TRAAP
Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
FREIGHTLINER 001
Component
Front Diesel Engine
Fluid
TRC MOLY XL PRO-SPEC IV XP 15W40 (12 QTS)

RECOMMENDATION

No corrective action is recommended at this time. We recommend an early resample to monitor this condition.

WEAR

Piston, ring and cylinder wear is indicated.

CONTAMINATION

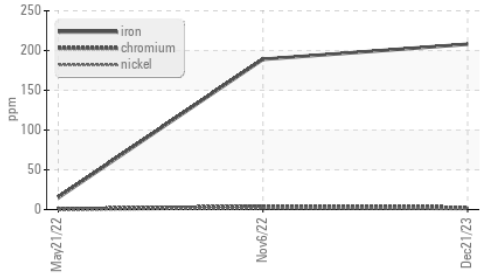
There is no indication of any contamination in the oil.

FLUID CONDITION

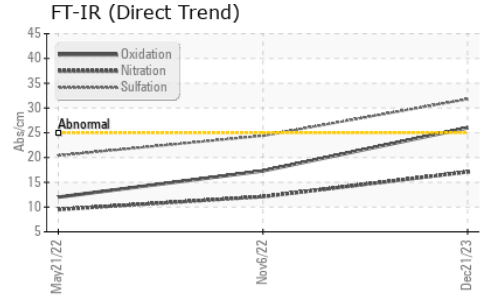
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR06045115	TR05724265	TR05559089
Sample Date		Client Info		21 Dec 2023	06 Nov 2022	21 May 2022
Machine Age	hrs	Client Info		6550	5161	4138
Oil Age	hrs	Client Info		1357	1023	320
Filter Age	hrs	Client Info		1357	1023	320
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				ABNORMAL	ABNORMAL	NORMAL
Iron	ppm	ASTM D5185m	>80	▲ 208	▲ 189	15
Chromium	ppm	ASTM D5185m	>6	3	4	<1
Nickel	ppm	ASTM D5185m	>2	<1	1	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	14	▲ 23	6
Lead	ppm	ASTM D5185m	>95	0	1	0
Copper	ppm	ASTM D5185m	>85	1	4	<1
Tin	ppm	ASTM D5185m	>9	<1	2	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>25	11	19	6
Potassium	ppm	ASTM D5185m	>20	16	29	7
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		1.1	0.2	0.4
Nitration	Abs/cm	*ASTM D7624	>20	17.1	12.1	9.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	31.8	24.4	20.4
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	>0.1	NEG	NEG	NEG
Sodium	ppm	ASTM D5185m		3	4	2
Boron	ppm	ASTM D5185m		4	12	17
Barium	ppm	ASTM D5185m		0	0	1
Molybdenum	ppm	ASTM D5185m		132	105	102
Manganese	ppm	ASTM D5185m		2	2	<1
Magnesium	ppm	ASTM D5185m		24	25	17
Calcium	ppm	ASTM D5185m		4420	4100	3868
Phosphorus	ppm	ASTM D5185m		966	883	852
Zinc	ppm	ASTM D5185m		1131	1040	1075
Sulfur	ppm	ASTM D5185m		4329	4418	4172
Oxidation	Abs/.1mm	*ASTM D7414	>25	26.0	17.3	12.0
Base Number (BN)	mg KOH/g	ASTM D2896		9.06	7.43	10.6
Visc @ 100°C	cSt	ASTM D445		17.3	15.9	15.4

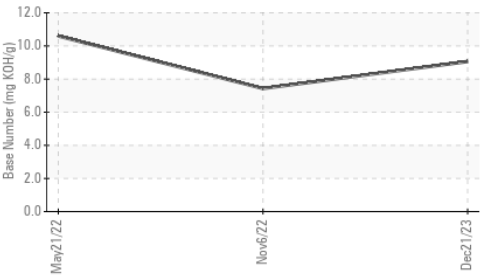
Ferrous Alloys



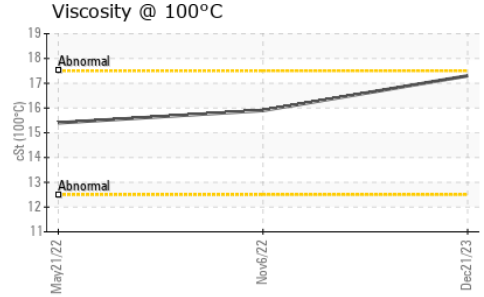
FT-IR (Direct Trend)



