OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
LIEBHERR 31240
Component
Diesel Engine
Fluid
CHEVRON 15W40 (40 QTS)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

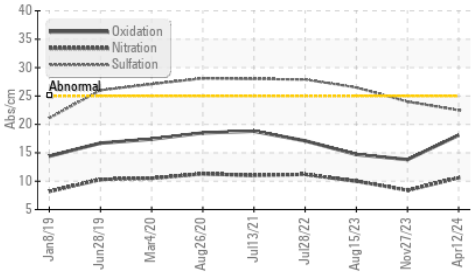
There is no indication of any contamination in the oil.

FLUID CONDITION

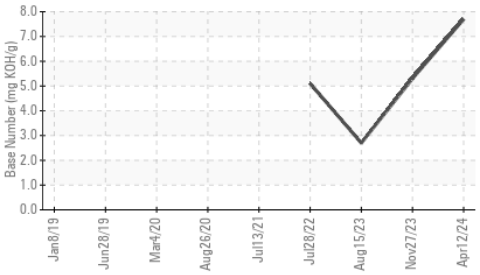
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		**WC0913668**	WC0857033	WC0822774
Sample Date		Client Info		**12 Apr 2024**	27 Nov 2023	15 Aug 2023
Machine Age	hrs	Client Info		**10788**	10304	9827
Oil Age	hrs	Client Info		**1000**	500	2000
Filter Age	hrs	Client Info		**1000**	500	2000
Oil Changed		Client Info		**Changed**	Changed	Changed
Filter Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**NORMAL**	NORMAL	ABNORMAL
Iron	ppm	ASTM D5185m	>100	**22**	12	15
Chromium	ppm	ASTM D5185m	>20	**2**	<1	<1
Nickel	ppm	ASTM D5185m	>4	**0**	0	0
Titanium	ppm	ASTM D5185m		**<1**	2	<1
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	**3**	3	2
Lead	ppm	ASTM D5185m	>40	**<1**	0	2
Copper	ppm	ASTM D5185m	>330	**4**	4	3
Tin	ppm	ASTM D5185m	>15	**<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
Silicon	ppm	ASTM D5185m	>25	**7**	7	8
Potassium	ppm	ASTM D5185m	>20	**19**	2	3
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	**2.2**	2.8	▲ 4.1
Nitration	Abs/cm	*ASTM D7624	>20	**10.6**	8.4	10.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	**22.5**	24.0	26.5
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
Sodium	ppm	ASTM D5185m	>50	**4**	2	2
Boron	ppm	ASTM D5185m		**105**	221	254
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**36**	76	93
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**682**	364	437
Calcium	ppm	ASTM D5185m		**1405**	1268	1553
Phosphorus	ppm	ASTM D5185m		**811**	961	1030
Zinc	ppm	ASTM D5185m		**941**	1163	1275
Sulfur	ppm	ASTM D5185m		**3338**	2886	3764
Oxidation	Abs/.1mm	*ASTM D7414	>25	**18.1**	13.8	14.7
Base Number (BN)	mg KOH/g	ASTM D2896		**7.7**	5.3	2.7
Visc @ 100°C	cSt	ASTM D445	14.4	**13.2**	14.0	▲ 20.1

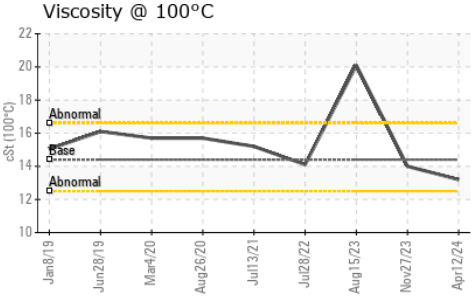
FT-IR (Direct Trend)



