



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
FREIGHTLINER 97 FRTL

Component
Diesel Engine

Fluid
TRC MOLY XL PRO-SPEC IV XP 15W40 (9 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR05974275	TR05647351	TR05132497
Sample Date		Client Info		12 Sep 2023	14 Sep 2022	17 Sep 2020
Machine Age	mls	Client Info		435173	434640	433471
Oil Age	mls	Client Info		1702	1169	1091
Filter Age	mls	Client Info		1702	1169	1091
Oil Changed		Client Info		Changed	Not Changd	Changed
Filter Changed		Client Info		Changed	Not Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>90	8	6	3
Chromium	ppm	ASTM D5185m	>20	1	1	1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum	ppm	ASTM D5185m	>20	6	<1	0
Lead	ppm	ASTM D5185m	>40	2	2	2
Copper	ppm	ASTM D5185m	>330	14	5	4
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

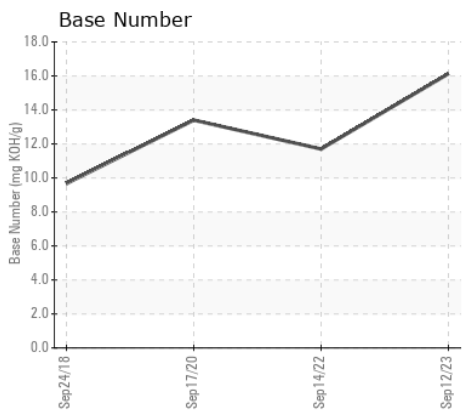
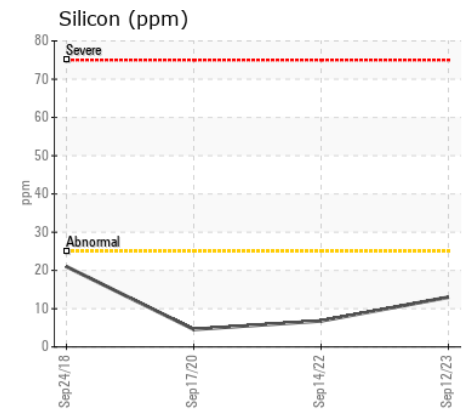
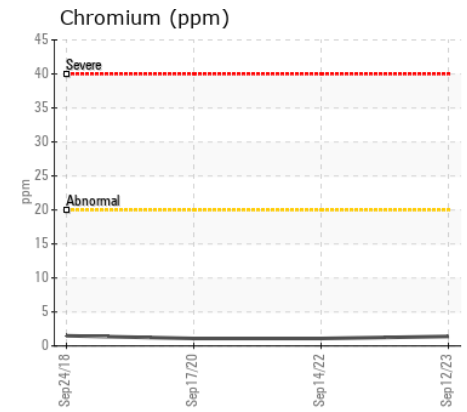
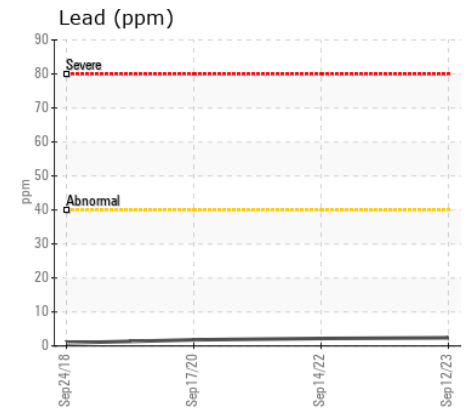
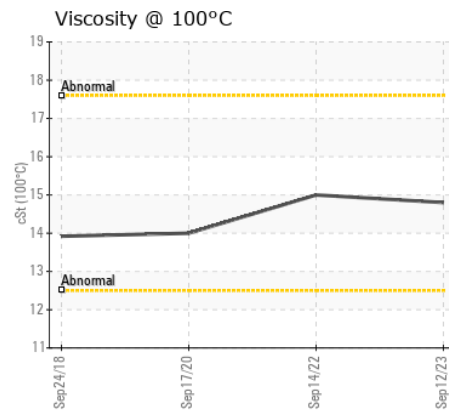
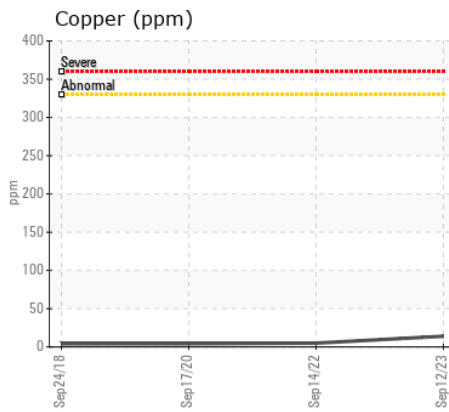
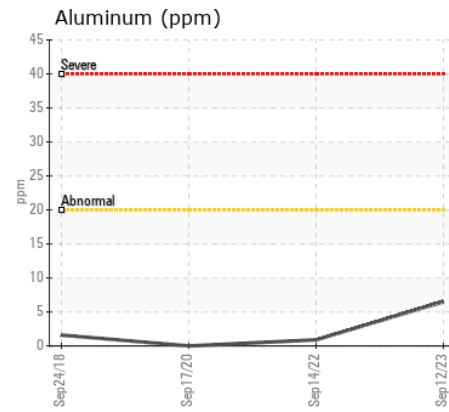
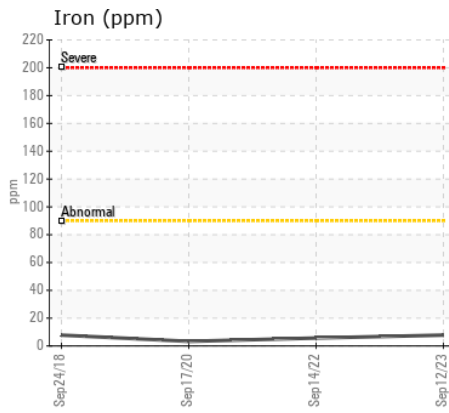
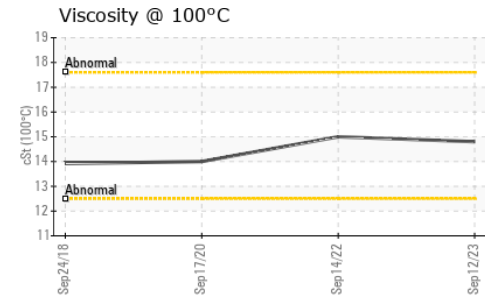
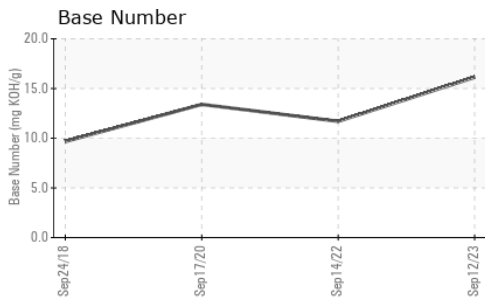
