



LIEBHERR

OIL ANALYSIS REPORT

WEAR
CONTAMINATION
FLUID CONDITION

SEVERE

NORMAL

NORMAL



Machine Id
LIEBHERR L566 054116-1484

Component
Front Differential

Fluid
LIEBHERR GEAR BASIC 90 LS (--- GAL)

RECOMMENDATION

The oil change at the time of sampling has been noted. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0281153	LH0135641	LH0135639
Sample Date		Client Info		04 Jan 2024	21 Jan 2021	10 Dec 2020
Machine Age	hrs	Client Info		9598	4000	3800
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Not Changd	Changed
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				SEVERE	NORMAL	ABNORMAL

WEAR

Nickel ppm levels are severe. Tin and copper ppm levels are abnormal. Thrust washer and/or bearing/bushing wear is indicated.

Iron	ppm	ASTM D5185(m)	>1200	281	48	479
Chromium	ppm	ASTM D5185(m)	>20	3	<1	4
Nickel	ppm	ASTM D5185(m)	>4	13	<1	2
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	<1	<1
Aluminum	ppm	ASTM D5185(m)	>5	2	<1	2
Lead	ppm	ASTM D5185(m)	>4	3	<1	4
Copper	ppm	ASTM D5185(m)	>40	97	21	134
Tin	ppm	ASTM D5185(m)	>4	7	<1	7
Vanadium	ppm	ASTM D5185(m)		0	0	<1
White Metal	scalar	Visual*	NONE	LIGHT	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE

CONTAMINATION

There is no indication of any contamination in the oil.

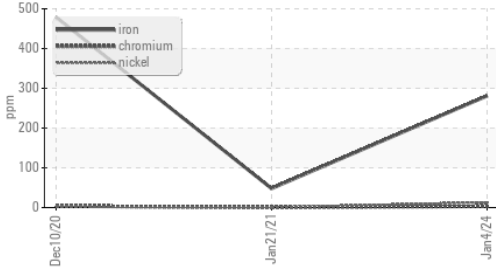
Silicon	ppm	ASTM D5185(m)	>50	30	2	30
Potassium	ppm	ASTM D5185(m)	>20	<1	<1	<1
Water		WC Method	>.2	NEG	NEG	NEG
Silt	scalar	Visual*	NONE	NONE	NONE	LTMOD
Debris	scalar	Visual*	NONE	NONE	LIGHT	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>.2	NEG	NEG	NEG

FLUID CONDITION

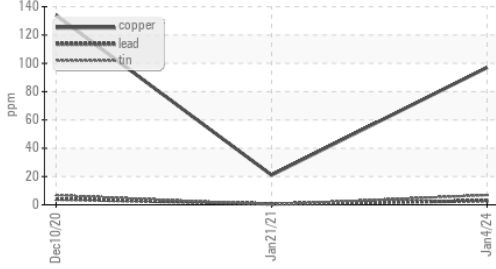
Additive levels indicate the addition of a different brand, or type of oil. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Sodium	ppm	ASTM D5185(m)		6	1	6
Boron	ppm	ASTM D5185(m)	0	2	196	3
Barium	ppm	ASTM D5185(m)	0	<1	0	<1
Molybdenum	ppm	ASTM D5185(m)	0	0	1	21
Manganese	ppm	ASTM D5185(m)	0	44	2	43
Magnesium	ppm	ASTM D5185(m)	<1	4	2	4
Calcium	ppm	ASTM D5185(m)	<1	5	19	11
Phosphorus	ppm	ASTM D5185(m)	2143	2247	2473	2238
Zinc	ppm	ASTM D5185(m)	<1	26	28	66
Sulfur	ppm	ASTM D5185(m)	23468	24842	20791	27841
Visc @ 40°C	cSt	ASTM D7279(m)	170	193	86.2	191

