OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
FREIGHTLINER AL-210
Component
Diesel Engine
Fluid
SHELL ROTELLA T 15W40 (--- QTS)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

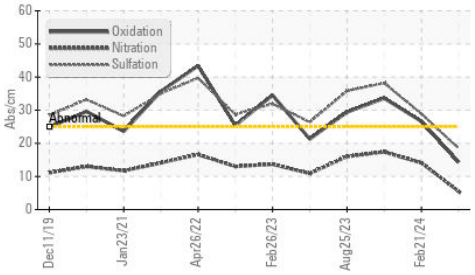
No evidence of coolant present in the oil. There is no indication of any contamination in the oil.

FLUID CONDITION

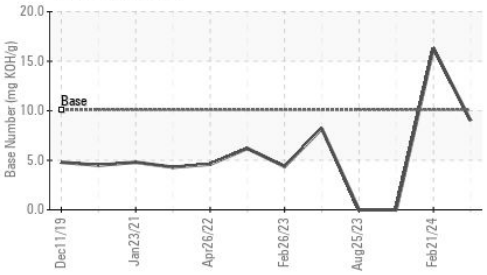
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		KL0011736	KL0011707	KL0007291
Sample Date		Client Info		24 Mar 2024	21 Feb 2024	11 Sep 2023
Machine Age	mls	Client Info		264243	264163	249812
Oil Age	mls	Client Info		80	14351	1752
Filter Age	mls	Client Info		80	14351	1752
Oil Changed		Client Info		Not Changd	Changed	Changed
Filter Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	SEVERE	ABNORMAL
Iron	ppm	ASTM D5185m	>165	14	132	103
Chromium	ppm	ASTM D5185m	>5	<1	4	2
Nickel	ppm	ASTM D5185m	>4	0	5	<1
Titanium	ppm	ASTM D5185m	>2	<1	1	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	6	40	5
Lead	ppm	ASTM D5185m	>150	4	125	37
Copper	ppm	ASTM D5185m	>90	4	34	6
Tin	ppm	ASTM D5185m	>5	1	10	3
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>35	22	65	9
Potassium	ppm	ASTM D5185m	>20	2	177	5
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	0.10	NEG
Soot %	%	*ASTM D7844	>7.5	0.1	0.4	5.3
Nitration	Abs/cm	*ASTM D7624	>20	5.5	14.1	17.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.5	28.9	38.2
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	LIGHT	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		7	181	9
Boron	ppm	ASTM D5185m	316	83	51	37
Barium	ppm	ASTM D5185m	0.0	0	<1	0
Molybdenum	ppm	ASTM D5185m	1.2	46	50	55
Manganese	ppm	ASTM D5185m		<1	2	2
Magnesium	ppm	ASTM D5185m	24	367	511	622
Calcium	ppm	ASTM D5185m	2292	1648	2033	1852
Phosphorus	ppm	ASTM D5185m	1064	946	1180	1134
Zinc	ppm	ASTM D5185m	1160	1084	1473	1433
Sulfur	ppm	ASTM D5185m	4996	3491	3313	3353
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.3	26.6	33.6
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	9.0	16.3	0.0
Visc @ 100°C	cSt	ASTM D445	15.7	13.3	15.3	17.7

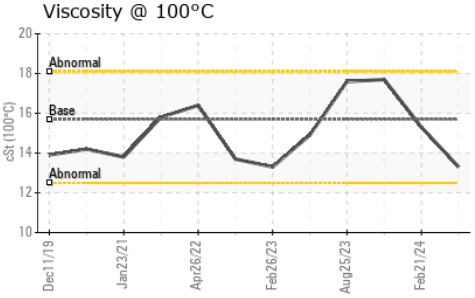
FT-IR (Direct Trend)



