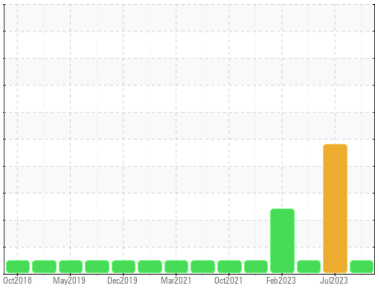
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
FREIGHTLINER 35157
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- QTS)

DIAGNOSIS

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. The amount and size of particulates present in the system are acceptable.

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.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**KL0012068**	KL0012063	KLM2339357
Sample Date		Client Info		**31 Oct 2023**	27 Jul 2023	10 Apr 2023
Machine Age	mls	Client Info		**265926**	244807	246597
Oil Age	mls	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**NORMAL**	ABNORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>5	**<1.0**	<1.0	<1.0
Water		WC Method	>0.2	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	**10**	44	34
Chromium	ppm	ASTM D5185m	>5	**<1**	2	2
Nickel	ppm	ASTM D5185m	>2	**0**	<1	<1
Titanium	ppm	ASTM D5185m		**<1**	<1	<1
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>30	**3**	▲ 12	8
Lead	ppm	ASTM D5185m	>30	**<1**	0	0
Copper	ppm	ASTM D5185m	>150	**2**	6	6
Tin	ppm	ASTM D5185m	>5	**<1**	<1	<1
Vanadium	ppm	ASTM D5185m		**<1**	0	<1
Cadmium	ppm	ASTM D5185m		**0**	0	0

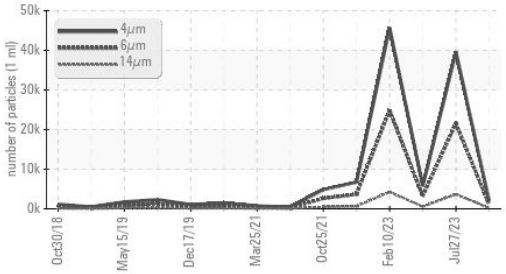
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	**96**	15	14
Barium	ppm	ASTM D5185m	10	**0**	0	0
Molybdenum	ppm	ASTM D5185m	100	**60**	64	60
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m	450	**1154**	1105	1072
Calcium	ppm	ASTM D5185m	3000	**1045**	1349	1282
Phosphorus	ppm	ASTM D5185m	1150	**1151**	1163	1094
Zinc	ppm	ASTM D5185m	1350	**1380**	1466	1420
Sulfur	ppm	ASTM D5185m	4250	**3678**	4130	3746

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	**7**	▲ 21	17
Sodium	ppm	ASTM D5185m	>158	**5**	20	13
Potassium	ppm	ASTM D5185m	>20	**4**	9	9

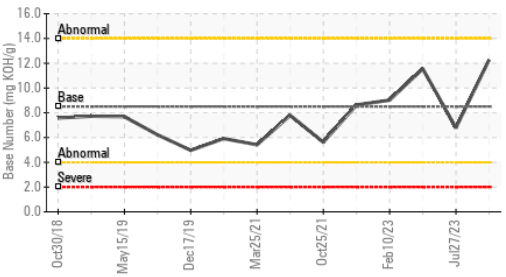
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.4**	1.3	1.2
Nitration	Abs/cm	*ASTM D7624	>20	**7.8**	13.1	13.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	**21.2**	28.0	27.8

OIL ANALYSIS REPORT

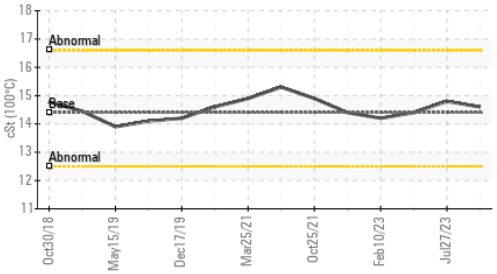
Particle Trend



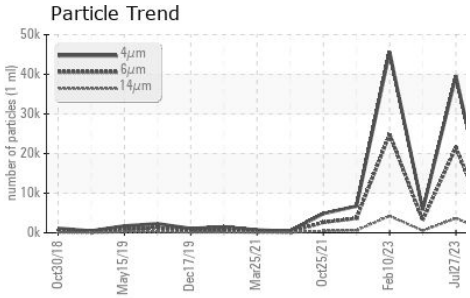
Base Number



Viscosity @ 100°C



Particle Trend



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**2114**	39566	5803
Particles >6µm		ASTM D7647	>5000	**1152**	▲ 21554	3161
Particles >14µm		ASTM D7647	>640	**196**	▲ 3668	538
Particles >21µm		ASTM D7647	>160	**66**	▲ 1236	181
Particles >38µm		ASTM D7647	>40	**10**	▲ 191	28
Particles >71µm		ASTM D7647	>10	**1**	▲ 19	3
Oil Cleanliness		ISO 4406 (c)	>19/16	**17/15**	▲ 22/19	19/16

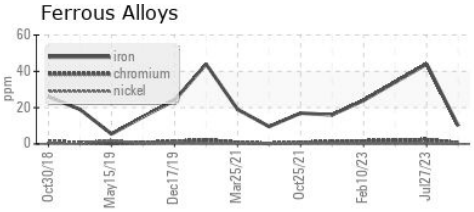
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**17.2**	24.9	24.8
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	**12.27**	6.79	11.55

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
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
Free Water	scalar	*Visual		**NEG**	NEG	NEG

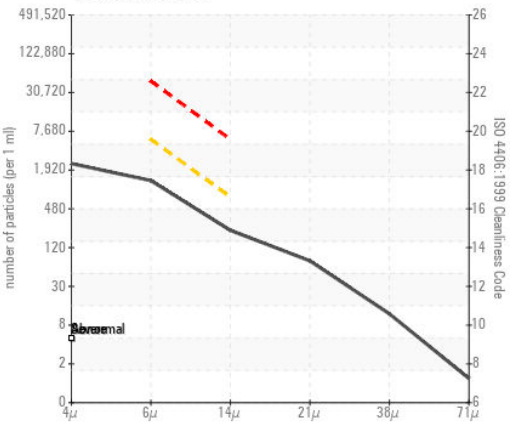
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	**14.6**	14.8	14.4

GRAPHS

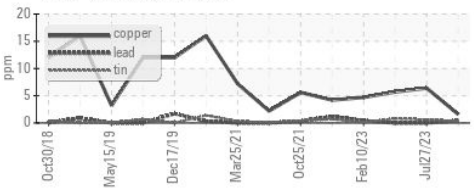
Ferrous Alloys



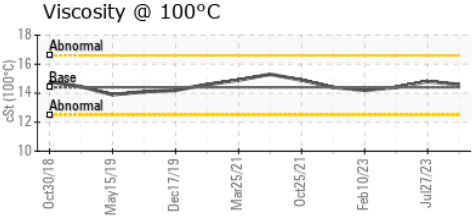
Particle Count



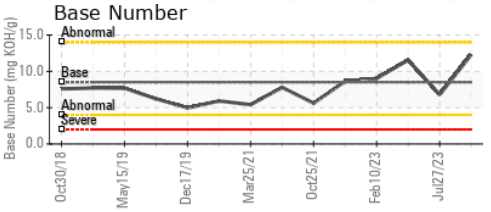
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0012068 **Received** : 20 Nov 2023
Lab Number : 06013473 **Diagnosed** : 23 Nov 2023
Unique Number : 10752617 **Diagnostician** : Don Baldridge
Test Package : MOB 2 (Additional Tests: PrtCount)

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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