



LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR A954 028291-450
Component
Diesel Engine
Fluid
CONOCO PHILLIPS GUARDOL ECT 15W40 (9 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0273279	LH0273248	LH0244845
Sample Date		Client Info		20 May 2024	23 Jan 2024	28 Nov 2023
Machine Age	hrs	Client Info		28280	27457	26569
Oil Age	hrs	Client Info		300	250	300
Filter Age	hrs	Client Info		300	250	300
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	>100	18	19	27
Chromium	ppm	ASTM D5185m	>5	0	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	<1	<1
Titanium	ppm	ASTM D5185m		8	6	7
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>15	1	2	1
Lead	ppm	ASTM D5185m	>30	<1	<1	<1
Copper	ppm	ASTM D5185m	>125	12	25	89
Tin	ppm	ASTM D5185m	>5	<1	<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

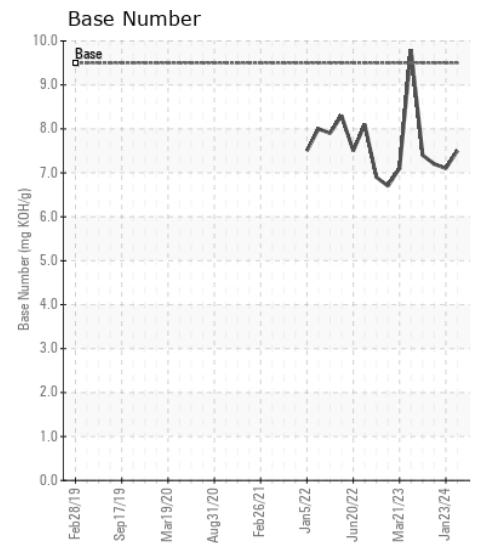
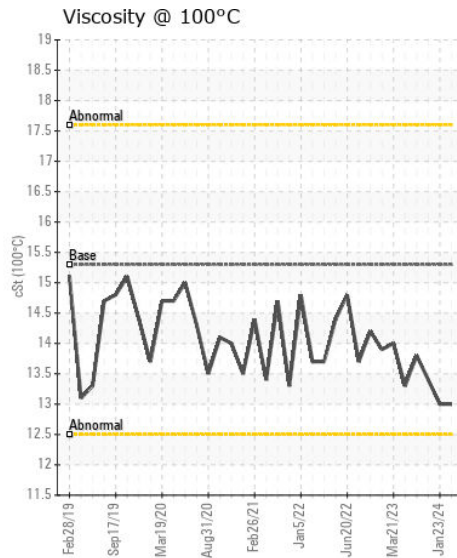
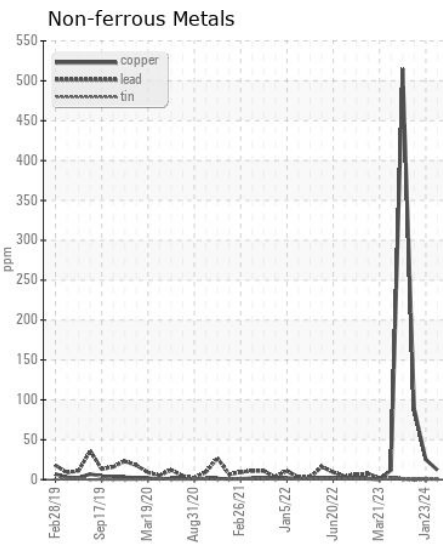
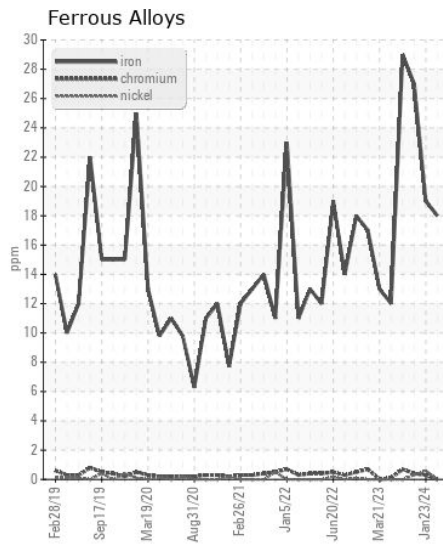
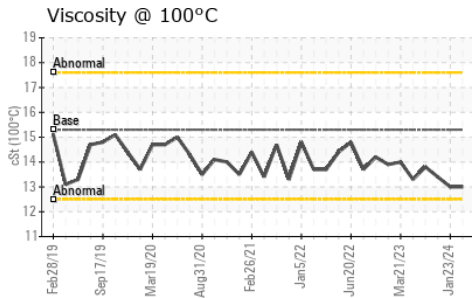
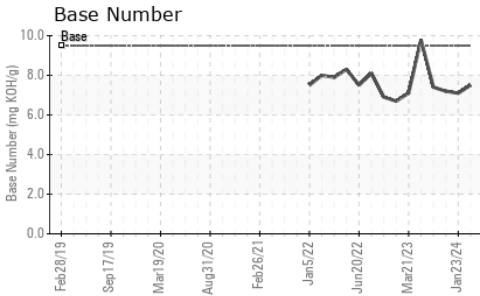
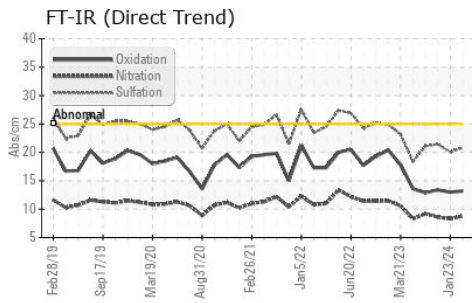
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>60	6	6	5
Potassium	ppm	ASTM D5185m	>20	3	4	1
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	1.1	1.5
Nitration	Abs/cm	*ASTM D7624	>20	8.8	8.3	8.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.8	20.1	21.4
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		3	3	3
Boron	ppm	ASTM D5185m	85	38	26	29
Barium	ppm	ASTM D5185m		2	<1	1
Molybdenum	ppm	ASTM D5185m		28	32	25
Manganese	ppm	ASTM D5185m		<1	1	<1
Magnesium	ppm	ASTM D5185m	350	689	679	617
Calcium	ppm	ASTM D5185m	1800	1490	1379	1593
Phosphorus	ppm	ASTM D5185m	1000	1075	1078	1071
Zinc	ppm	ASTM D5185m	1100	1268	1247	1326
Sulfur	ppm	ASTM D5185m	3500	4009	3346	3393
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.2	13.0	13.4
Base Number (BN)	mg KOH/g	ASTM D2896	9.5	7.5	7.1	7.2
Visc @ 100°C	cSt	ASTM D445	15.3	13.0	13.0	13.4



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LH0273279
Lab Number : 06193382
Unique Number : 11050134
Test Package : CONST (Additional Tests: TBN)

NILES IRON & METAL CO. INC.
 P.O. BOX 166
 NILES, OH
 US 44446

Contact: CRAIG STINSON
 cstinson529@gmail.com; canastasio@wearcheckusa.com

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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