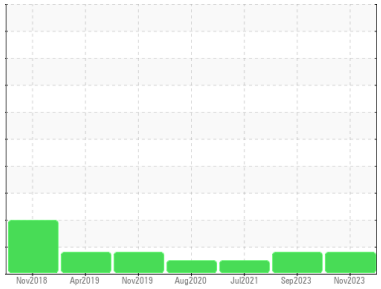
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
FREIGHTLINER 687882
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 10W30 (40 QTS)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core).

Contamination

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		**PCA0110147**	PCA0099667	PCA0050844
Sample Date		Client Info		**14 Nov 2023**	28 Sep 2023	26 Jul 2021
Machine Age	mls	Client Info		**0**	200903	138424
Oil Age	mls	Client Info		**10000**	20000	30211
Oil Changed		Client Info		**Changed**	Not Changd	Changed
Sample Status				**ABNORMAL**	MARGINAL	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

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	**8**	13	19
Chromium	ppm	ASTM D5185m	>20	**<1**	2	2
Nickel	ppm	ASTM D5185m	>2	**<1**	<1	0
Titanium	ppm	ASTM D5185m	>2	**0**	<1	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>30	**2**	▲ 27	4
Lead	ppm	ASTM D5185m	>30	**<1**	2	0
Copper	ppm	ASTM D5185m	>30	▲ **164**	6	7
Tin	ppm	ASTM D5185m	>15	**2**	<1	<1
Antimony	ppm	ASTM D5185m		**---**	---	0
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**<1**	<1	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	2	**5**	130	26
Barium	ppm	ASTM D5185m	0	**0**	0	0
Molybdenum	ppm	ASTM D5185m	50	**71**	17	60
Manganese	ppm	ASTM D5185m	0	**<1**	0	<1
Magnesium	ppm	ASTM D5185m	950	**911**	269	817
Calcium	ppm	ASTM D5185m	1050	**1303**	1948	1406
Phosphorus	ppm	ASTM D5185m	995	**1123**	1065	1045
Zinc	ppm	ASTM D5185m	1180	**1327**	1231	1177
Sulfur	ppm	ASTM D5185m	2600	**3216**	4233	2760

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>30	**8**	7	3
Sodium	ppm	ASTM D5185m		**0**	0	3
Potassium	ppm	ASTM D5185m	>20	**2**	6	7
Glycol	%	*ASTM D2982		**NEG**	NEG	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.9**	1	0.7
Nitration	Abs/cm	*ASTM D7624	>20	**9.5**	9.5	9.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	**24.0**	21.2	21.2

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**20.5**	16.5	16.6
Base Number (BN)	mg KOH/g	ASTM D2896		**5.2**	6.7	---

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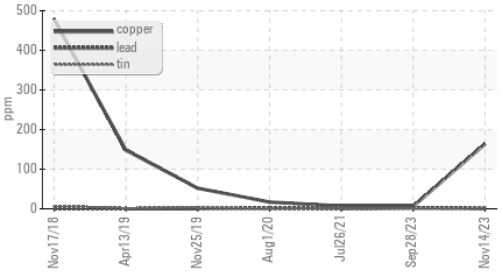
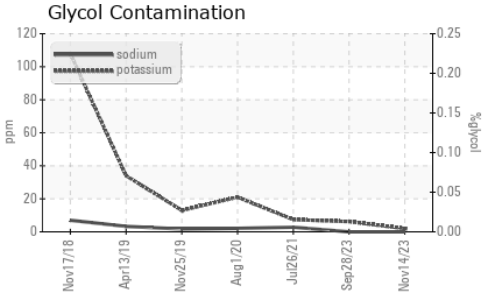
OIL DIAGNOSTICS

