



LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR LH50M 1216-109299
Component
Diesel Engine
Fluid
CHEVRON DELO LE 5W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0264795	LH0272569	LH0263960
Sample Date		Client Info		11 Apr 2024	19 Jan 2024	19 Oct 2023
Machine Age	hrs	Client Info		9469	9018	8565
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	N/A
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	6	5	4
Chromium	ppm	ASTM D5185m	>5	<1	0	<1
Nickel	ppm	ASTM D5185m	>5	<1	0	<1
Titanium	ppm	ASTM D5185m		97	83	86
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	2	2
Lead	ppm	ASTM D5185m	>30	<1	0	<1
Copper	ppm	ASTM D5185m	>125	2	<1	<1
Tin	ppm	ASTM D5185m	>5	<1	<1	<1
Vanadium	ppm	ASTM D5185m		1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

There is no indication of any contamination in the oil.

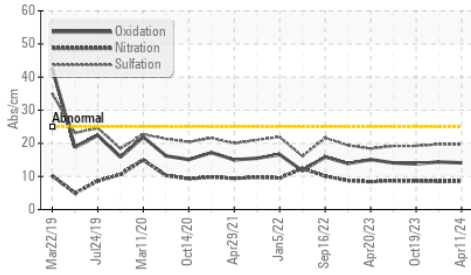
Silicon	ppm	ASTM D5185m	>60	10	8	8
Potassium	ppm	ASTM D5185m	>20	4	3	4
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	8.6	8.5	8.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.6	19.7	19.2
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

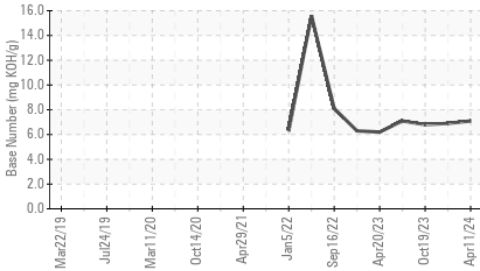
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		2	3	2
Boron	ppm	ASTM D5185m	66	128	105	87
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m	70	6	6	9
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m	1230	711	682	685
Calcium	ppm	ASTM D5185m	930	1341	1314	1227
Phosphorus	ppm	ASTM D5185m	1230	1046	958	1009
Zinc	ppm	ASTM D5185m	1310	1179	1094	1169
Sulfur	ppm	ASTM D5185m	3460	3837	3310	4080
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.1	14.4	13.8
Base Number (BN)	mg KOH/g	ASTM D2896		7.1	6.9	6.8
Visc @ 100°C	cSt	ASTM D445	15	13.1	13.1	13.2

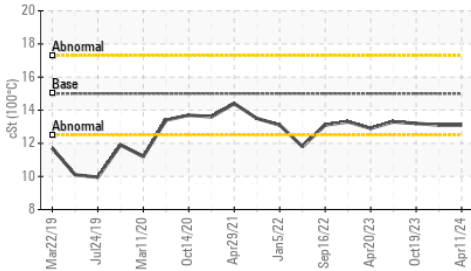
FT-IR (Direct Trend)



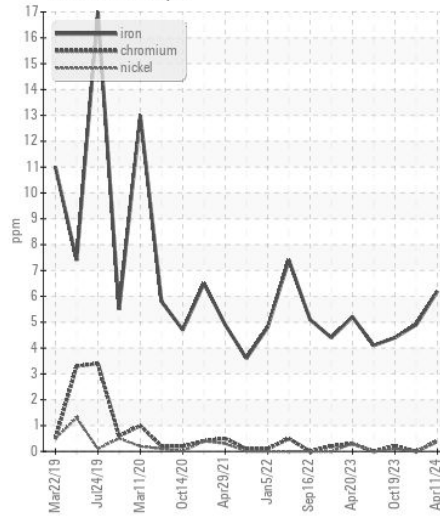
Base Number



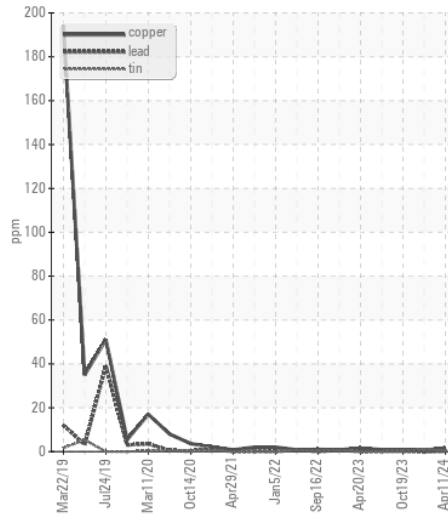
Viscosity @ 100°C



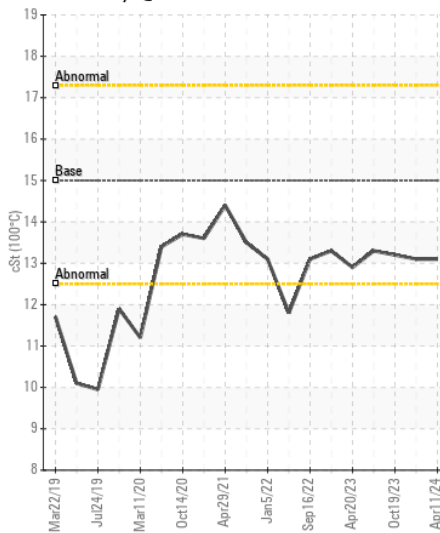
Ferrous Alloys



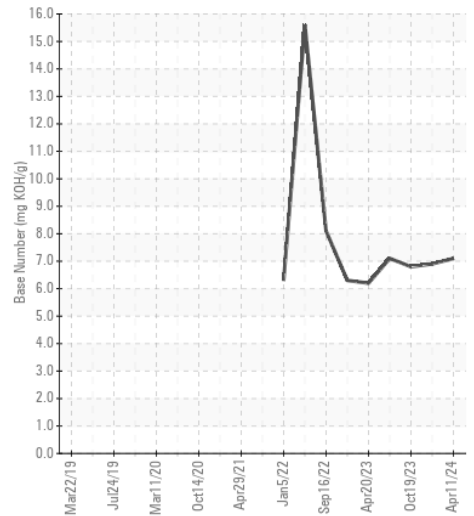
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LH0264795 **Received** : 19 Apr 2024
Lab Number : 06155118 **Tested** : 22 Apr 2024
Unique Number : 10990541 **Diagnosed** : 22 Apr 2024 - Wes Davis
Test Package : CONST (Additional Tests: TBN)

ALTER METAL
 2900 SHERMAN STREET
 WAUSAU, WI
 US 54401
 Contact: Service Manager

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)

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