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	13	7	5
Potassium	ppm	ASTM D5185m	>20	3	2	0
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>6	0.7	0.4	0.4
Nitration	Abs/cm	*ASTM D7624	>20	8.8	9.6	10.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.3	20.1	17.9
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		4	5	2
Boron	ppm	ASTM D5185m		3	3	18
Barium	ppm	ASTM D5185m		<1	0	0
Molybdenum	ppm	ASTM D5185m		161	123	153
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		106	89	770
Calcium	ppm	ASTM D5185m		4336	3702	1784
Phosphorus	ppm	ASTM D5185m		1052	837	1138
Zinc	ppm	ASTM D5185m		1249	1013	1317
Sulfur	ppm	ASTM D5185m		5504	4587	3574
Oxidation	Abs/.1mm	*ASTM D7414	>25	10.5	12.9	13.6
Base Number (BN)	mg KOH/g	ASTM D2896		16.13	11.7	13.4
Visc @ 100°C	cSt	ASTM D445		14.8	15.0	14.0



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : TR05974275

Lab Number : 05974275

Unique Number : 10686225

Test Package : MOB 2

Received : 10 Oct 2023

Tested : 12 Oct 2023

Diagnosed : 12 Oct 2023 - Wes Davis

PHIL HARDER

57803 350TH STREET

MOUNTAIN LAKE, MN

US 56159

Contact: PHILIP HARDER

philbren@frontiernet.net

T: 5(07) 227-6074

F:

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)