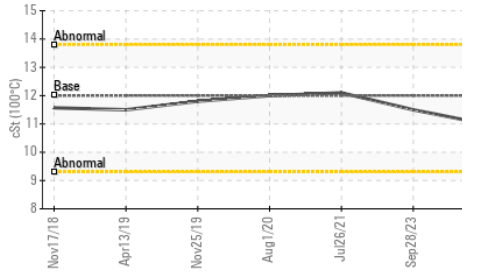
Non-ferrous Metals



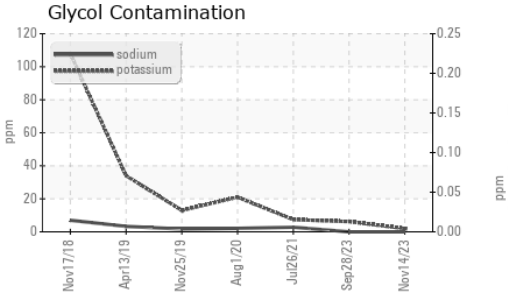
Glycol Contamination



Viscosity @ 100°C



Glycol Contamination

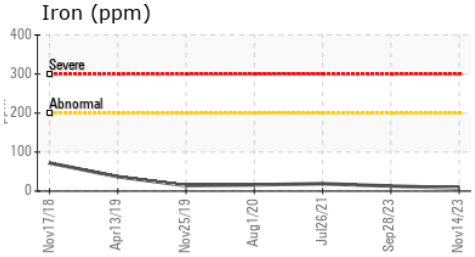


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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

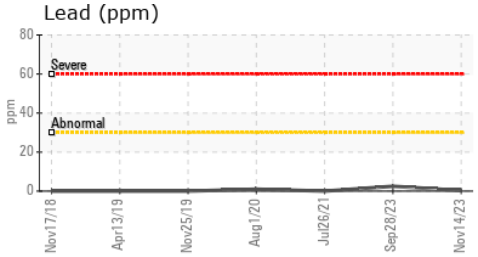
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.00	**11.0**	11.5	12.1

GRAPHS

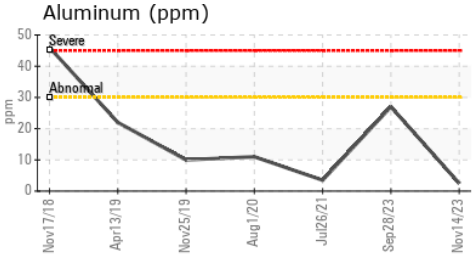
Iron (ppm)



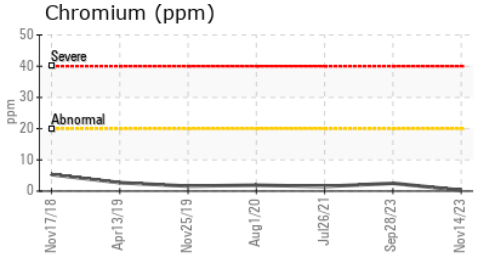
Lead (ppm)



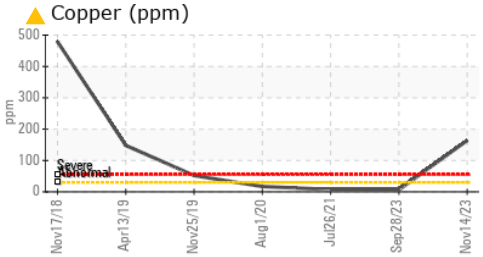
Aluminum (ppm)



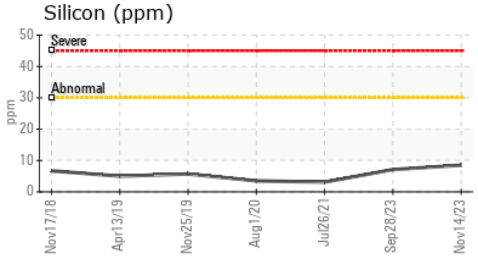
Chromium (ppm)



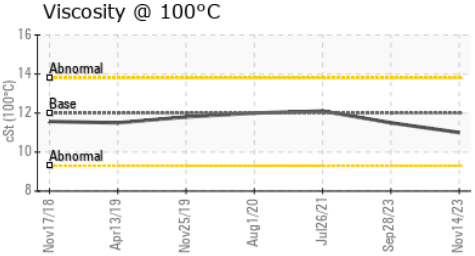
Copper (ppm)



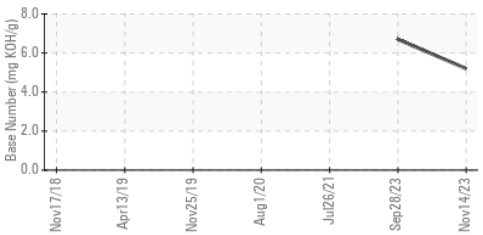
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0110147 **Received** : 07 Dec 2023
Lab Number : 06027357 **Diagnosed** : 11 Dec 2023
Unique Number : 10777148 **Diagnostician** : Jonathan Hester
Test Package : MOB 1 (Additional Tests: Glycol, TBN)

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)

MILLER TRUCK LEASING #121
107 HOW LANE
NEW BRUNSWICK, NJ
US 08901
Contact: Anthony Cursi
acursi@millertransgroup.com
T: (732)358-4027
F: (732)400-8475