



LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL



Machine Id
LIEBHERR A934C 075771-1418
Component
Diesel Engine
Fluid
PETRO CANADA 10W30 (--- GAL)

RECOMMENDATION

The oil is near the end of its useful service life, recommend schedule an oil change.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0281421	LH0230722	LH
Sample Date		Client Info		30 May 2024	06 Jun 2022	17 Aug 2020
Machine Age	hrs	Client Info		10003	8535	7022
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changed	Changed	Changed
Filter Changed		Client Info		N/A	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>66	47	21	19
Chromium	ppm	ASTM D5185(m)	>4	2	<1	<1
Nickel	ppm	ASTM D5185(m)	>4	0	0	<1
Titanium	ppm	ASTM D5185(m)		0	0	<1
Silver	ppm	ASTM D5185(m)	>3	0	0	0
Aluminum	ppm	ASTM D5185(m)	>8	1	1	1
Lead	ppm	ASTM D5185(m)	>10	1	<1	<1
Copper	ppm	ASTM D5185(m)	>74	15	3	2
Tin	ppm	ASTM D5185(m)	>4	0	<1	<1
Vanadium	ppm	ASTM D5185(m)		0	0	0

CONTAMINATION

Light concentration of carbon/soot present in the oil.

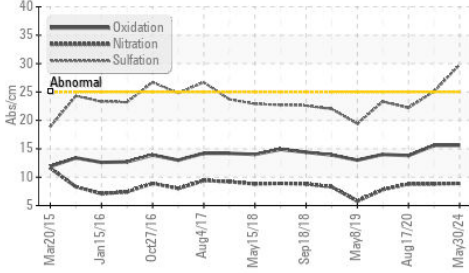
Silicon	ppm	ASTM D5185(m)	>15	4	6	7
Potassium	ppm	ASTM D5185(m)	>20	<1	<1	<1
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	ASTM D7844*	>3	▲ 4.3	2.3	2.3
Nitration	Abs/cm	ASTM D7624*	>20	8.9	8.8	8.8
Sulfation	Abs/.1mm	ASTM D7415*	>30	29.8	25.1	22.2
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG

FLUID CONDITION

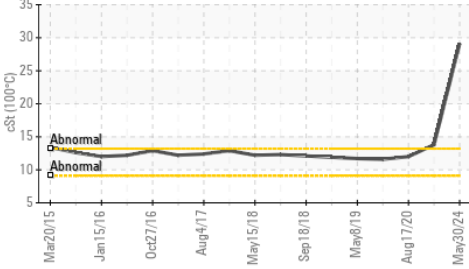
Visc @ 100°C is abnormally high. Calcium ppm levels are abnormally low. The oil viscosity is higher than normal. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185(m)		1	1	<1
Boron	ppm	ASTM D5185(m)		<1	4	11
Barium	ppm	ASTM D5185(m)		<1	0	<1
Molybdenum	ppm	ASTM D5185(m)		39	58	58
Manganese	ppm	ASTM D5185(m)		<1	<1	<1
Magnesium	ppm	ASTM D5185(m)		683	972	966
Calcium	ppm	ASTM D5185(m)		▲ 815	1029	1169
Phosphorus	ppm	ASTM D5185(m)		824	1057	1064
Zinc	ppm	ASTM D5185(m)		997	1198	1227
Sulfur	ppm	ASTM D5185(m)		1882	2556	2653
Oxidation	Abs/.1mm	ASTM D7414*	>25	15.6	15.6	13.8
Visc @ 100°C	cSt	ASTM D7279(m)		▲ 29.1	13.8	12.0

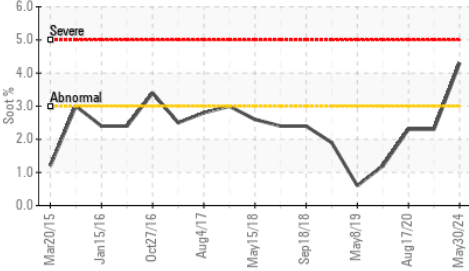
▲ FT-IR (Direct Trend)



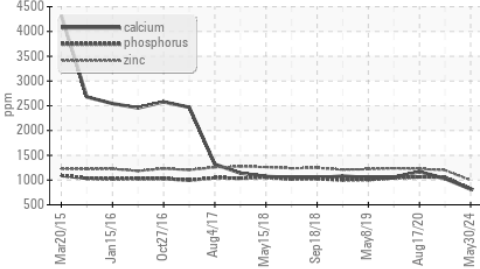
▲ Viscosity @ 100°C



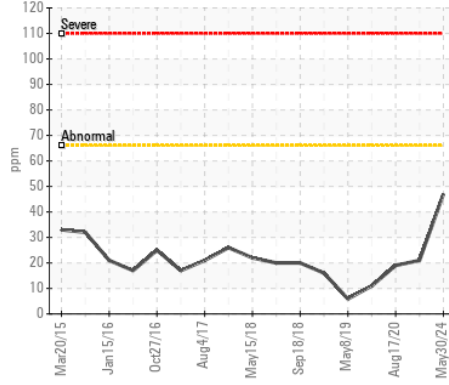
▲ Soot %



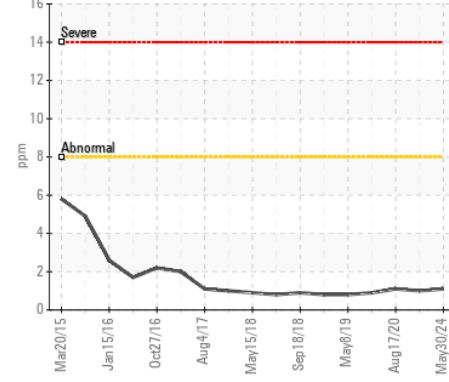
▲ Additives



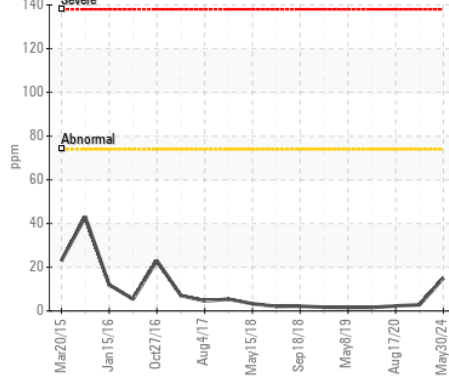
Iron (ppm)



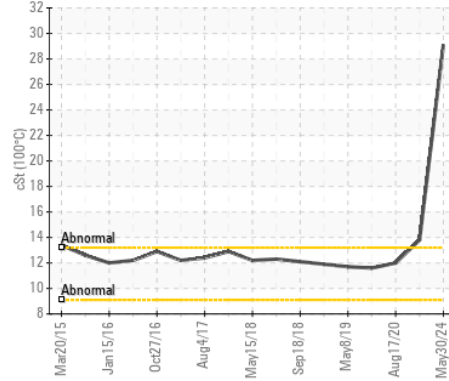
Aluminum (ppm)



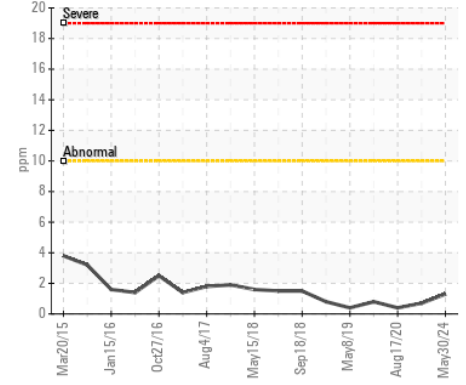
Copper (ppm)



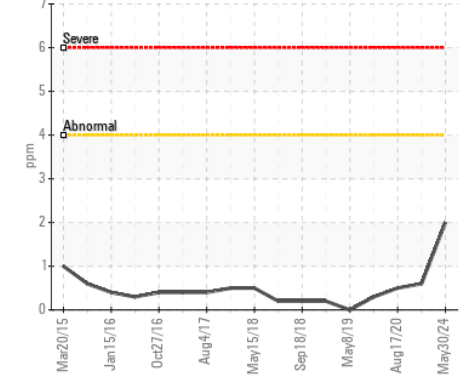
▲ Viscosity @ 100°C



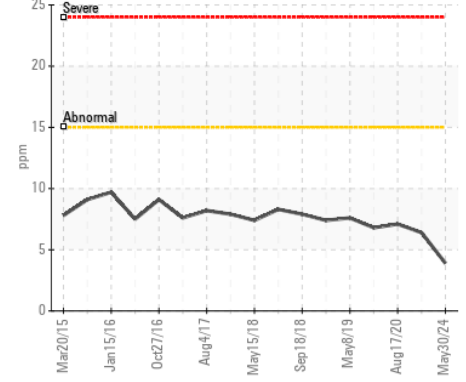
Lead (ppm)



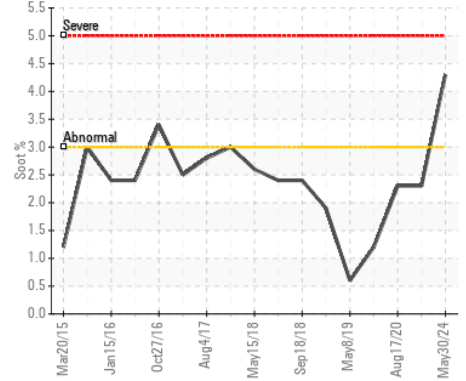
Chromium (ppm)



Silicon (ppm)



▲ Soot %



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : LH0281421
Lab Number : 02639020
Unique Number : 5788182
Test Package : MOB 1

Received : 30 May 2024
Tested : 30 May 2024
Diagnosed : 30 May 2024 - Wes Davis

ELG Canada
 4375 CORPORATE DRIVE
 BURLINGTON, ON
 CA L7L 5P7
 Contact: Service Manager

To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.

T:
 F: (905)335-9687