



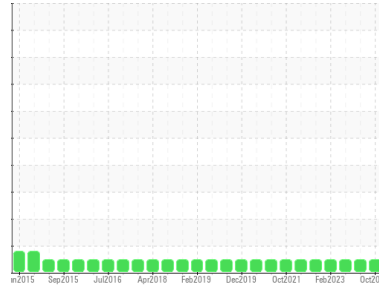
OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id
FREIGHTLINER 35137
 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

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

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			KL0012085	KL0012060	KLM2339385
Sample Date	Client Info			31 Oct 2023	27 Jul 2023	10 Apr 2023
Machine Age	mls	Client Info		237331	225679	220226
Oil Age	mls	Client Info		0	0	0
Oil Changed	Client Info			N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
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

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>65	24	14	31
Chromium	ppm	ASTM D5185m	>5	2	<1	2
Nickel	ppm	ASTM D5185m	>3	<1	0	<1
Titanium	ppm	ASTM D5185m	>5	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	<1	1
Aluminum	ppm	ASTM D5185m	>35	6	2	4
Lead	ppm	ASTM D5185m	>10	<1	0	0
Copper	ppm	ASTM D5185m	>180	6	4	9
Tin	ppm	ASTM D5185m	>8	<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	24	65	0
Barium	ppm	ASTM D5185m	10	0	0	0
Molybdenum	ppm	ASTM D5185m	100	47	46	5
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	450	936	895	62
Calcium	ppm	ASTM D5185m	3000	1356	1395	2436
Phosphorus	ppm	ASTM D5185m	1150	1059	1017	912
Zinc	ppm	ASTM D5185m	1350	1306	1247	1190
Sulfur	ppm	ASTM D5185m	4250	3314	4100	4064

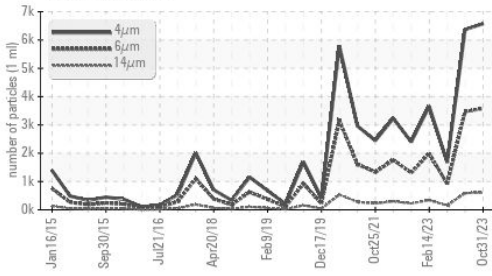
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>15	11	6	10
Sodium	ppm	ASTM D5185m	>158	8	6	11
Potassium	ppm	ASTM D5185m	>20	4	2	5

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	0.8	0.4	0.9
Nitration	Abs/cm	*ASTM D7624	>20	10.4	7.7	10.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.6	20.0	25.3

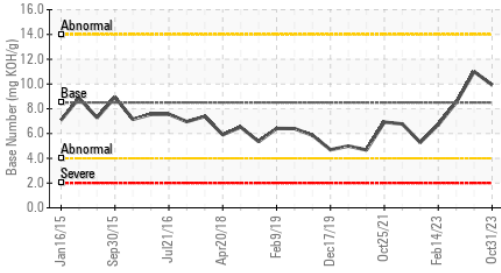


OIL ANALYSIS REPORT

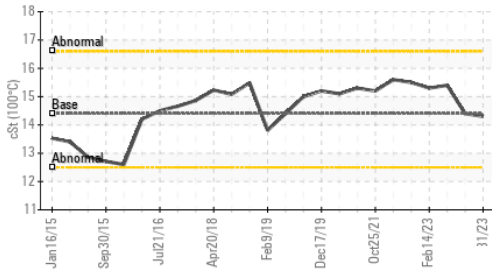
Particle Trend



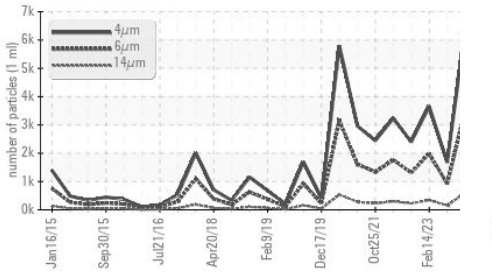
Base Number



Viscosity @ 100°C



Particle Trend



FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		6577	6368	1679
Particles >6µm	ASTM D7647	>5000	3583	3469	915
Particles >14µm	ASTM D7647	>640	610	590	156
Particles >21µm	ASTM D7647	>160	205	199	52
Particles >38µm	ASTM D7647	>40	32	31	8
Particles >71µm	ASTM D7647	>10	3	3	1
Oil Cleanliness	ISO 4406 (c)	>19/16	19/16	19/16	17/14

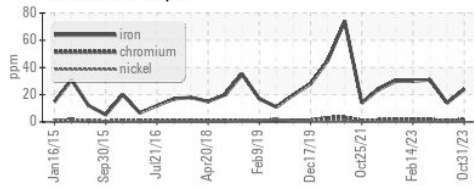
FLUID DEGRADATION	method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414	>25	19.8	15.1	16.9
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	9.93	11.00	8.51

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

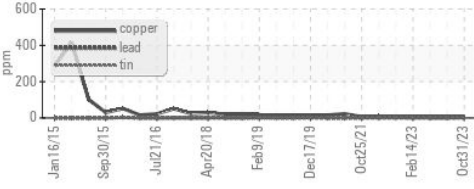
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	14.4	14.3	14.4	15.4

GRAPHS

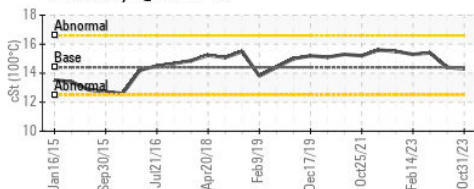
Ferrous Alloys



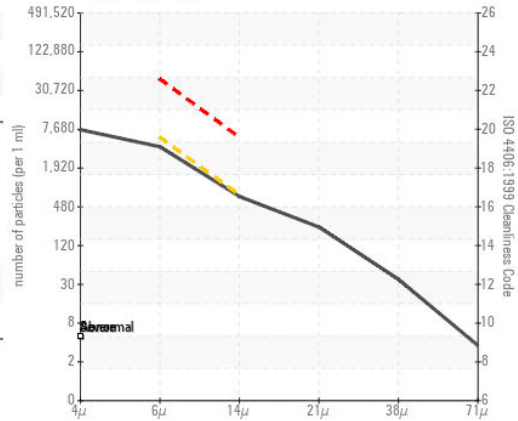
Non-ferrous Metals



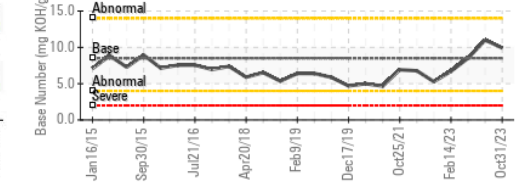
Viscosity @ 100°C



Particle Count



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : KL0012085
 Lab Number : 06013461
 Unique Number : 10752605
 Test Package : MOB 2 (Additional Tests: PrtCount)

Received : 20 Nov 2023
 Diagnosed : 23 Nov 2023
 Diagnostician : Don Baldrige

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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)