



LIEBHERR

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ATTENTION



Machine Id
LIEBHERR LH50 1203-77107
Component
Diesel Engine
Fluid
CHEVRON DELO LE 5W40 (9 GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0258793	LH0272548	LH0243353
Sample Date		Client Info		01 Mar 2024	28 Nov 2023	30 Aug 2023
Machine Age	hrs	Client Info		20946	20037	19522
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	NORMAL

WEAR

The aluminum level is abnormal. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>66	56	35	31
Chromium	ppm	ASTM D5185m	>4	2	2	1
Nickel	ppm	ASTM D5185m	>4	0	1	0
Titanium	ppm	ASTM D5185m		86	92	78
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>8	▲ 13	● 11	7
Lead	ppm	ASTM D5185m	>10	10	4	<1
Copper	ppm	ASTM D5185m	>74	11	32	5
Tin	ppm	ASTM D5185m	>4	1	1	<1
Vanadium	ppm	ASTM D5185m		<1	1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

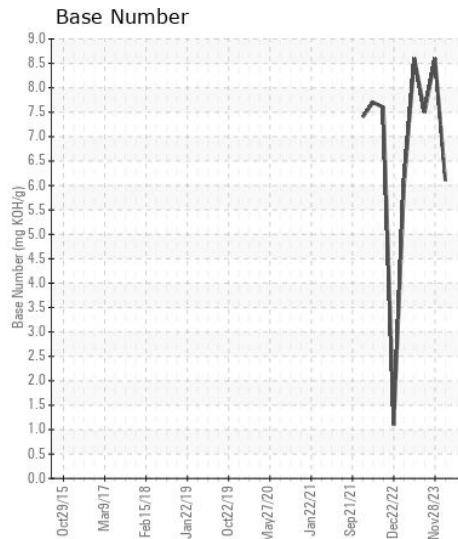
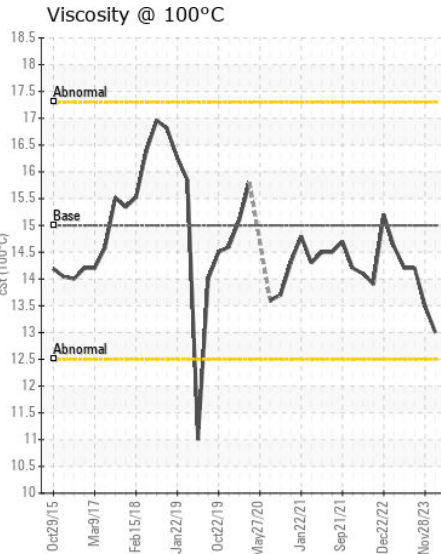
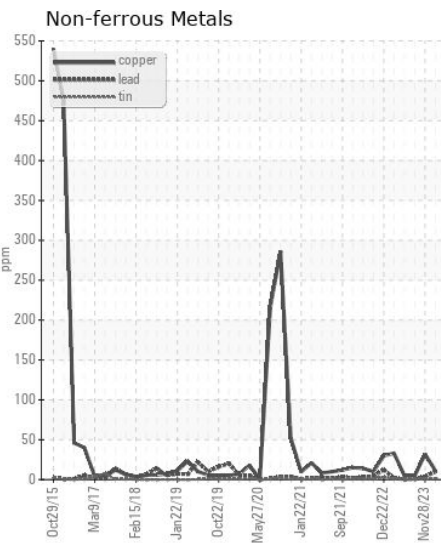
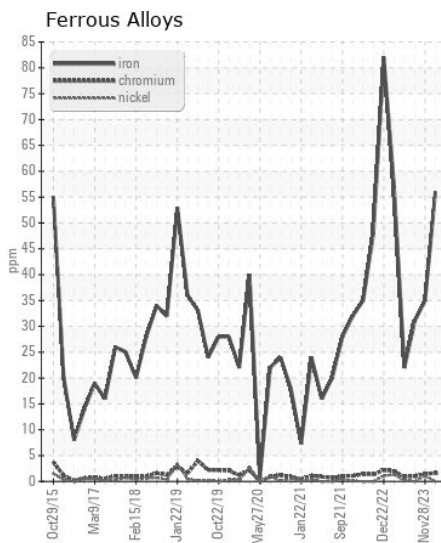
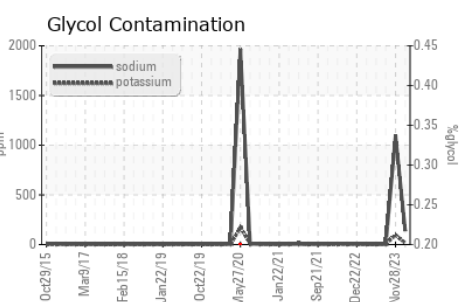
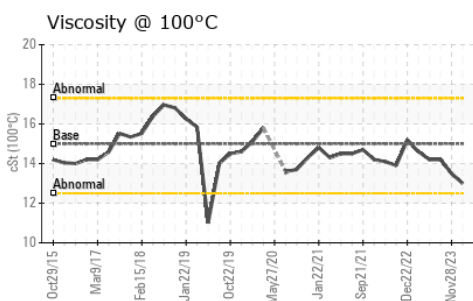
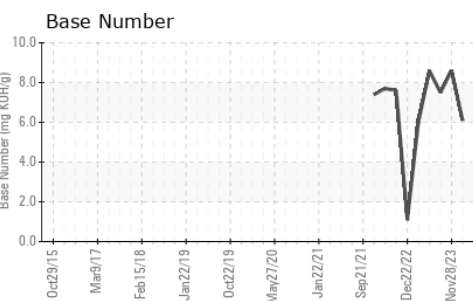
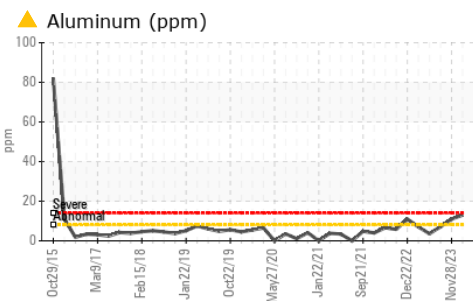
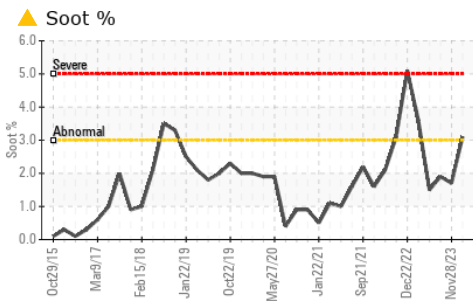
Sodium and/or potassium levels remain high. There is an abnormal amount of solids and carbon present in the oil. Test for glycol is negative.

