



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR A934C-HD-LI C-48 (S/N 045988-1007)
Component
Diesel Engine
Fluid
CONOCO PHILLIPS GUARDOL ECT 15W40 (8 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0920294	WC0920307	WC0920331
Sample Date		Client Info		26 Jun 2024	18 Jun 2024	03 May 2024
Machine Age	hrs	Client Info		26123	41767	25855
Oil Age	hrs	Client Info		2000	0	416
Filter Age	hrs	Client Info		2000	0	416
Oil Changed		Client Info		Changed	Not Changed	N/A
Filter Changed		Client Info		Changed	Not Changed	N/A
Sample Status				NORMAL	SEVERE	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>66	3	40	6
Chromium	ppm	ASTM D5185m	>4	0	<1	0
Nickel	ppm	ASTM D5185m	>4	0	1	0
Titanium	ppm	ASTM D5185m		82	80	80
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>8	1	▲ 65	1
Lead	ppm	ASTM D5185m	>10	0	4	0
Copper	ppm	ASTM D5185m	>74	0	6	<1
Tin	ppm	ASTM D5185m	>4	0	2	0
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.

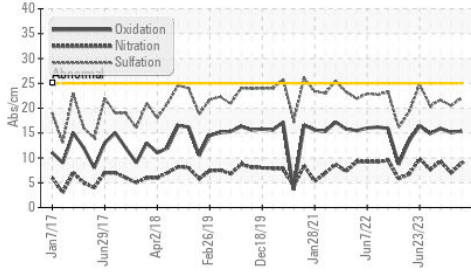
Silicon	ppm	ASTM D5185m	>15	8	▲ 25	8
Potassium	ppm	ASTM D5185m	>20	2	3	2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	1.2	0.3	1
Nitration	Abs/cm	*ASTM D7624	>20	8.9	7.0	9.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.0	20.5	21.6
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

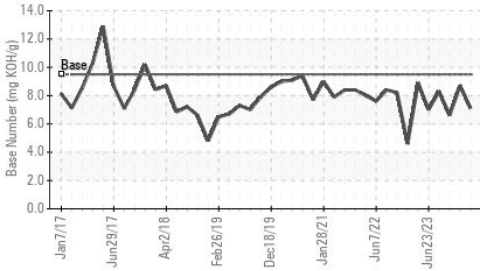
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		2	2	2
Boron	ppm	ASTM D5185m	85	81	126	83
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		<1	0	9
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	350	417	393	496
Calcium	ppm	ASTM D5185m	1800	1773	1761	1888
Phosphorus	ppm	ASTM D5185m	1000	984	994	1057
Zinc	ppm	ASTM D5185m	1100	1191	1203	1285
Sulfur	ppm	ASTM D5185m	3500	4152	4435	4375
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.4	15.1	15.9
Base Number (BN)	mg KOH/g	ASTM D2896	9.5	7.1	8.7	6.6
Visc @ 100°C	cSt	ASTM D445	15.3	14.8	14.9	14.4

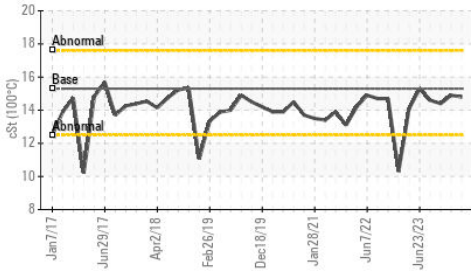
FT-IR (Direct Trend)



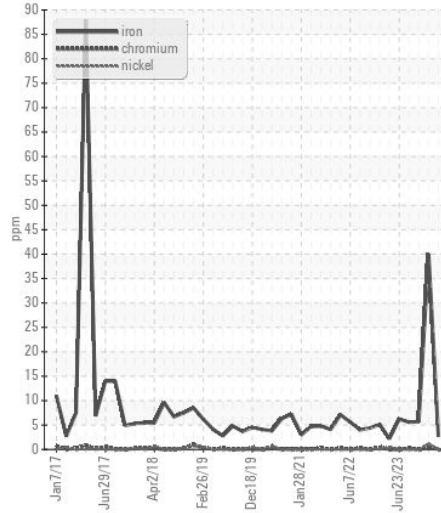
Base Number



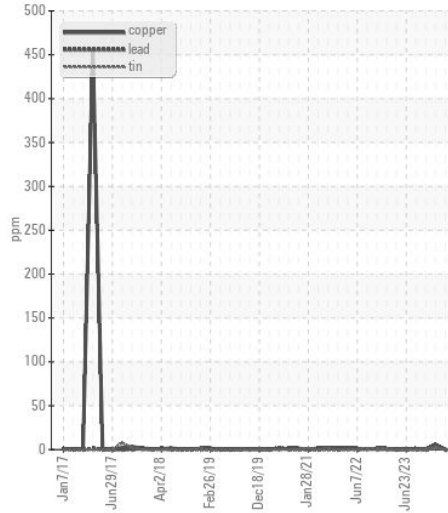
Viscosity @ 100°C



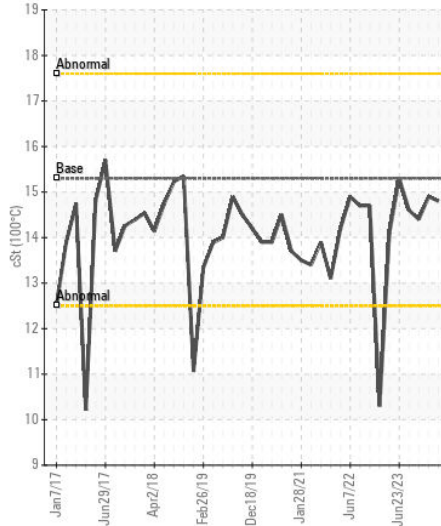
Ferrous Alloys



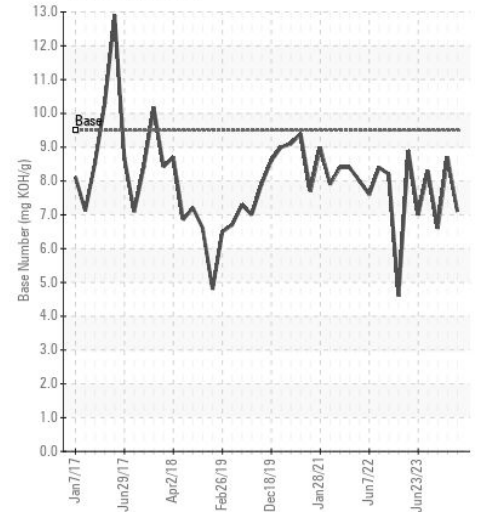
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0920294 **Received** : 27 Jun 2024
Lab Number : 06222148 **Tested** : 28 Jun 2024
Unique Number : 11100345 **Diagnosed** : 28 Jun 2024 - Wes Davis
Test Package : CONST (Additional Tests: TBN)

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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)