	2	<1
Molybdenum	ppm	10	38	20	4
Nickel	ppm	0	<1	<1	<1
Titanium	ppm	<1	<1	2	2
Silver	ppm	<1	0	<1	<1
Manganese	ppm	<1	<1	1	<1
Vanadium	ppm	0	0	<1	0



Additives

Calcium	ppm	1693	1577	1498	4098
Magnesium	ppm	770	514	747	49
Zinc	ppm	1045	902	952	1120
Phosphorus	ppm	914	733	803	949
Barium	ppm	0	3	0	2
Boron	ppm	37	50	46	195

Diagnosis

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value. All component wear rates are normal. There is an abnormal amount of solids and carbon present in the oil. The oil viscosity is higher than normal. The BN level is low.

Depot: LIEGIL
 Unique No: 11049938
 Signed: Jonathan Hester
 Report Date: 30 May 2024



Graphs

