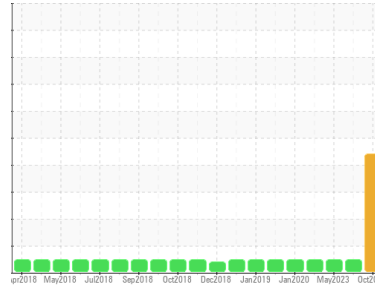


Area
Plymouth & Brockton
Machine Id
11407

Component
Diesel Engine
Fluid

PETRO CANADA DURON SHP 15W40 (39 QTS)



DIAGNOSIS

Recommendation

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

The lead level is abnormal. The tin level is abnormal.

Contamination

There is an abnormal amount of solids and carbon present in the oil. There is a high amount of fuel present in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			PCA0104676	PCA0013373	PCA0090506
Sample Date	Client Info			08 Oct 2023	29 Jul 2023	20 May 2023
Machine Age	mls	Client Info		660630	650226	638557
Oil Age	mls	Client Info		6000	12000	24000
Oil Changed	Client Info			Changed	Not Changd	Changed
Sample Status				SEVERE	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
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	181	89	39
Chromium	ppm	ASTM D5185m	>10	6	3	4
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>30	8	4	10
Lead	ppm	ASTM D5185m	>30	▲ 37	7	<1
Copper	ppm	ASTM D5185m	>30	6	4	2
Tin	ppm	ASTM D5185m	>4	▲ 10	4	2
Antimony	ppm	ASTM D5185m		---	---	---
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	0	4	5	8
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	55	59	62
Manganese	ppm	ASTM D5185m	0	2	1	<1
Magnesium	ppm	ASTM D5185m	1010	832	891	988
Calcium	ppm	ASTM D5185m	1070	1016	1141	1123
Phosphorus	ppm	ASTM D5185m	1150	897	952	1045
Zinc	ppm	ASTM D5185m	1270	1125	1217	1261
Sulfur	ppm	ASTM D5185m	2060	2466	3346	3726

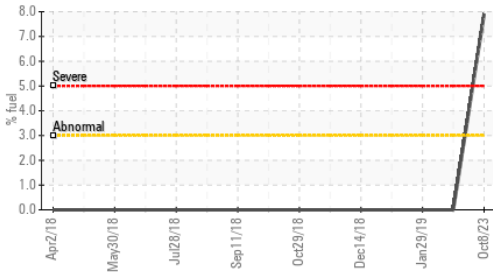
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>30	16	10	13
Sodium	ppm	ASTM D5185m		10	5	5
Potassium	ppm	ASTM D5185m	>20	1	2	0
Fuel	%	ASTM D3524	>3.0	◆ 7.9	<1.0	<1.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	▲ 4.4	2.1	0.7
Nitration	Abs/cm	*ASTM D7624	>20	17.8	10.8	7.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	36.6	24.2	19.3

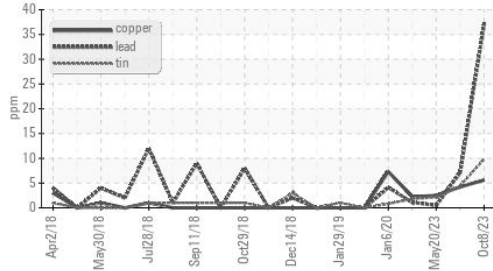
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	32.2	19.0	13.9
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	5.03	8.21	12.37

