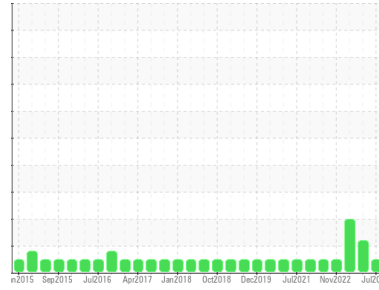




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
FREIGHTLINER 35138
 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 component. The amount and size of particulates present in the system is 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		KL0012061	KLM2339378	KLM2340714
Sample Date	Client Info		27 Jul 2023	08 Apr 2023	10 Feb 2023
Machine Age	mls	Client Info	250706	0	238380
Oil Age	mls	Client Info	0	0	58117
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			NORMAL	ATTENTION	ATTENTION

CONTAMINATION

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

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >80	11	25	16
Chromium	ppm	ASTM D5185m >5	<1	1	1
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	2	4	4
Lead	ppm	ASTM D5185m >30	0	0	<1
Copper	ppm	ASTM D5185m >150	2	14	7
Tin	ppm	ASTM D5185m >5	0	<1	<1
Vanadium	ppm	ASTM D5185m	0	<1	<1
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 250	63	10	7
Barium	ppm	ASTM D5185m 10	0	0	0
Molybdenum	ppm	ASTM D5185m 100	47	24	17
Manganese	ppm	ASTM D5185m	<1	1	2
Magnesium	ppm	ASTM D5185m 450	893	427	304
Calcium	ppm	ASTM D5185m 3000	1367	2047	2157
Phosphorus	ppm	ASTM D5185m 1150	1028	983	898
Zinc	ppm	ASTM D5185m 1350	1263	1269	1254
Sulfur	ppm	ASTM D5185m 4250	4080	3911	3660

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >20	5	10	9
Sodium	ppm	ASTM D5185m >158	7	10	8
Potassium	ppm	ASTM D5185m >20	2	5	5

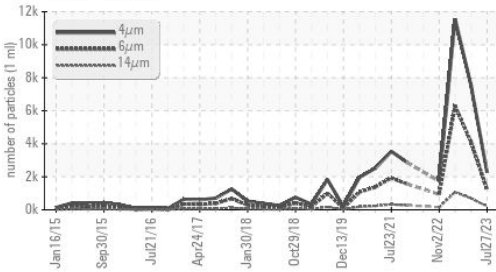
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	0.4	0.8	0.6
Nitration	Abs/cm	*ASTM D7624 >20	7.5	10.5	9.4
Sulfation	Abs./1mm	*ASTM D7415 >30	20.0	24.9	23.2

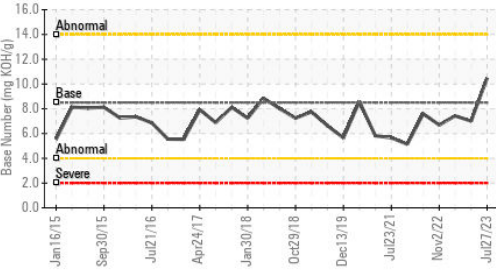


OIL ANALYSIS REPORT

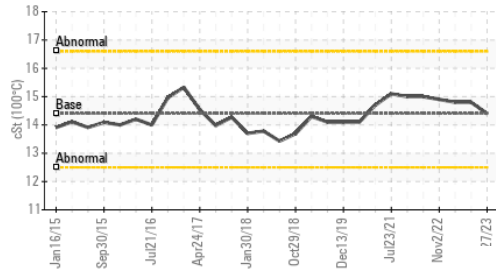
Particle Trend



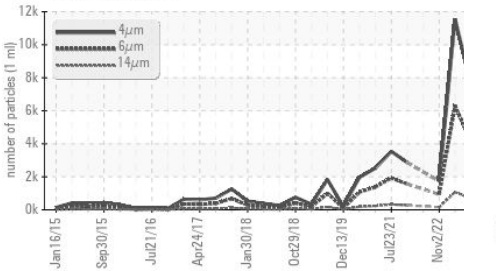
Base Number



Viscosity @ 100°C



Particle Trend



FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	2279	7508	11553
Particles >6µm	ASTM D7647 >5000	1242	4090	6294
Particles >14µm	ASTM D7647 >640	211	696	1071
Particles >21µm	ASTM D7647 >160	71	234	361
Particles >38µm	ASTM D7647 >40	11	36	56
Particles >71µm	ASTM D7647 >10	0	4	6
Oil Cleanliness	ISO 4406 (c)	17/15	19/17	20/17

FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation Abs./1mm	*ASTM D7414 >25	15.1	18.1	16.0
Base Number (BN) mg KOH/g	ASTM D2896 8.5	10.47	7.00	7.43

VISUAL

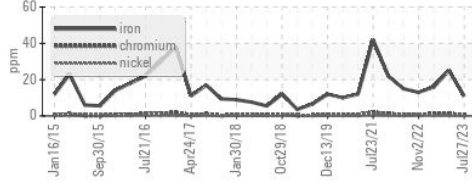
method	limit/base	current	history1	history2
White Metal	*Visual NONE	NONE	NONE	NONE
Yellow Metal	*Visual NONE	NONE	NONE	NONE
Precipitate	*Visual NONE	NONE	NONE	NONE
Silt	*Visual NONE	NONE	NONE	NONE
Debris	*Visual NONE	NONE	NONE	NONE
Sand/Dirt	*Visual NONE	NONE	NONE	NONE
Appearance	*Visual NORML	NORML	NORML	NORML
Odor	*Visual NORML	NORML	NORML	NORML
Emulsified Water	*Visual >0.2	NEG	NEG	NEG
Free Water	*Visual	NEG	NEG	NEG

FLUID PROPERTIES

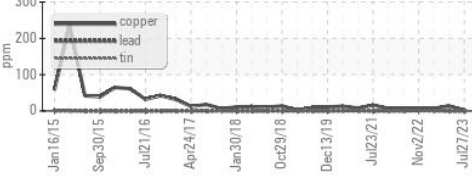
method	limit/base	current	history1	history2
Visc @ 100°C cSt	ASTM D445 14.4	14.4	14.8	14.8

GRAPHS

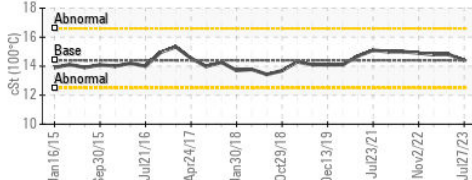
Ferrous Alloys



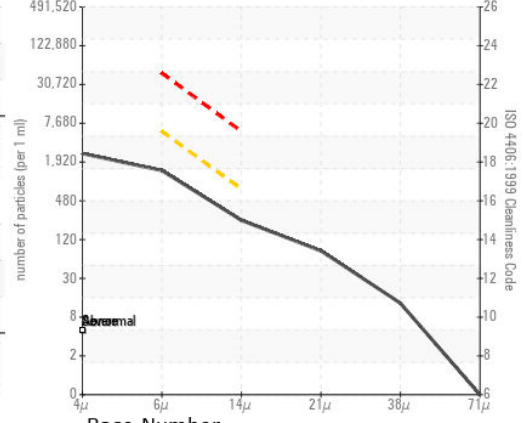
Non-ferrous Metals



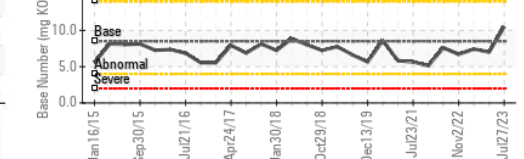
Viscosity @ 100°C



Particle Count



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0012061 **Received** : 14 Aug 2023
Lab Number : 05923598 **Diagnosed** : 18 Aug 2023
Unique Number : 10603545 **Diagnostician** : Jonathan Hester
Test Package : MOB 2 (Additional Tests: PrtCount)

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 AIEA, HI
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 Contact: CLYDE OMIJA
 comija@honolulu.gov
 T: (575)623-9952
 F:

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)