



LIEBHERR

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR T60-9 022201-1709
Component
Diesel Engine
Fluid
SAE 10W40 (--- GAL)

RECOMMENDATION

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0228239	LH0228236	---
Sample Date		Client Info		20 Feb 2024	24 Jan 2023	---
Machine Age	hrs	Client Info		1045	526	---
Oil Age	hrs	Client Info		0	0	---
Filter Age	hrs	Client Info		0	0	---
Oil Changed		Client Info		Changed	Changed	---
Filter Changed		Client Info		Changed	Changed	---
Sample Status				ABNORMAL	NORMAL	---

WEAR

Aluminum and chromium ppm levels are abnormal. Ring wear is indicated. Piston wear is indicated.

Iron	ppm	ASTM D5185(m)	>100	35	61	---
Chromium	ppm	ASTM D5185(m)	>5	▲ 7	10	---
Nickel	ppm	ASTM D5185(m)	>5	<1	<1	---
Titanium	ppm	ASTM D5185(m)		0	<1	---
Silver	ppm	ASTM D5185(m)	>3	0	0	---
Aluminum	ppm	ASTM D5185(m)	>15	▲ 43	38	---
Lead	ppm	ASTM D5185(m)	>30	<1	1	---
Copper	ppm	ASTM D5185(m)	>125	4	11	---
Tin	ppm	ASTM D5185(m)	>5	2	4	---
Vanadium	ppm	ASTM D5185(m)		0	0	---

CONTAMINATION

There is no indication of any contamination in the oil.

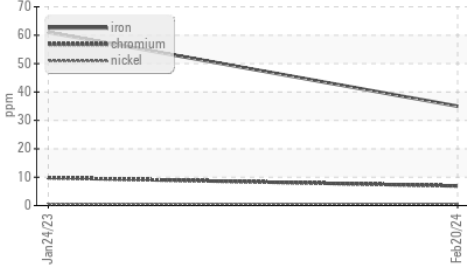
Silicon	ppm	ASTM D5185(m)	>60	9	20	---
Potassium	ppm	ASTM D5185(m)	>20	8	5	---
Fuel		WC Method	>5	<1.0	<1.0	---
Water		WC Method	>0.2	NEG	NEG	---
Glycol		WC Method		NEG	NEG	---
Soot %	%	ASTM D7844*	>3	0.1	0.1	---
Nitration	Abs/cm	ASTM D7624*	>20	7.4	10.7	---
Sulfation	Abs/.1mm	ASTM D7415*	>30	17.8	17.7	---
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	---

FLUID CONDITION

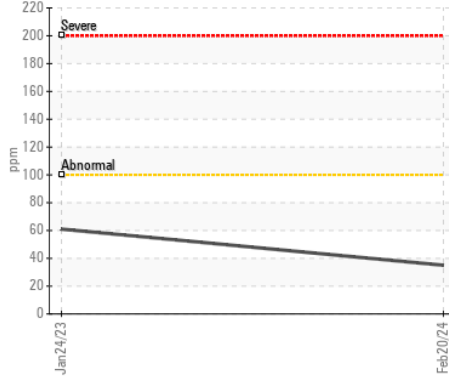
The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Sodium	ppm	ASTM D5185(m)	>401	2	5	---
Boron	ppm	ASTM D5185(m)		14	184	---
Barium	ppm	ASTM D5185(m)		0	<1	---
Molybdenum	ppm	ASTM D5185(m)		54	5	---
Manganese	ppm	ASTM D5185(m)		<1	4	---
Magnesium	ppm	ASTM D5185(m)		882	270	---
Calcium	ppm	ASTM D5185(m)		1301	3767	---
Phosphorus	ppm	ASTM D5185(m)		1015	1183	---
Zinc	ppm	ASTM D5185(m)		1152	1217	---
Sulfur	ppm	ASTM D5185(m)		2762	3242	---
Oxidation	Abs/.1mm	ASTM D7414*	>25	13.8	10.7	---
Visc @ 100°C	cSt	ASTM D7279(m)	14.5	13.4	12.5	---

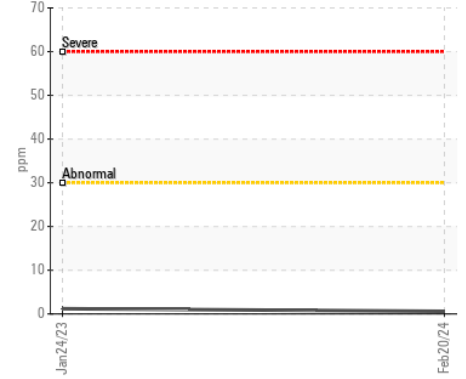
▲ Ferrous Alloys



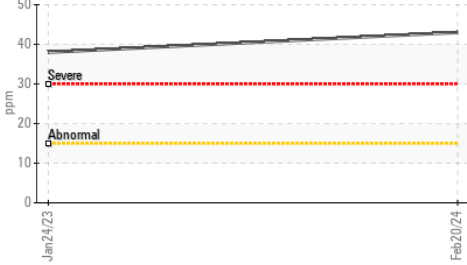
Iron (ppm)



