TRAAP
Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
LIEBHERR 328
Component
Upper Diesel Engine
Fluid
TRC MOLY XL PRO-SPEC IV 15W40 (6 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

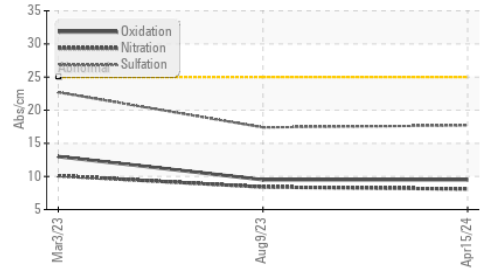
There is no indication of any contamination in the oil.

FLUID CONDITION

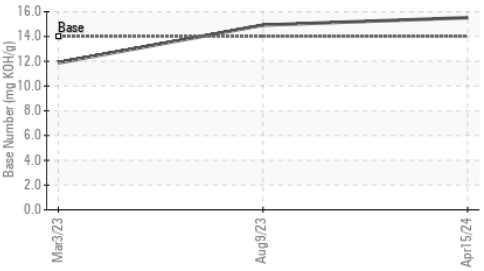
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR06158504	TR06158498	TR05916273
Sample Date		Client Info		15 Apr 2024	09 Aug 2023	03 Mar 2023
Machine Age	hrs	Client Info		8192	7909	7655
Oil Age	hrs	Client Info		250	250	500
Filter Age	hrs	Client Info		250	250	250
Oil Changed		Client Info		Not Changd	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
Iron	ppm	ASTM D5185m	>100	3	3	3
Chromium	ppm	ASTM D5185m	>5	<1	<1	0
Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>15	3	3	1
Lead	ppm	ASTM D5185m	>30	<1	1	3
Copper	ppm	ASTM D5185m	>125	3	8	35
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
Silicon	ppm	ASTM D5185m	>60	5	6	5
Potassium	ppm	ASTM D5185m	>20	2	2	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	0	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	8.1	8.4	10.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.7	17.4	22.7
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	2	4
Boron	ppm	ASTM D5185m		0	0	0
Barium	ppm	ASTM D5185m		<1	0	0
Molybdenum	ppm	ASTM D5185m		120	118	133
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		13	15	22
Calcium	ppm	ASTM D5185m	1300	3758	4061	4294
Phosphorus	ppm	ASTM D5185m		800	932	863
Zinc	ppm	ASTM D5185m	1300	946	1033	1077
Sulfur	ppm	ASTM D5185m		3995	4504	4872
Oxidation	Abs/.1mm	*ASTM D7414	>25	9.5	9.5	13.0
Base Number (BN)	mg KOH/g	ASTM D2896	14	15.52	14.92	11.87
Visc @ 100°C	cSt	ASTM D445	15.5	14.6	14.6	14.2

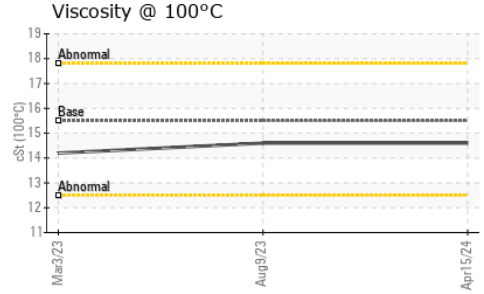
FT-IR (Direct Trend)



