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

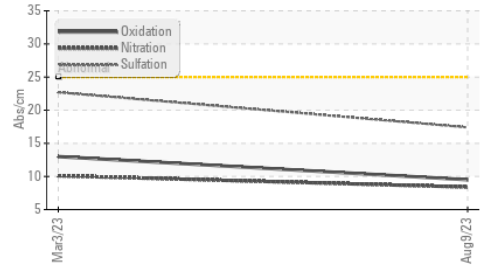
There is no indication of any contamination in the oil.

FLUID CONDITION

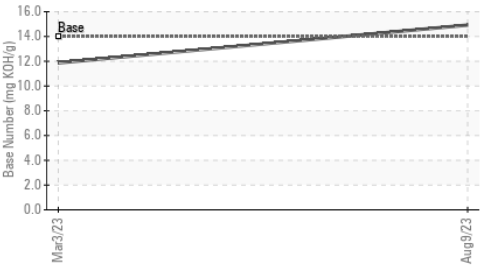
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR06158498	TR05916273	---
Sample Date		Client Info		09 Aug 2023	03 Mar 2023	---
Machine Age	hrs	Client Info		7909	7655	---
Oil Age	hrs	Client Info		250	500	---
Filter Age	hrs	Client Info		250	250	---
Oil Changed		Client Info		Changed	Changed	---
Filter Changed		Client Info		Changed	Changed	---
Sample Status				NORMAL	NORMAL	---
Iron	ppm	ASTM D5185m	>100	3	3	---
Chromium	ppm	ASTM D5185m	>5	<1	0	---
Nickel	ppm	ASTM D5185m	>5	<1	0	---
Titanium	ppm	ASTM D5185m		<1	<1	---
Silver	ppm	ASTM D5185m	>3	0	0	---
Aluminum	ppm	ASTM D5185m	>15	3	1	---
Lead	ppm	ASTM D5185m	>30	1	3	---
Copper	ppm	ASTM D5185m	>125	8	35	---
Tin	ppm	ASTM D5185m	>5	<1	<1	---
Vanadium	ppm	ASTM D5185m		<1	<1	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---
Silicon	ppm	ASTM D5185m	>60	6	5	---
Potassium	ppm	ASTM D5185m	>20	2	2	---
Fuel		WC Method	>5	<1.0	<1.0	---
Water		WC Method	>0.2	NEG	NEG	---
Glycol		WC Method		NEG	NEG	---
Soot %	%	*ASTM D7844	>3	0.1	0.1	---
Nitration	Abs/cm	*ASTM D7624	>20	8.4	10.1	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.4	22.7	---
Silt	scalar	*Visual	NONE	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	NONE	---
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	---
Sodium	ppm	ASTM D5185m		2	4	---
Boron	ppm	ASTM D5185m		0	0	---
Barium	ppm	ASTM D5185m		0	0	---
Molybdenum	ppm	ASTM D5185m		118	133	---
Manganese	ppm	ASTM D5185m		<1	<1	---
Magnesium	ppm	ASTM D5185m		15	22	---
Calcium	ppm	ASTM D5185m	1300	4061	4294	---
Phosphorus	ppm	ASTM D5185m		932	863	---
Zinc	ppm	ASTM D5185m	1300	1033	1077	---
Sulfur	ppm	ASTM D5185m		4504	4872	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	9.5	13.0	---
Base Number (BN)	mg KOH/g	ASTM D2896	14	14.92	11.87	---
Visc @ 100°C	cSt	ASTM D445	15.5	14.6	14.2	---

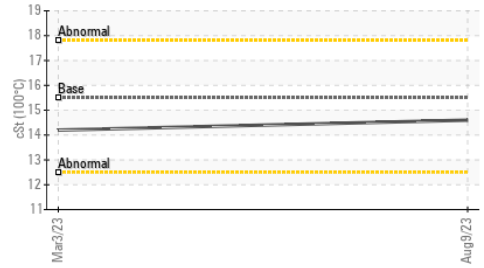
FT-IR (Direct Trend)