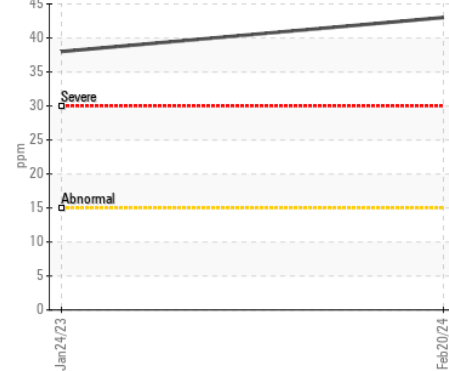
Lead (ppm)



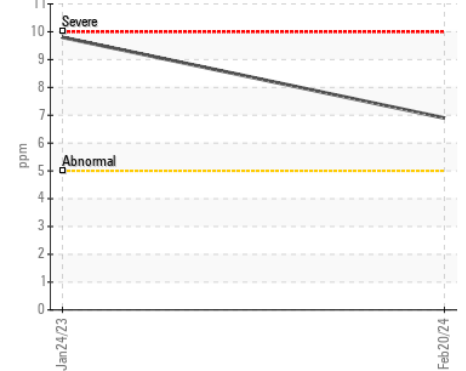
▲ Aluminum (ppm)



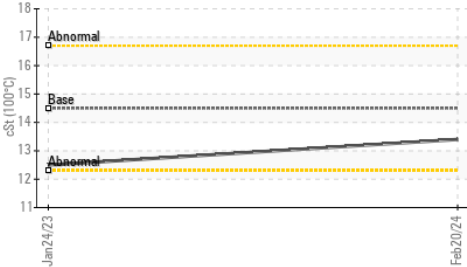
▲ Aluminum (ppm)



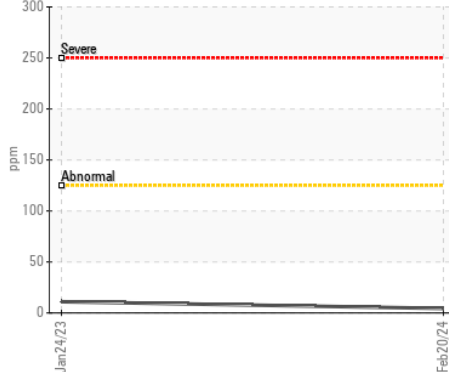
▲ Chromium (ppm)



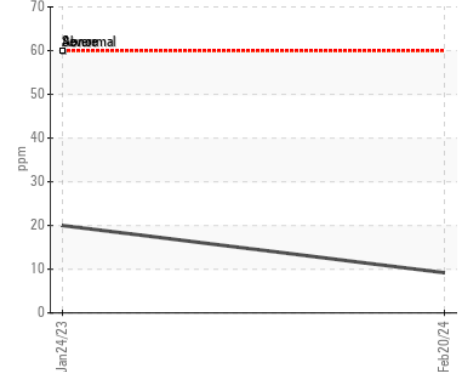
Viscosity @ 100°C



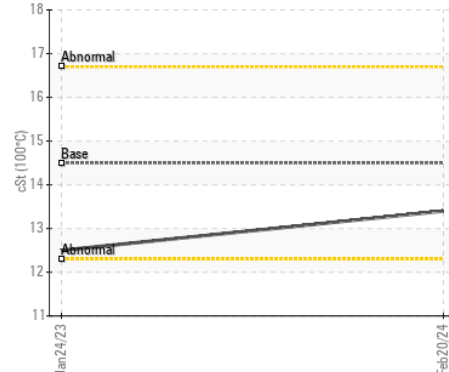
Copper (ppm)



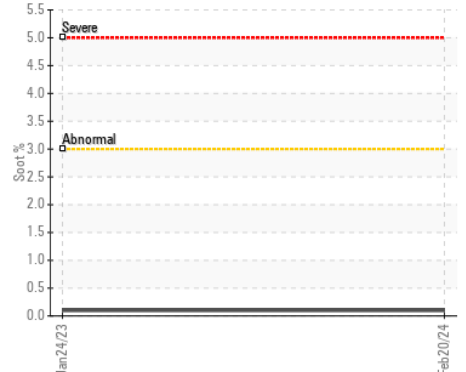
Silicon (ppm)



Viscosity @ 100°C



Soot %



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : LH0228239
Lab Number : 02617370
Unique Number : 5734480
Test Package : MOBCE
Received : 22 Feb 2024
Tested : 22 Feb 2024
Diagnosed : 22 Feb 2024 - Kevin Marson

ECOWASTE INDUSTRIES
 4 SPRUCE ST
 NEW WESTMINSTER, BC
 CA V3L 5G6
 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.

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F: