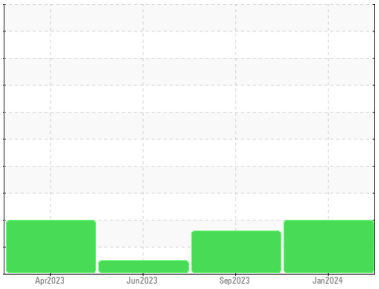
OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
[CONHER]
Machine Id
FREIGHTLINER LAMO - #194 Freightliner
Component
Diesel Engine
Fluid
Volvo Mineral 15W40 CI-4 (45 LTR)

DIAGNOSIS

Recommendation
We recommend you service the filters on this component. Resample at the next service interval to monitor. (Customer Sample Comment: Fluid: Volvi mineral 15W40)

Wear
All component wear rates are normal.

Contamination
There is a high amount of particulates present 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		**KL0013461**	KL0012830	KL0012384
Sample Date		Client Info		**19 Jan 2024**	16 Sep 2023	30 Jun 2023
Machine Age	kms	Client Info		**119580**	77741	46089
Oil Age	kms	Client Info		**106089**	64250	22598
Oil Changed		Client Info		**Not Changd**	Not Changd	Not Changd
Sample Status				**ABNORMAL**	ATTENTION	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	>200	**17**	39	26
Chromium	ppm	ASTM D5185m	>6	**<1**	2	1
Nickel	ppm	ASTM D5185m	>3	**0**	<1	<1
Titanium	ppm	ASTM D5185m	>2	**0**	<1	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>50	**2**	9	5
Lead	ppm	ASTM D5185m	>10	**5**	0	0
Copper	ppm	ASTM D5185m	>50	**4**	7	6
Tin	ppm	ASTM D5185m	>6	**0**	<1	<1
Vanadium	ppm	ASTM D5185m		**0**	<1	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

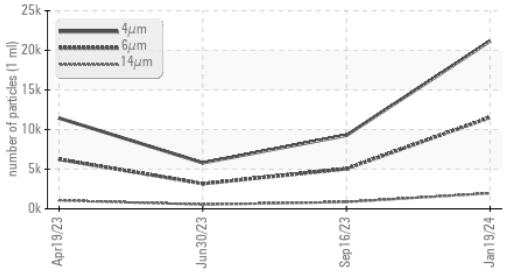
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**6**	17	25
Barium	ppm	ASTM D5185m		**<1**	0	0
Molybdenum	ppm	ASTM D5185m		**2**	54	52
Manganese	ppm	ASTM D5185m		**0**	<1	<1
Magnesium	ppm	ASTM D5185m		**16**	740	788
Calcium	ppm	ASTM D5185m		**2430**	2001	1818
Phosphorus	ppm	ASTM D5185m		**920**	1044	1038
Zinc	ppm	ASTM D5185m		**1138**	1381	1330
Sulfur	ppm	ASTM D5185m		**3591**	3278	3772

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	**8**	13	9
Sodium	ppm	ASTM D5185m		**3**	3	2
Potassium	ppm	ASTM D5185m	>20	**6**	2	4

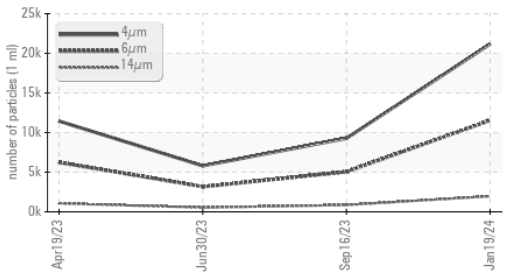
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.4**	0.8	0.5
Nitration	Abs/cm	*ASTM D7624	>20	**8.2**	9.3	8.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	**18.8**	22.4	20.8

OIL ANALYSIS REPORT

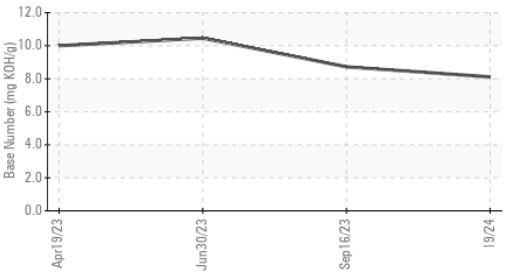
Particle Trend



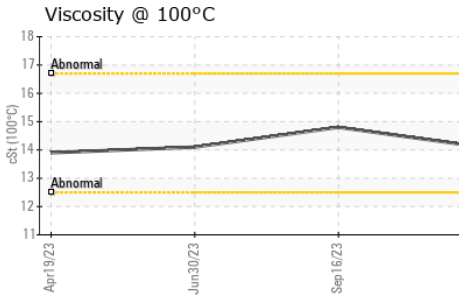
Particle Trend



Base Number



Viscosity @ 100°C



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**21166**	9274	5803
Particles >6µm		ASTM D7647	>5000	▲ **11530**	▲ 5052	3161
Particles >14µm		ASTM D7647	>640	▲ **1962**	▲ 860	538
Particles >21µm		ASTM D7647	>160	▲ **661**	▲ 290	181
Particles >38µm		ASTM D7647	>40	▲ **102**	45	28
Particles >71µm		ASTM D7647	>10	**10**	5	3
Oil Cleanliness		ISO 4406 (c)	>19/16	▲ **21/18**	▲ 20/17	19/16

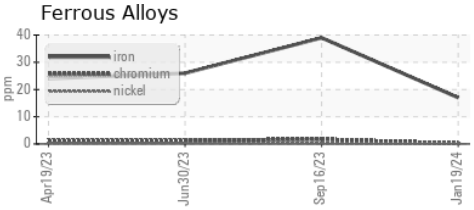
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**12.3**	17.6	15.9
Base Number (BN)	mg KOH/g	ASTM D2896		**8.11**	8.72	10.46

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

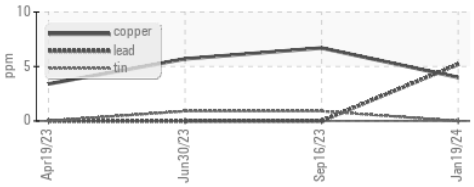
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		**14.1**	14.8	14.1

GRAPHS

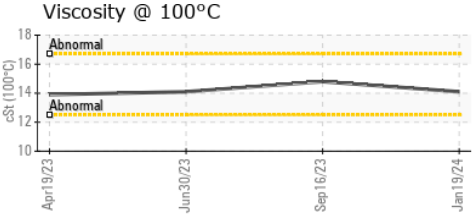
Ferrous Alloys



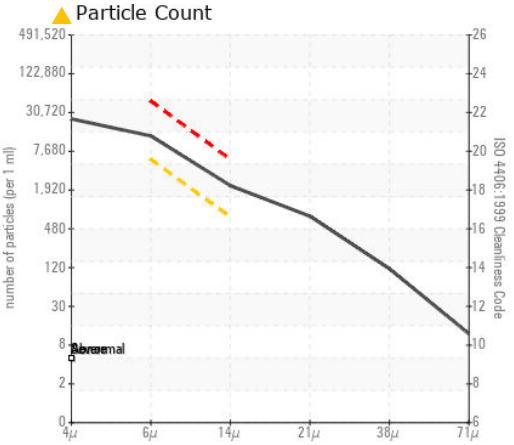
Non-ferrous Metals



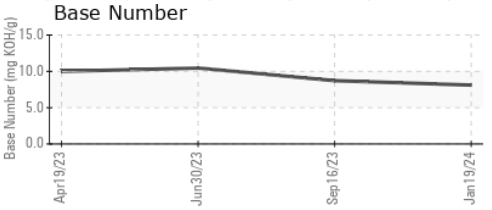
Viscosity @ 100°C



Particle Count



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0013461
Lab Number : 06074989
Unique Number : 10857080
Test Package : MOB 2 (Additional Tests: PrtCount)

Recieved : 30 Jan 2024
Diagnosed : 02 Feb 2024
Diagnostician : 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)

LAMO
NAVOJOA, MX
Contact: ANDRES MONROY
andres.monroy@cmoderna.com
T:
F: