



# OIL ANALYSIS REPORT

Sample Rating Trend

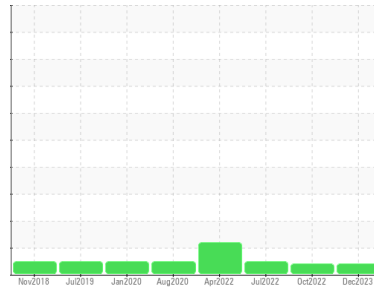
VISCOSITY



Machine Id  
**LIEBHERR 1300 CR-3315 (S/N 138405)**

Component  
**Diesel Engine**

Fluid  
**DIESEL ENGINE OIL SAE 15W40 (14 GAL)**



## DIAGNOSIS

### Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

### Fluid Condition

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			<b>WC0867438</b>	WC0555930	WC0687286
Sample Date	Client Info			<b>05 Dec 2023</b>	03 Oct 2022	15 Jul 2022
Machine Age	hrs	Client Info		<b>12265</b>	10019	9521
Oil Age	hrs	Client Info		<b>0</b>	498	462
Oil Changed	Client Info			<b>Changed</b>	Changed	Changed
Sample Status				<b>ATTENTION</b>	ATTENTION	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water	WC Method	>0.2		<b>NEG</b>	NEG	NEG
Glycol	WC Method			<b>NEG</b>	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	<b>2</b>	3	2
Chromium	ppm	ASTM D5185m	>5	<b>0</b>	<1	<1
Nickel	ppm	ASTM D5185m	>5	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m		<b>0</b>	<1	1
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m	>15	<b>&lt;1</b>	2	1
Lead	ppm	ASTM D5185m	>30	<b>0</b>	<1	<1
Copper	ppm	ASTM D5185m	>125	<b>2</b>	<1	<1
Tin	ppm	ASTM D5185m	>5	<b>0</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	<b>35</b>	61	14
Barium	ppm	ASTM D5185m	10	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	100	<b>42</b>	71	61
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	450	<b>724</b>	901	856
Calcium	ppm	ASTM D5185m	3000	<b>1290</b>	1168	1162
Phosphorus	ppm	ASTM D5185m	1150	<b>774</b>	999	1055
Zinc	ppm	ASTM D5185m	1350	<b>901</b>	1212	1250
Sulfur	ppm	ASTM D5185m	4250	<b>2418</b>	3399	3401

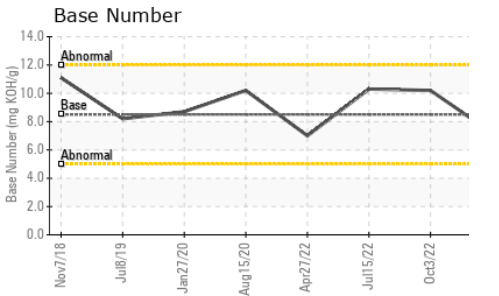
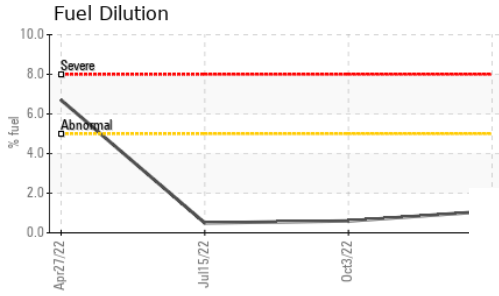
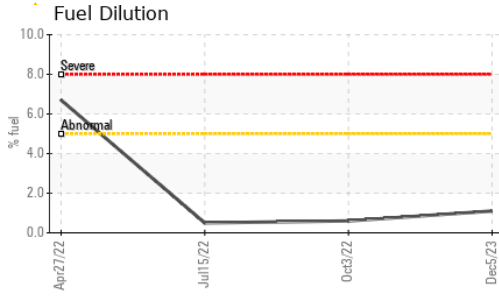
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>60	<b>5</b>	5	5
Sodium	ppm	ASTM D5185m	>158	<b>2</b>	1	1
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	1	1
Fuel	%	ASTM D3524	>5	<b>1.1</b>	0.6	0.5

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	<b>0</b>	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	<b>9.4</b>	6.7	6.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>20.0</b>	20.1	19.4

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>18.8</b>	15.1	14.4
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>7.2</b>	10.2	10.3



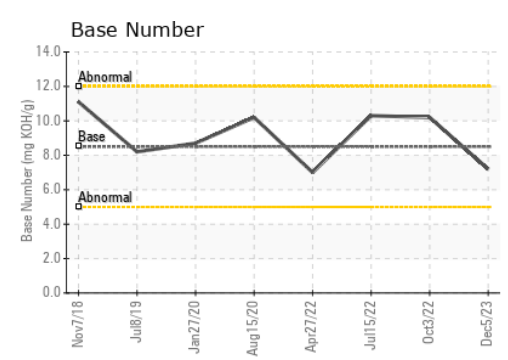
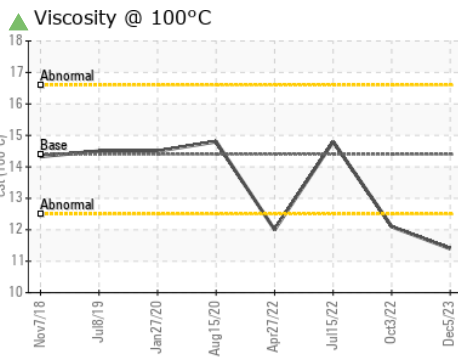
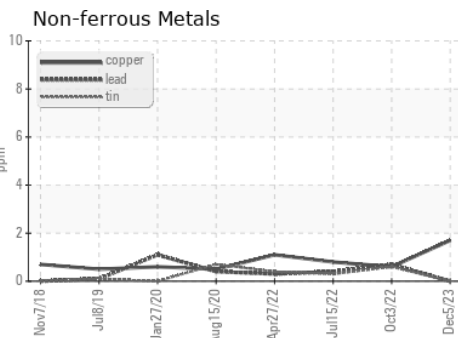
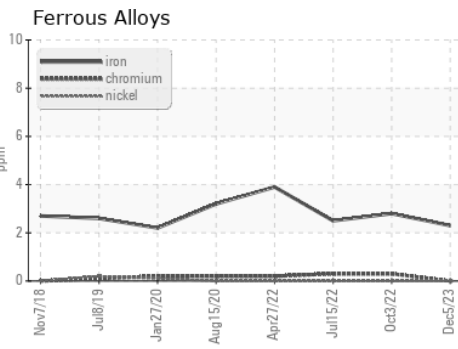
# OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	LIGHT
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4 ▲ 11.4	▲ 12.1	14.8

### GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0867438 **Received** : 12 Jan 2024  
**Lab Number** : 06059956 **Diagnosed** : 16 Jan 2024  
**Unique Number** : 10831338 **Diagnostician** : Don Baldrige  
**Test Package** : CONST ( Additional Tests: FuelDilution, PercentFuel, TBN )

**BUCKNER - WILLIS**  
 18123 HWY 75 NORTH  
 WILLIS, TX  
 US 77378  
 Contact: JOHN HAWKINS  
 johnh@bucknercompanies.com  
 T:  
 F:

Certificate L2367  
 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)