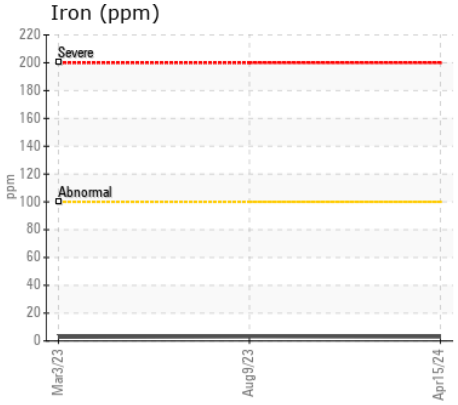
Base Number



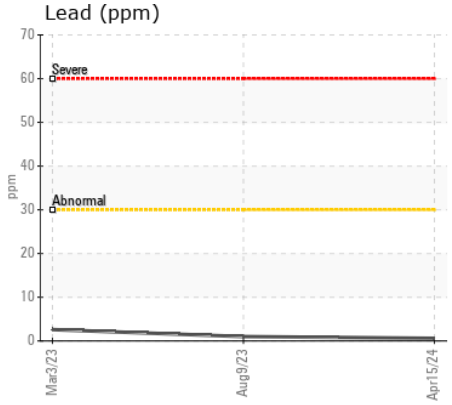
Viscosity @ 100°C



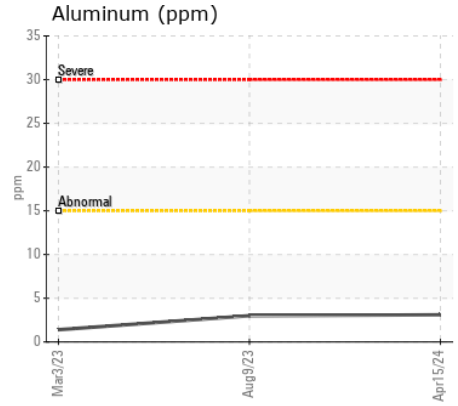
Iron (ppm)



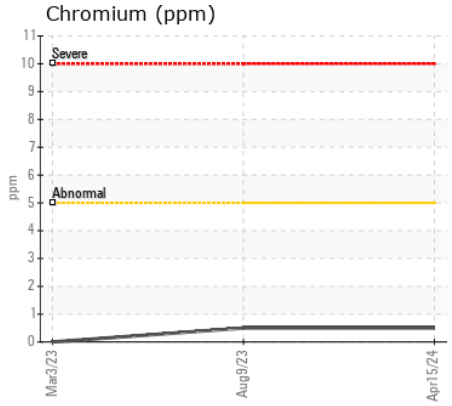
Lead (ppm)



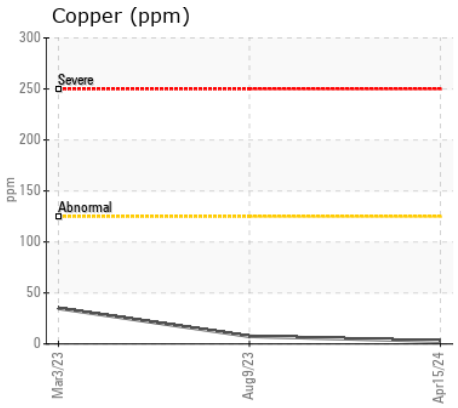
Aluminum (ppm)



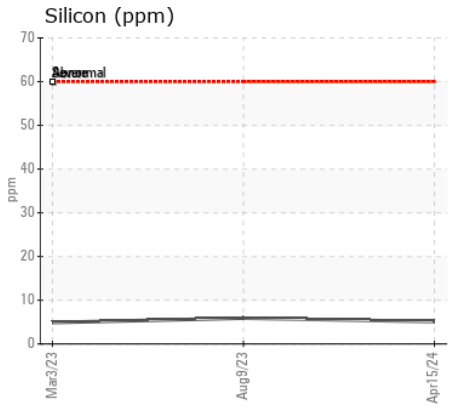
Chromium (ppm)



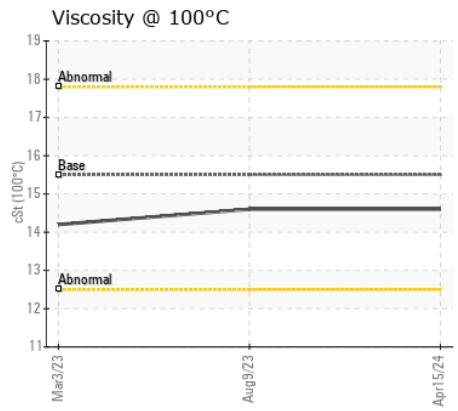
Copper (ppm)



Silicon (ppm)



Viscosity @ 100°C



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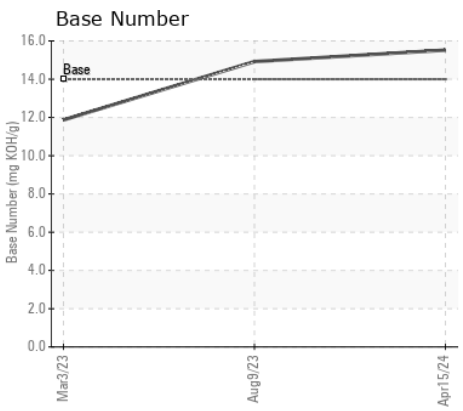

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR06158504
Lab Number : 06158504
Unique Number : 10993927
Test Package : MOB 2

Received : 23 Apr 2024
Tested : 25 Apr 2024
Diagnosed : 25 Apr 2024 - Wes Davis

DIGGING & RIGGING II
10 CHRISTINA COURT
SPARROWS POINT, MD
US 21219
Contact: Service Manager

To discuss this sample report, contact Customer Service at 1-800-827-0711.
** - 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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