OIL ANALYSIS REPORT

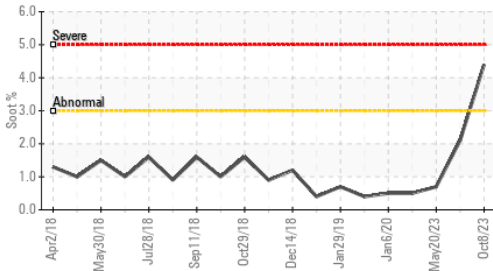
Fuel Dilution



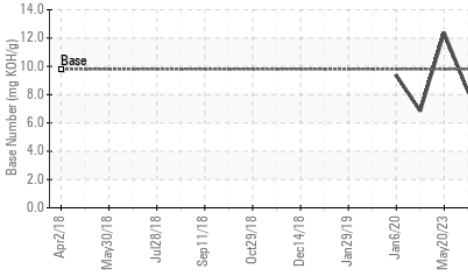
Non-ferrous Metals



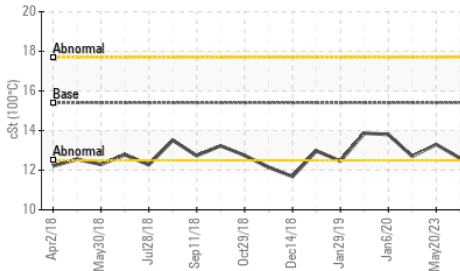
Soot %



Base Number



Viscosity @ 100°C



VISUAL

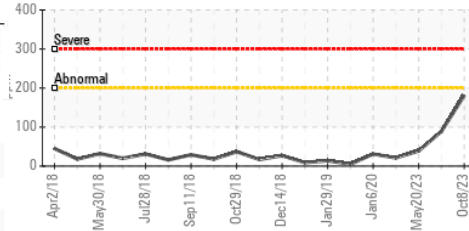
	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar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

FLUID PROPERTIES

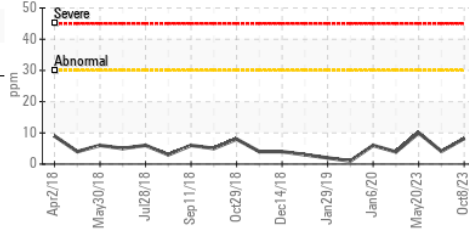
	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	12.7	12.6

GRAPHS

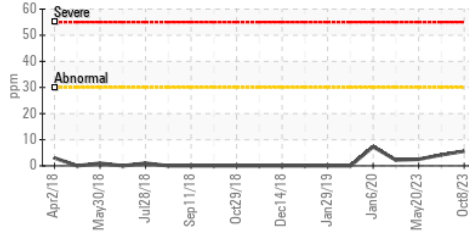
Iron (ppm)



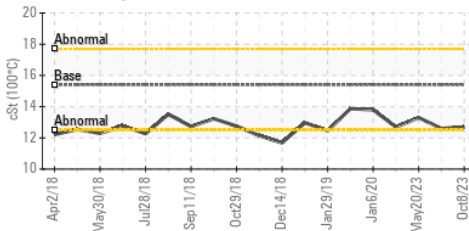
Aluminum (ppm)



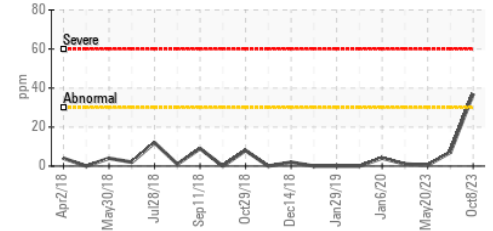
Copper (ppm)



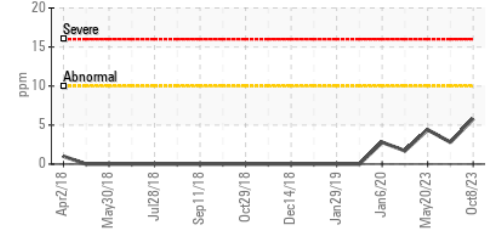
Viscosity @ 100°C



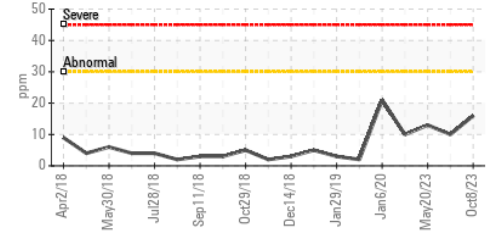
Lead (ppm)



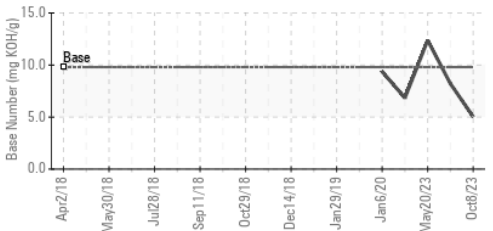
Chromium (ppm)



Silicon (ppm)



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0104676 **Received** : 16 Nov 2023
Lab Number : 06010292 **Diagnosed** : 20 Nov 2023
Unique Number : 10749436 **Diagnostician** : Don Baldrige
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

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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 US 02360

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 F: (508)732-6091