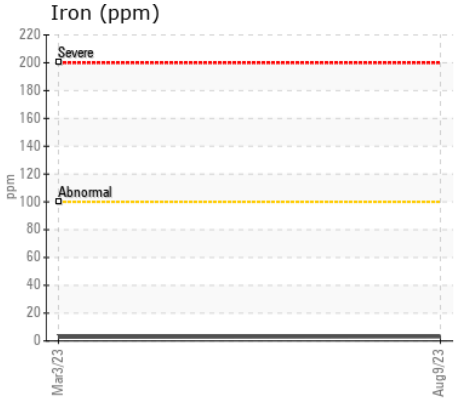
Base Number



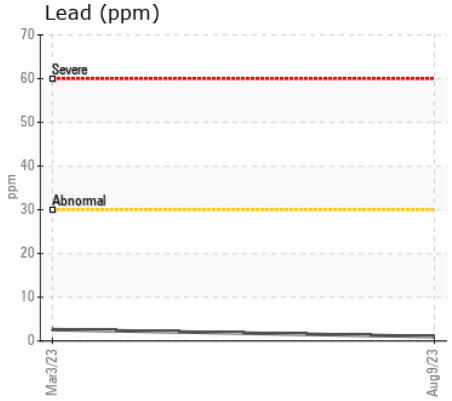
Viscosity @ 100°C



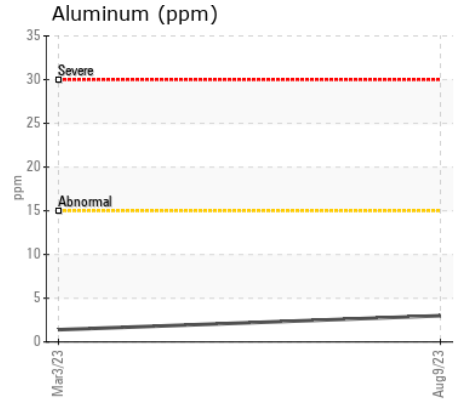
Iron (ppm)



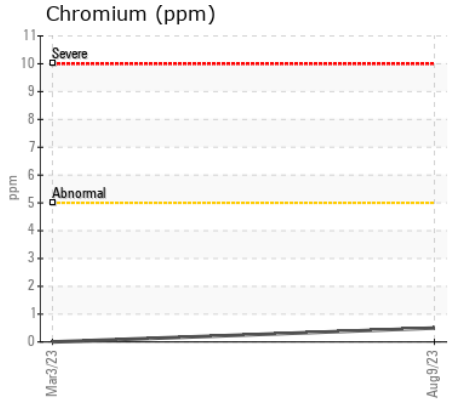
Lead (ppm)



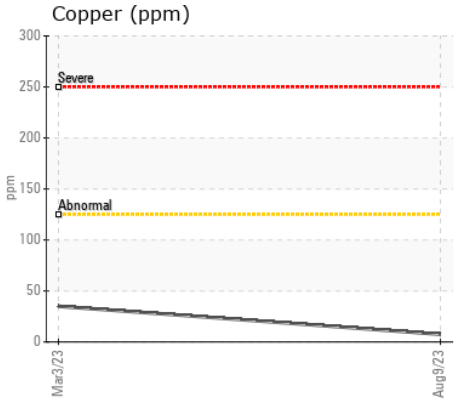
Aluminum (ppm)



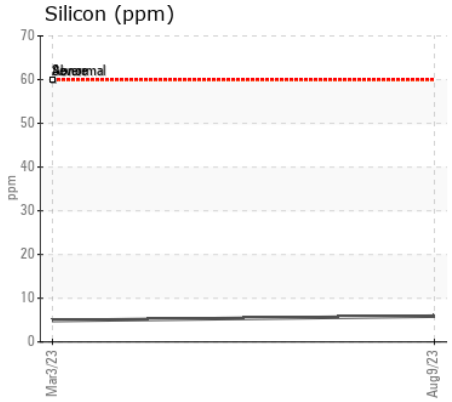
Chromium (ppm)



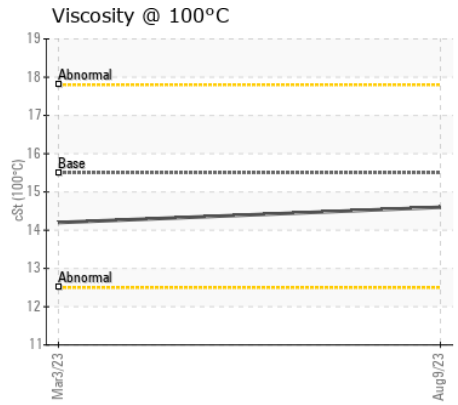
Copper (ppm)



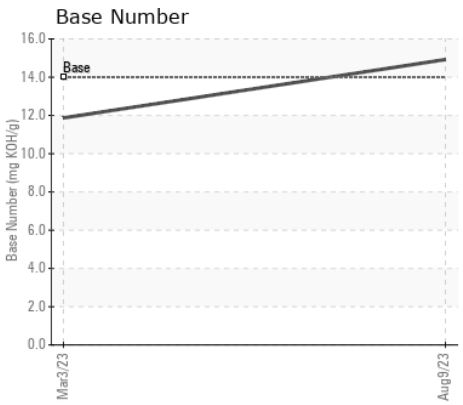
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR06158498
Lab Number : 06158498
Unique Number : 10993921
Test Package : MOB 2

Received : 23 Apr 2024
Tested : 24 Apr 2024
Diagnosed : 24 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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F: