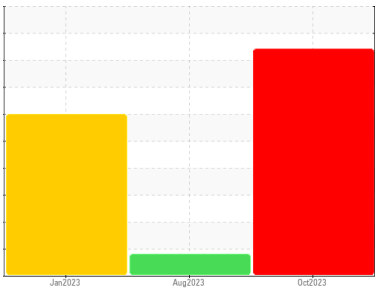
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
736801
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 10W30 (--- QTS)

DIAGNOSIS

Recommendation
We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

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

Contamination
There is an abnormal amount of solids and carbon present in the oil.

Fluid Condition
The oil viscosity is higher than normal. The BN level is low.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PCA0110465**	PCA0103088	PCA0089672
Sample Date		Client Info		**28 Oct 2023**	05 Aug 2023	25 Jan 2023
Machine Age	mls	Client Info		**157865**	122464	76810
Oil Age	mls	Client Info		**0**	0	0
Oil Changed		Client Info		**Changed**	Not Changd	N/A
Sample Status				**SEVERE**	ABNORMAL	SEVERE

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>5	**<1.0**	<1.0	<1.0
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	**309**	218	405
Chromium	ppm	ASTM D5185m	>20	**6**	4	7
Nickel	ppm	ASTM D5185m	>4	**2**	<1	3
Titanium	ppm	ASTM D5185m		**<1**	<1	0
Silver	ppm	ASTM D5185m	>3	**<1**	<1	0
Aluminum	ppm	ASTM D5185m	>20	**29**	24	51
Lead	ppm	ASTM D5185m	>40	**<1**	<1	4
Copper	ppm	ASTM D5185m	>330	**93**	73	297
Tin	ppm	ASTM D5185m	>15	**4**	3	11
Vanadium	ppm	ASTM D5185m		**<1**	<1	0
Cadmium	ppm	ASTM D5185m		**<1**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	2	**5**	6	19
Barium	ppm	ASTM D5185m	0	**<1**	0	0
Molybdenum	ppm	ASTM D5185m	50	**69**	63	49
Manganese	ppm	ASTM D5185m	0	**6**	4	10
Magnesium	ppm	ASTM D5185m	950	**867**	862	499
Calcium	ppm	ASTM D5185m	1050	**1439**	1410	1884
Phosphorus	ppm	ASTM D5185m	995	**994**	936	747
Zinc	ppm	ASTM D5185m	1180	**1269**	1232	928
Sulfur	ppm	ASTM D5185m	2600	**2366**	2485	1914

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**11**	8	12
Sodium	ppm	ASTM D5185m		**0**	5	8
Potassium	ppm	ASTM D5185m	>20	**62**	45	121

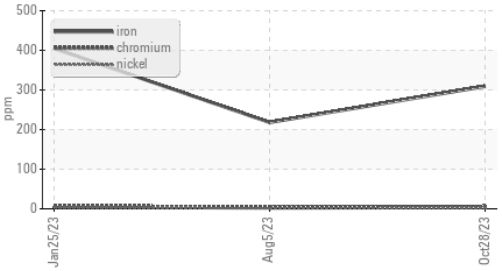
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**3.1**	2.2	2.6
Nitration	Abs/cm	*ASTM D7624	>20	**23.9**	17.0	22.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	**38.1**	29.2	33.9

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**50.9**	33.4	45.7
Base Number (BN)	mg KOH/g	ASTM D2896		**1.0**	3.9	2.9

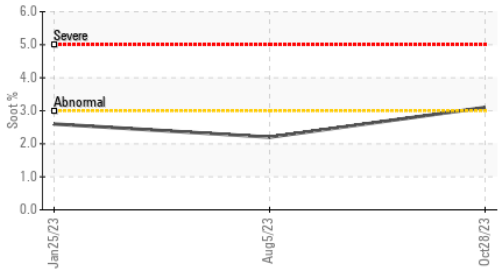
OIL ANALYSIS REPORT

OIL DIAGNOSTICS

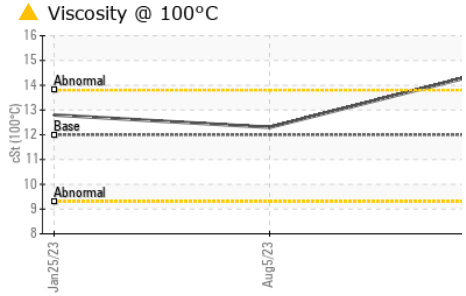
Ferrous Alloys



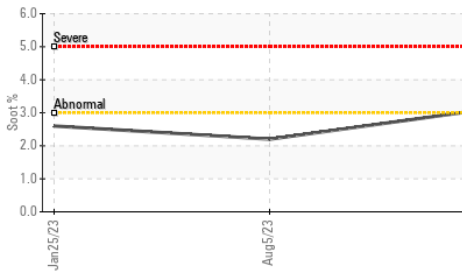
Soot %



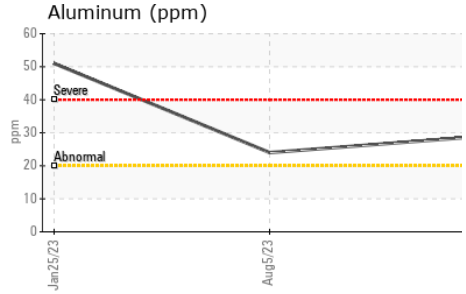
Viscosity @ 100°C



Soot %



Aluminum (ppm)

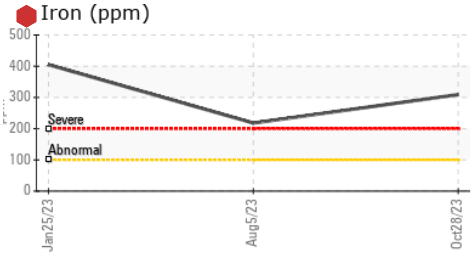


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

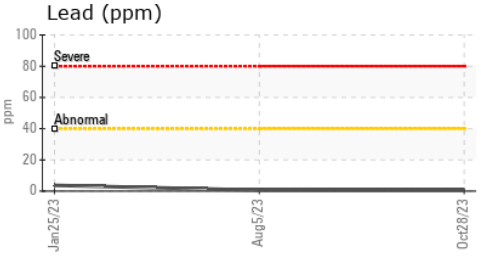
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.00	▲ **14.5**	12.3	12.8

GRAPHS

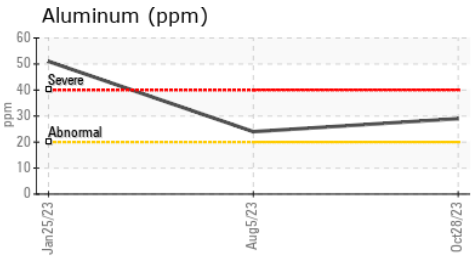
Iron (ppm)



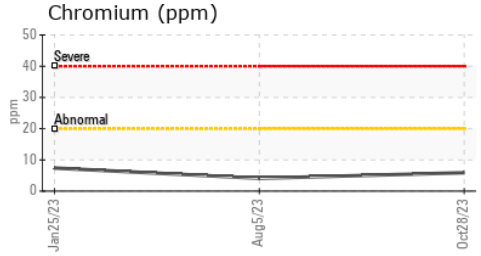
Lead (ppm)



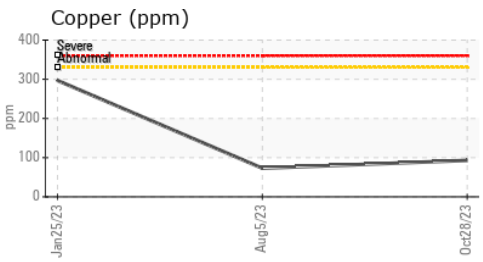
Aluminum (ppm)



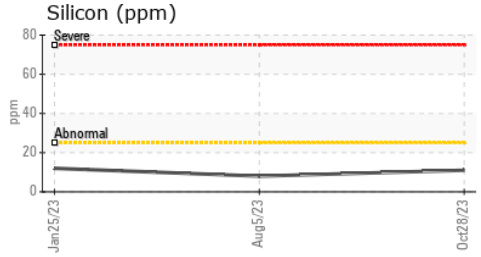
Chromium (ppm)



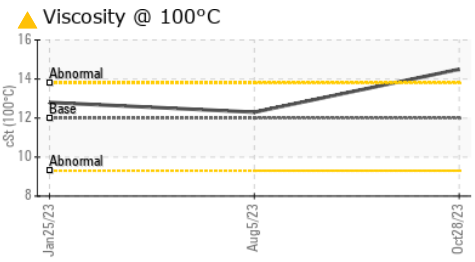
Copper (ppm)



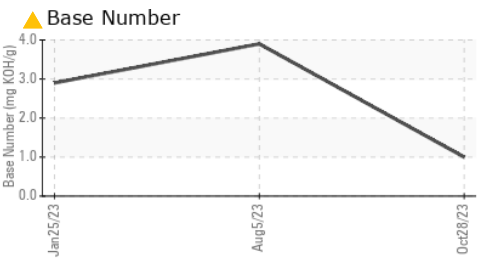
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0110465 **Received** : 13 Nov 2023
Lab Number : 06005346 **Diagnosed** : 15 Nov 2023
Unique Number : 10739108 **Diagnostician** : Jonathan Hester
Test Package : MOB 1 (Additional Tests: 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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