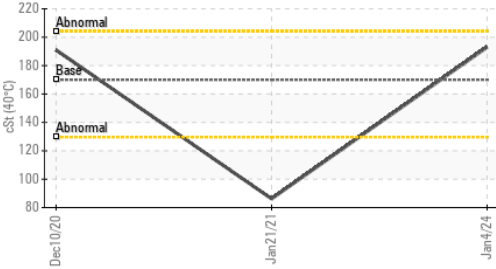
Ferrous Alloys



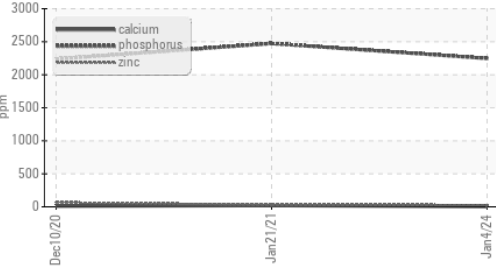
Non-ferrous Metals



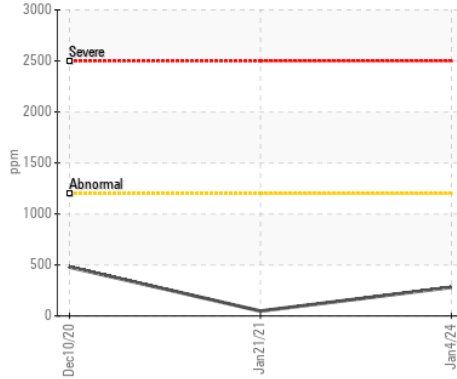
Viscosity @ 40°C



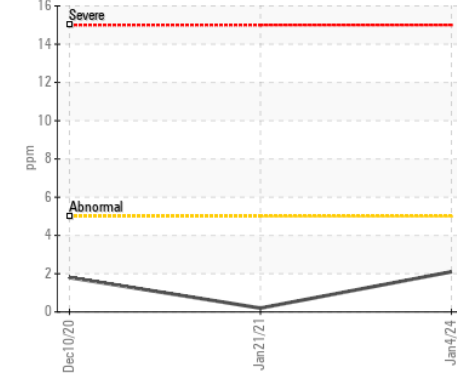
Additives



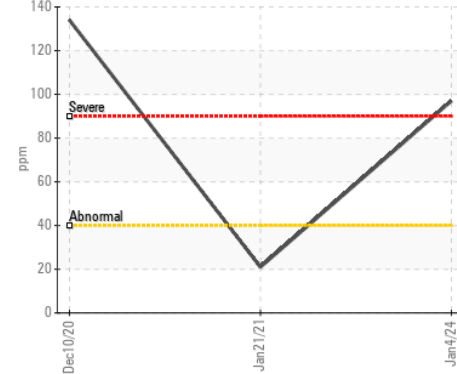
Iron (ppm)



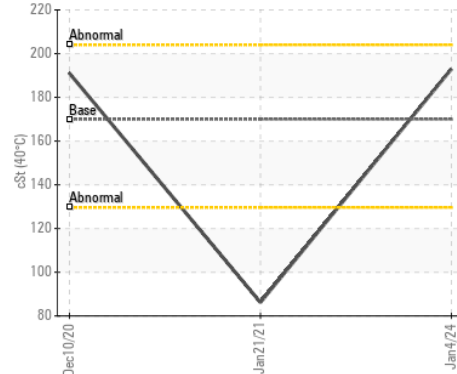
Aluminum (ppm)



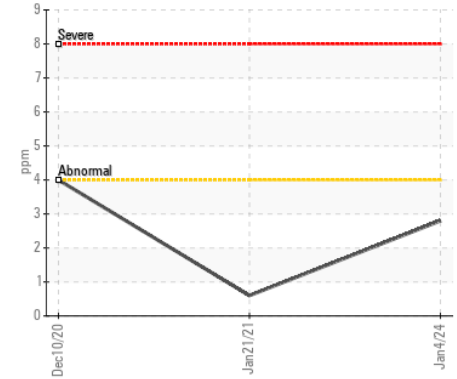
Copper (ppm)



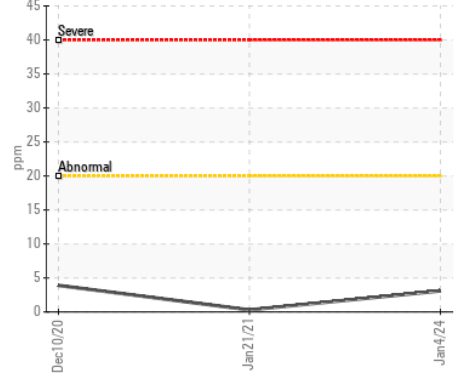
Viscosity @ 40°C



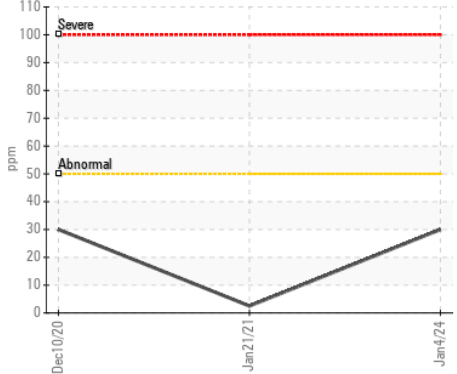
Lead (ppm)



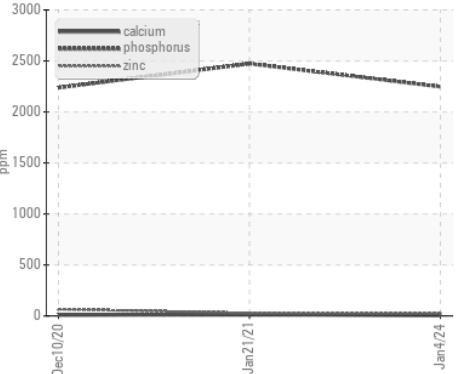
Chromium (ppm)



Silicon (ppm)



Additives



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : LH0281153 **Received** : 10 Jan 2024
Lab Number : 02607950 **Diagnosed** : 11 Jan 2024
Unique Number : 5709036 **Diagnostician** : Kevin Marson
Test Package : MOB 1

Abbycel Substrate Ltd.
 3545 Ross Road
 Abbotsford, BC
 CA V4X 1M6
 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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