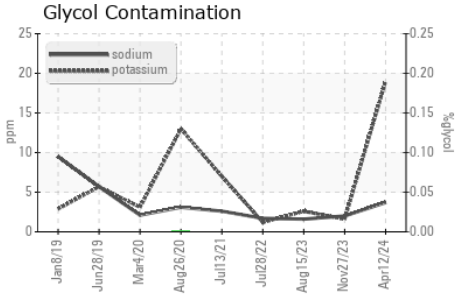
Base Number



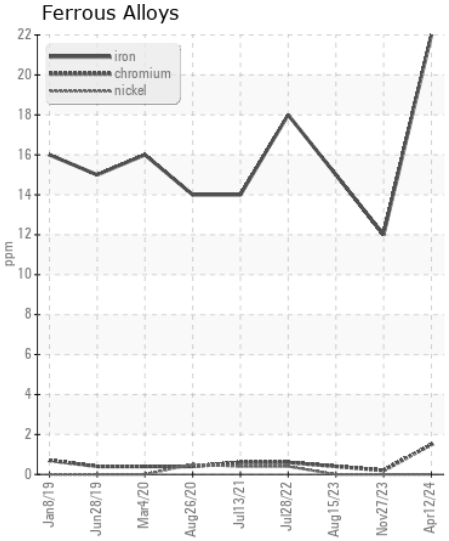
Viscosity @ 100°C



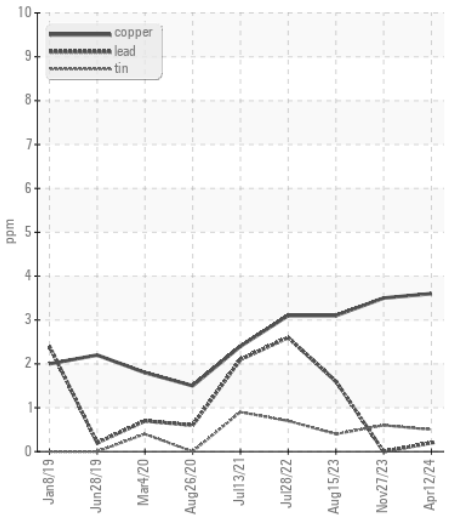
Glycol Contamination



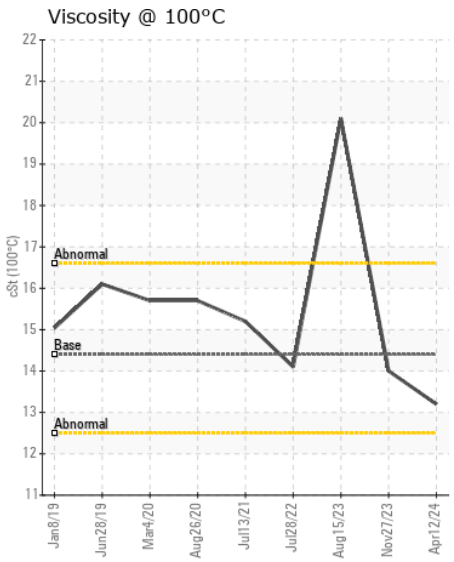
Ferrous Alloys



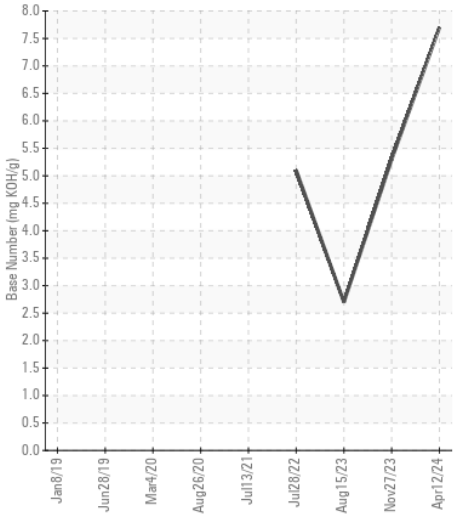
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0913668
Lab Number : 06150979
Unique Number : 10981057
Test Package : CONST (Additional Tests: Glycol, TBN)

Received : 16 Apr 2024
Tested : 19 Apr 2024
Diagnosed : 19 Apr 2024 - Don Baldridge

SULLIVAN EASTERN INC-LIEBHERR
2860 C SLATER RD
MORRISVILLE, NC
US 27560
Contact: CHRIS CALTON

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)

T:
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