Silicon	ppm	ASTM D5185m	>15	12	▲ 23	8
Potassium	ppm	ASTM D5185m	>20	15	▲ 97	2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	▲ 3.1	1.7	1.9
Nitration	Abs/cm	*ASTM D7624	>20	17.0	13.4	12.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	33.6	23.9	23.7
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		● 139	▲ 1096	4
Boron	ppm	ASTM D5185m	66	16	27	24
Barium	ppm	ASTM D5185m		0	11	0
Molybdenum	ppm	ASTM D5185m	70	7	8	11
Manganese	ppm	ASTM D5185m		1	1	<1
Magnesium	ppm	ASTM D5185m	1230	720	615	788
Calcium	ppm	ASTM D5185m	930	1349	1315	1371
Phosphorus	ppm	ASTM D5185m	1230	994	909	1032
Zinc	ppm	ASTM D5185m	1310	1241	1098	1242
Sulfur	ppm	ASTM D5185m	3460	4079	4465	4131
Oxidation	Abs/.1mm	*ASTM D7414	>25	23.6	17.5	15.6
Base Number (BN)	mg KOH/g	ASTM D2896		6.1	8.6	7.5
Visc @ 100°C	cSt	ASTM D445	15	13.0	13.5	14.2



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LH0258793
Lab Number : 06124189
Unique Number : 10938340
Test Package : CONST (Additional Tests: Glycol, TBN)

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To discuss this sample report, contact Customer Service at 1-800-237-1369.
 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.
 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)