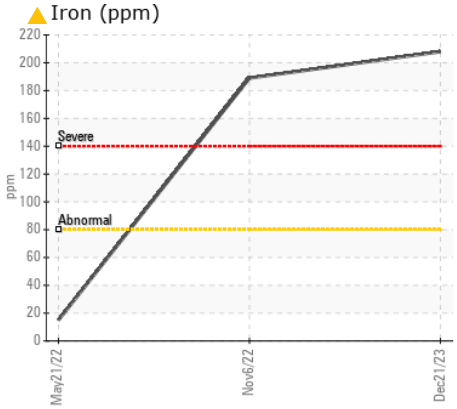
Base Number



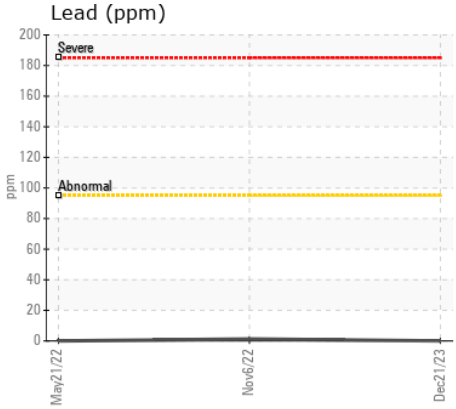
Viscosity @ 100°C



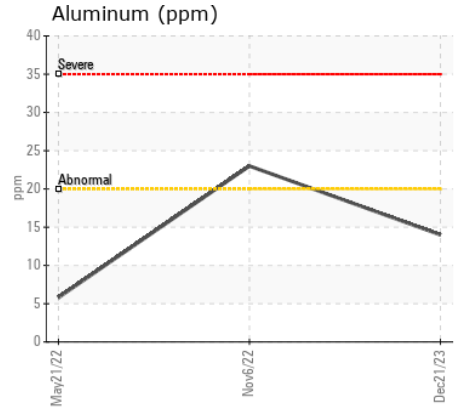
Iron (ppm)



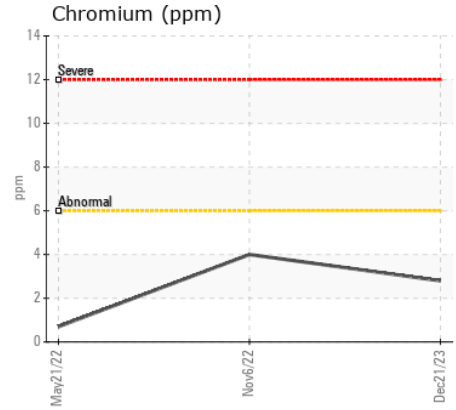
Lead (ppm)



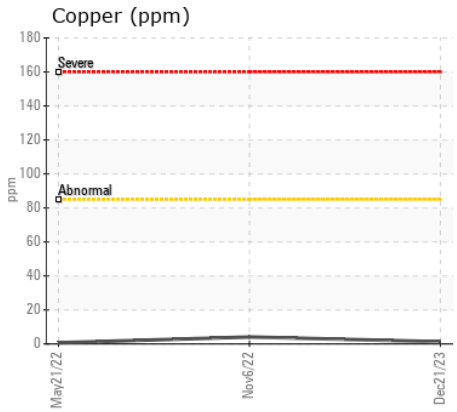
Aluminum (ppm)



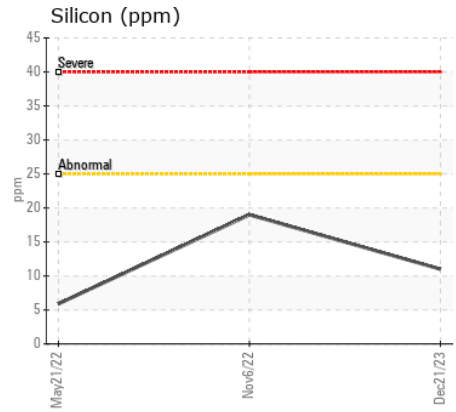
Chromium (ppm)



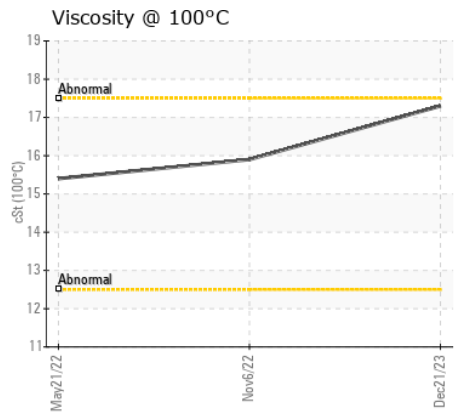
Copper (ppm)



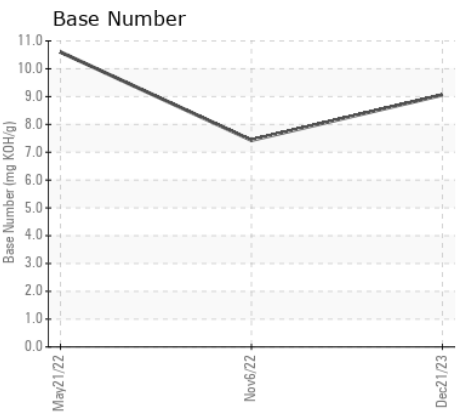
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR06045115
Lab Number : 06045115
Unique Number : 10805723
Test Package : MOB 2

Received : 26 Dec 2023
Tested : 27 Dec 2023
Diagnosed : 28 Dec 2023 - Angela Borella

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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