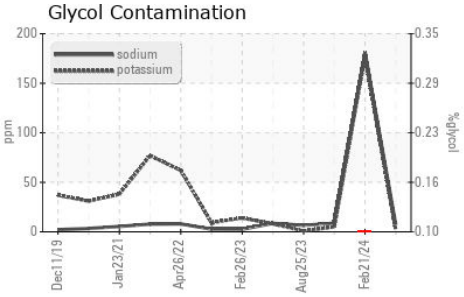
Base Number



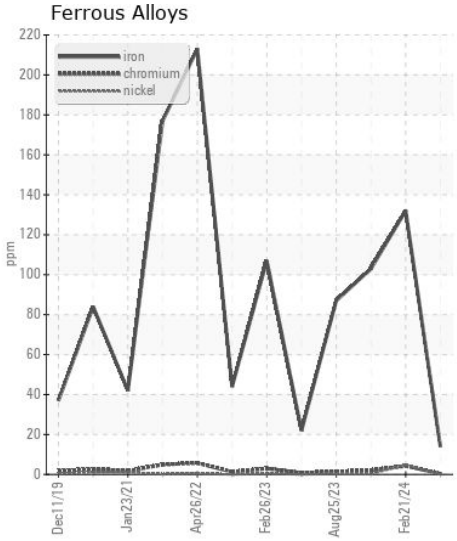
Viscosity @ 100°C



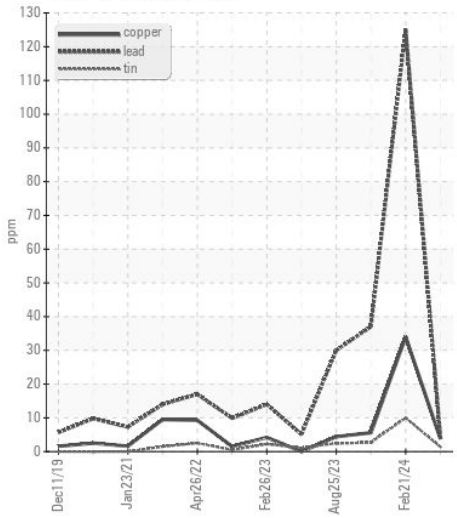
Glycol Contamination



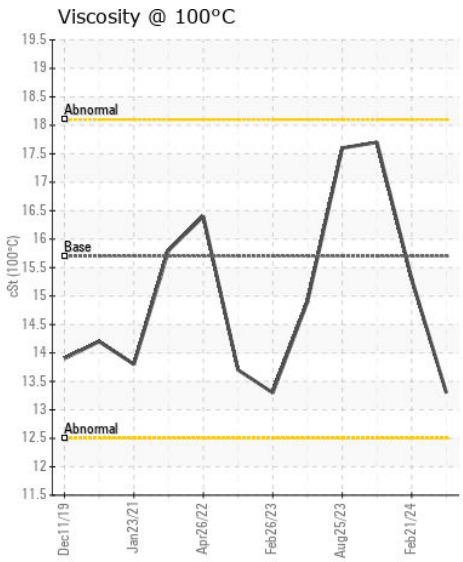
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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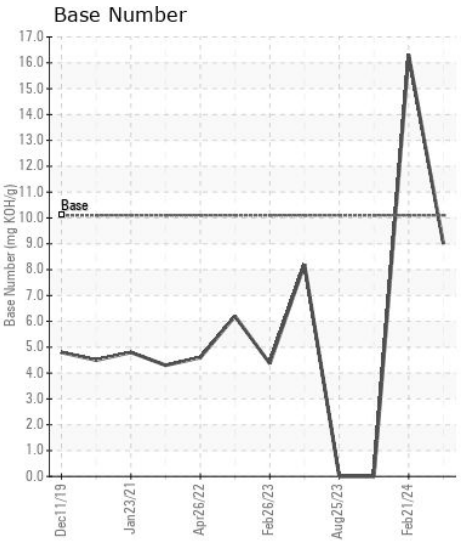

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0011736
Lab Number : 06153903
Unique Number : 10989326
Test Package : FLEET

Received : 19 Apr 2024
Tested : 23 Apr 2024
Diagnosed : 23 Apr 2024 - Jonathan Hester

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)

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