



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR A934C-HD-LI C-49 (S/N 045168-1006)
Component
Diesel Engine
Fluid
CHEVRON DELO 400 SDE SAE 15W40 (8 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0920288	WC0869360	WC0899811
Sample Date		Client Info		18 Jun 2024	13 Apr 2024	27 Feb 2024
Machine Age	hrs	Client Info		27835	27455	27156
Oil Age	hrs	Client Info		380	299	1091
Filter Age	hrs	Client Info		380	299	1091
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>66	4	1	7
Chromium	ppm	ASTM D5185m	>4	0	0	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		86	91	98
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>8	1	<1	4
Lead	ppm	ASTM D5185m	>10	0	0	<1
Copper	ppm	ASTM D5185m	>74	0	0	<1
Tin	ppm	ASTM D5185m	>4	0	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	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.

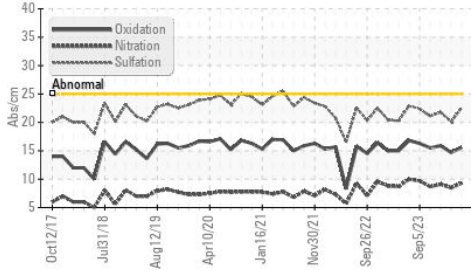
Silicon	ppm	ASTM D5185m	>15	8	7	8
Potassium	ppm	ASTM D5185m	>20	2	5	12
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	1.3	0.7	0.9
Nitration	Abs/cm	*ASTM D7624	>20	9.3	8.5	9.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.6	20.1	21.8
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

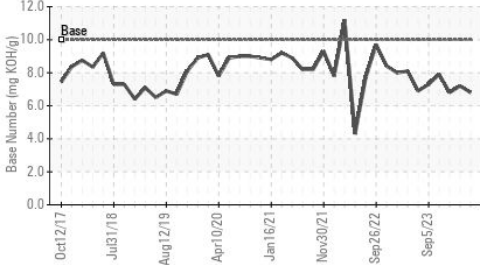
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		2	2	4
Boron	ppm	ASTM D5185m		64	103	91
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		2	0	8
Manganese	ppm	ASTM D5185m		<1	0	<1
Magnesium	ppm	ASTM D5185m		425	437	460
Calcium	ppm	ASTM D5185m		1841	1941	1926
Phosphorus	ppm	ASTM D5185m	760	1008	1091	1149
Zinc	ppm	ASTM D5185m	800	1224	1272	1360
Sulfur	ppm	ASTM D5185m	3000	4167	4329	4332
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.6	14.7	15.9
Base Number (BN)	mg KOH/g	ASTM D2896	10	6.8	7.2	6.8
Visc @ 100°C	cSt	ASTM D445	14.6	14.8	14.2	14.5

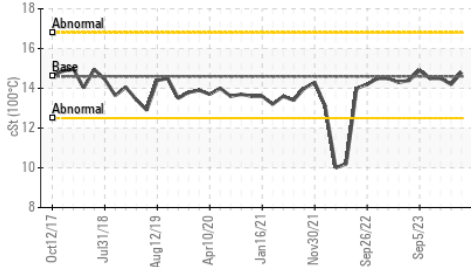
FT-IR (Direct Trend)



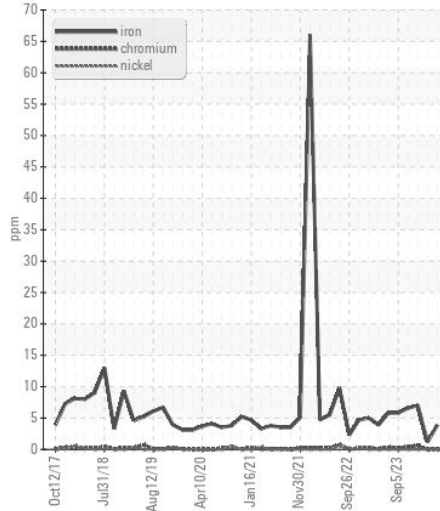
Base Number



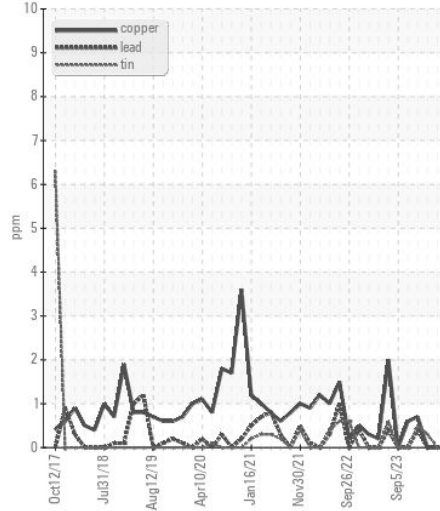
Viscosity @ 100°C



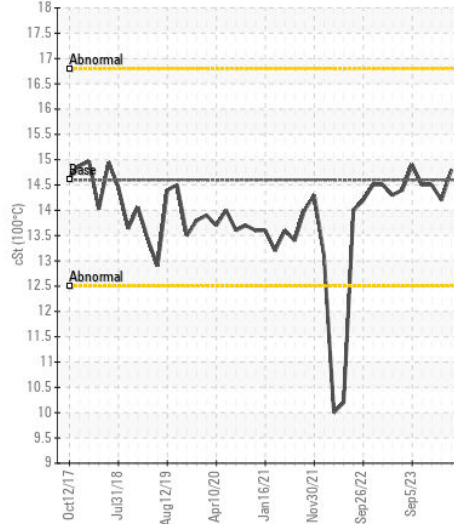
Ferrous Alloys



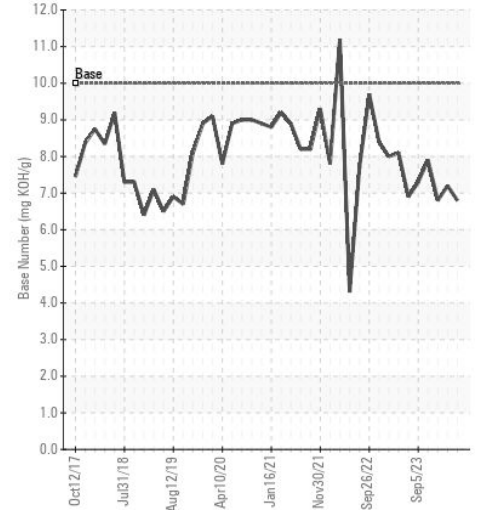
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0920288 **Received** : 27 Jun 2024
Lab Number : 06222144 **Tested** : 28 Jun 2024
Unique Number : 11100341 **Diagnosed** : 28 Jun 2024 - Sean Felton
Test Package : CONST (Additional Tests: TBN)

FRANKLIN IRON & METAL CORP
 1939 EAST 1ST ST
 DAYTON, OH
 US 45403
 Contact: BILL PITTL JR
 parts@frankliniron.com
 T: (937)253-8184
 F:

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)