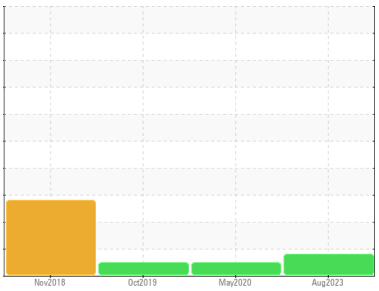
OIL DIAGNOSTICS

OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
FREIGHTLINER 398750
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 10W30 (--- GAL)

DIAGNOSIS

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

▲ Wear
Cylinder, crank, or cam shaft wear is indicated.

Contamination
Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

Fluid Condition
The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PCA0099093**	PCA0014260	PCA0009493
Sample Date		Client Info		**30 Aug 2023**	02 May 2020	04 Oct 2019
Machine Age	mls	Client Info		**277137**	85866	64490
Oil Age	mls	Client Info		**0**	0	0
Oil Changed		Client Info		**Changed**	N/A	N/A
Sample Status				**ABNORMAL**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	**<1.0**	<1.0	<1.0

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	▲ **131**	29	16
Chromium	ppm	ASTM D5185m	>20	**3**	<1	<1
Nickel	ppm	ASTM D5185m	>2	**1**	<1	<1
Titanium	ppm	ASTM D5185m	>2	**0**	0	<1
Silver	ppm	ASTM D5185m	>2	**<1**	<1	<1
Aluminum	ppm	ASTM D5185m	>20	**40**	5	8
Lead	ppm	ASTM D5185m	>40	**0**	<1	0
Copper	ppm	ASTM D5185m	>330	**32**	6	44
Tin	ppm	ASTM D5185m	>15	**1**	0	0
Antimony	ppm	ASTM D5185m		**---**	0	0
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	2	**27**	3	14
Barium	ppm	ASTM D5185m	0	**0**	0	0
Molybdenum	ppm	ASTM D5185m	50	**42**	54	59
Manganese	ppm	ASTM D5185m	0	**10**	<1	1
Magnesium	ppm	ASTM D5185m	950	**541**	869	868
Calcium	ppm	ASTM D5185m	1050	**1633**	936	984
Phosphorus	ppm	ASTM D5185m	995	**739**	896	869
Zinc	ppm	ASTM D5185m	1180	**968**	1048	969
Sulfur	ppm	ASTM D5185m	2600	**2765**	2702	1553

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**11**	3	4
Sodium	ppm	ASTM D5185m		**7**	2	2
Potassium	ppm	ASTM D5185m	>20	**84**	6	13
Glycol	%	*ASTM D2982		**NEG**	NEG	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>6	**0.5**	0.5	0.3
Nitration	Abs/cm	*ASTM D7624	>20	**9.7**	11.2	7.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	**22.6**	20.4	18.4

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**20.8**	17.3	13.6
Base Number (BN)	mg KOH/g	ASTM D2896		**8.3**	---	---

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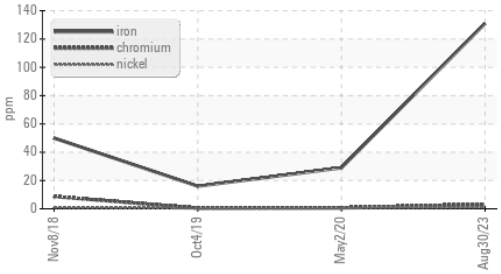
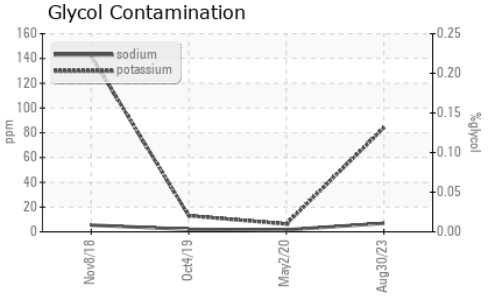
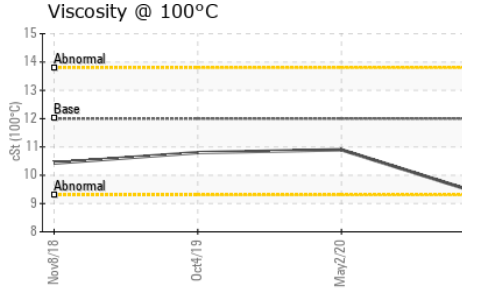
Ferrous Alloys



