CONST

LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ATTENTION

Machine Id
LIEBHERR A944BHD 023921-744
Component
Diesel Engine
Fluid
CONOCO PHILLIPS GUARDOL ECT 15W40 (5 GAL)

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

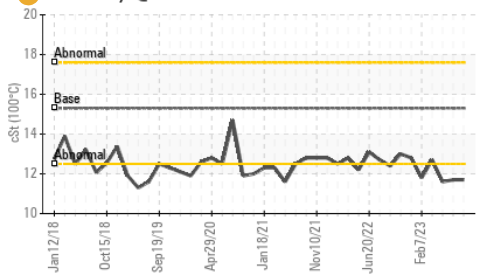
There is no indication of any contamination in the oil.

FLUID CONDITION

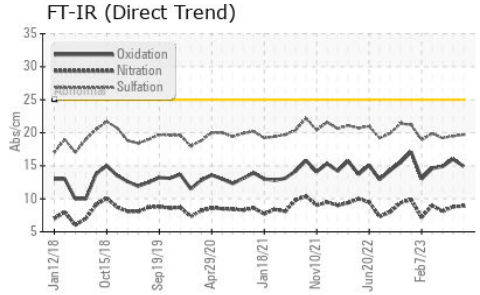
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0273278	LH0273250	LH0244847
Sample Date		Client Info		06 May 2024	25 Jan 2024	28 Nov 2023
Machine Age	hrs	Client Info		47083	46350	45917
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				ATTENTION	ATTENTION	ATTENTION
Iron	ppm	ASTM D5185m	>100	20	26	26
Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	<1	<1
Titanium	ppm	ASTM D5185m		8	7	9
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>15	1	2	2
Lead	ppm	ASTM D5185m	>30	1	1	<1
Copper	ppm	ASTM D5185m	>125	<1	5	6
Tin	ppm	ASTM D5185m	>5	0	1	1
Vanadium	ppm	ASTM D5185m		0	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>60	7	8	9
Potassium	ppm	ASTM D5185m	>20	1	3	2
Fuel		WC Method	>5	<1.0	<1.0	1.1
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.4	0.3	0.3
Nitration	Abs/cm	*ASTM D7624	>20	8.9	8.8	8.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.7	19.5	19.2
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		3	8	10
Boron	ppm	ASTM D5185m	85	51	37	54
Barium	ppm	ASTM D5185m		0	2	3
Molybdenum	ppm	ASTM D5185m		28	38	34
Manganese	ppm	ASTM D5185m		<1	1	<1
Magnesium	ppm	ASTM D5185m	350	707	651	543
Calcium	ppm	ASTM D5185m	1800	1682	1371	1657
Phosphorus	ppm	ASTM D5185m	1000	1159	1042	1069
Zinc	ppm	ASTM D5185m	1100	1415	1205	1280
Sulfur	ppm	ASTM D5185m	3500	4519	3261	3586
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.9	16.0	14.9
Base Number (BN)	mg KOH/g	ASTM D2896	9.5	8.6	8.2	8.6
Visc @ 100°C	cSt	ASTM D445	15.3	11.7	11.7	11.6

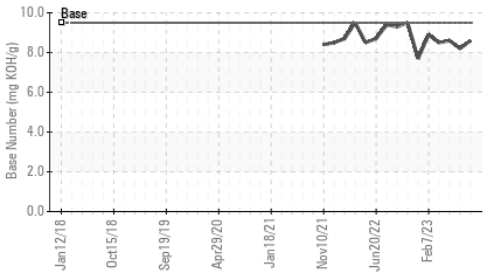
Viscosity @ 100°C



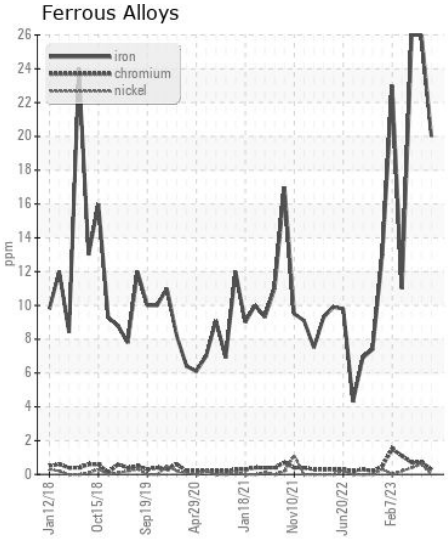
FT-IR (Direct Trend)



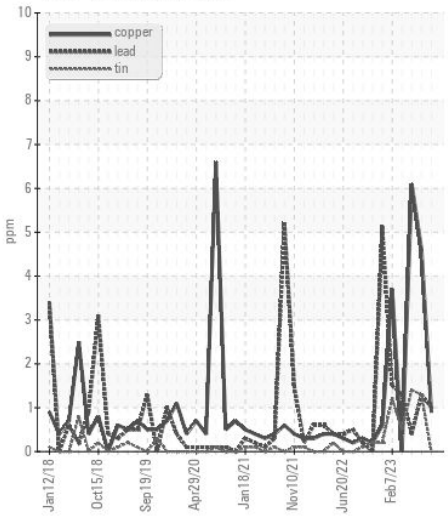
Base Number



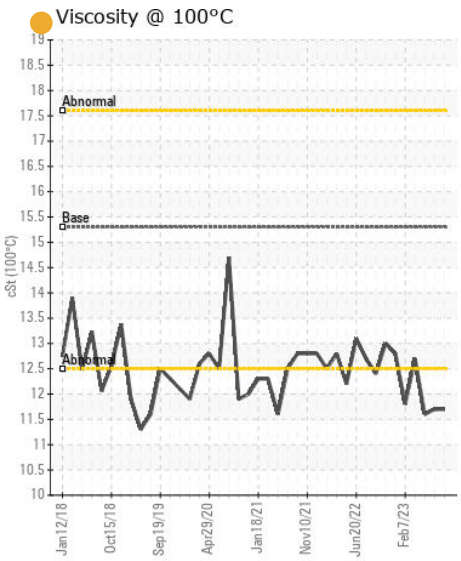
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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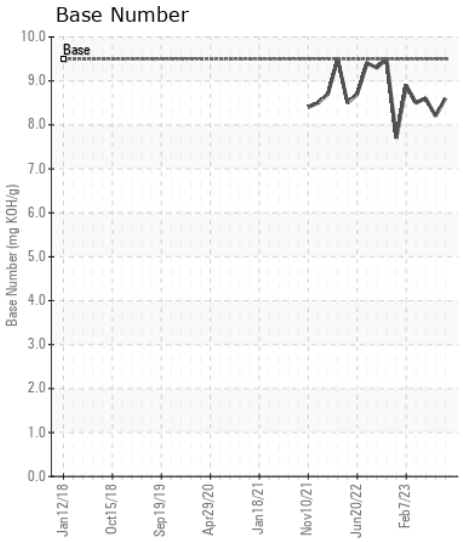

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LH0273278
Lab Number : 06193375
Unique Number : 11050127
Test Package : CONST (Additional Tests: TBN)

Received : 28 May 2024
Tested : 30 May 2024
Diagnosed : 30 May 2024 - Sean Felton

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)

NILES IRON & METAL CO. INC.
P.O. BOX 166
NILES, OH
US 44446
Contact: CRAIG STINSON
cstinson529@gmail.com;canastasio@wearcheckusa.com
T: (330)652-2262
F: (330)652-1240