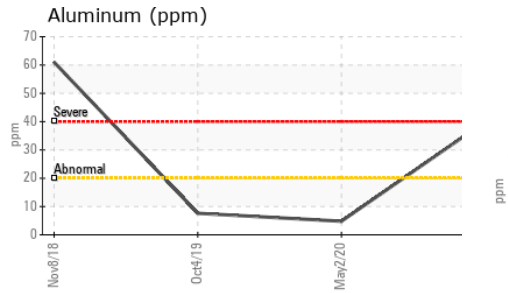
Glycol Contamination



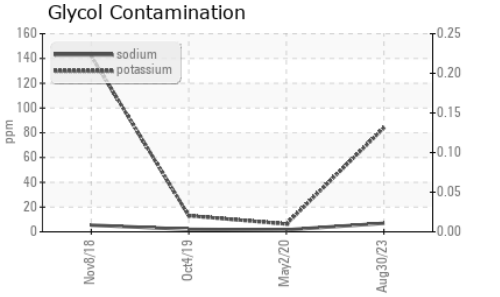
Viscosity @ 100°C



Aluminum (ppm)



Glycol Contamination

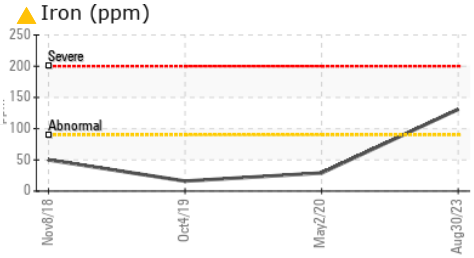


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

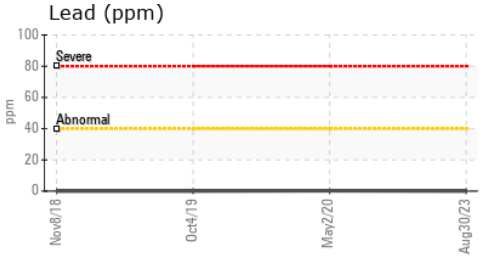
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.00	**9.3**	10.9	10.8

GRAPHS

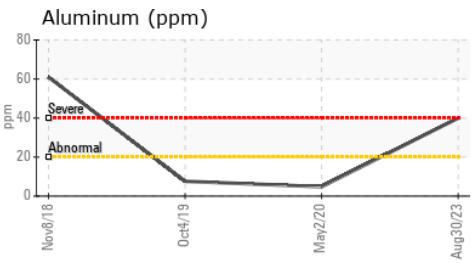
Iron (ppm)



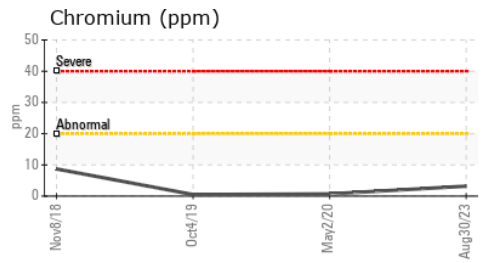
Lead (ppm)



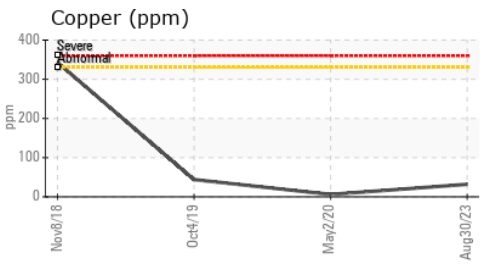
Aluminum (ppm)



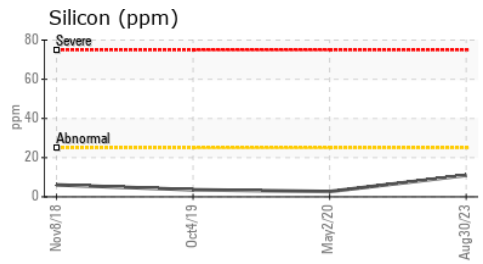
Chromium (ppm)



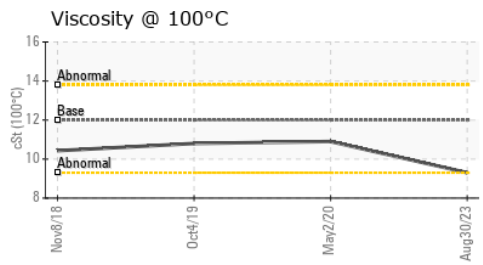
Copper (ppm)



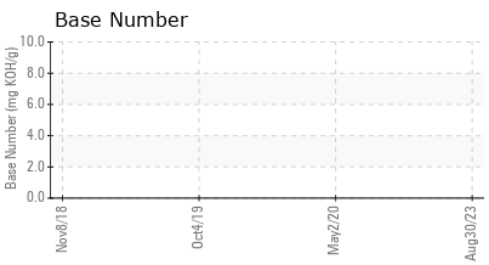
Silicon (ppm)



Viscosity @ 100°C



Base Number



ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0099093 **Received** : 31 Aug 2023
Lab Number : 05939531 **Diagnosed** : 19 Sep 2023
Unique Number : 10630143 **Diagnostician** : Doug Bogart
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)

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