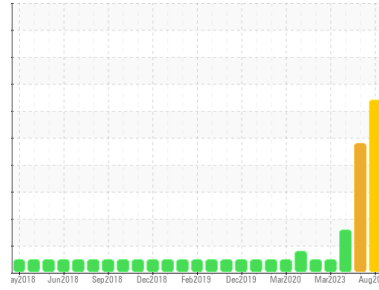


# OIL ANALYSIS REPORT

**Sample Rating Trend**

**GLYCOL**


Area  
**Plymouth & Brockton**  
Machine Id  
**415**

Component  
**Diesel Engine**  
Fluid

**PETRO CANADA DURON SHP 15W40 (39 QTS)**

**DIAGNOSIS**
**Recommendation**

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

**Wear**

Cylinder, crank, or cam shaft wear is indicated. Bearing and/or bushing wear is indicated.

**Contamination**

Sodium and/or potassium levels are high. Test for glycol is positive.

**Fluid Condition**

The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>PCA0013379</b>	PCA0013295	PCA0090613
Sample Date	Client Info		<b>09 Aug 2023</b>	23 Jun 2023	09 May 2023
Machine Age	mls	Client Info	<b>528857</b>	523184	515085
Oil Age	mls	Client Info	<b>24000</b>	12000	12000
Oil Changed	Client Info		<b>Changed</b>	Not Changd	Not Changd
Sample Status			<b>ABNORMAL</b>	ABNORMAL	MARGINAL

CONTAMINATION	method	limit/base	current	history1	history2
Fuel	WC Method	>3.0	<b>&lt;1.0</b>	<1.0	<1.0

WEAR METALS	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >90	<b>▲ 157</b>	▲ 111	84
Chromium	ppm	ASTM D5185m >20	<b>4</b>	3	2
Nickel	ppm	ASTM D5185m >2	<b>&lt;1</b>	<1	<1
Titanium	ppm	ASTM D5185m >2	<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m >2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >20	<b>8</b>	7	4
Lead	ppm	ASTM D5185m >40	<b>▲ 64</b>	▲ 54	▲ 34
Copper	ppm	ASTM D5185m >330	<b>192</b>	▲ 169	▲ 202
Tin	ppm	ASTM D5185m >15	<b>3</b>	2	2
Vanadium	ppm	ASTM D5185m	<b>0</b>	<1	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	0	0

ADDITIVES	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 0	<b>8</b>	8	7
Barium	ppm	ASTM D5185m 0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m 60	<b>72</b>	68	65
Manganese	ppm	ASTM D5185m 0	<b>2</b>	1	1
Magnesium	ppm	ASTM D5185m 1010	<b>935</b>	967	940
Calcium	ppm	ASTM D5185m 1070	<b>1207</b>	1261	1184
Phosphorus	ppm	ASTM D5185m 1150	<b>1062</b>	1050	1044
Zinc	ppm	ASTM D5185m 1270	<b>1280</b>	1335	1289
Sulfur	ppm	ASTM D5185m 2060	<b>2482</b>	2882	2624

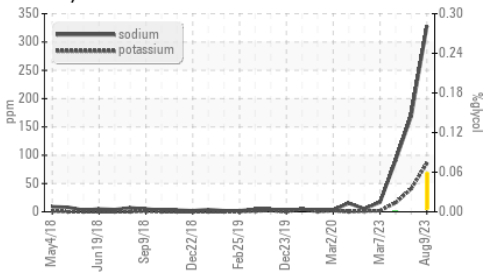
CONTAMINANTS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	<b>14</b>	12	10
Sodium	ppm	ASTM D5185m	<b>▲ 328</b>	▲ 169	91
Potassium	ppm	ASTM D5185m >20	<b>▲ 86</b>	▲ 41	16
Glycol	%	*ASTM D2982	<b>▲ 0.06</b>	NEG	0.0

INFRA-RED	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >6	<b>4.2</b>	3.1	2.2
Nitration	Abs/cm	*ASTM D7624 >20	<b>21.4</b>	17.4	14.0
Sulfation	Abs/.1mm	*ASTM D7415 >30	<b>37.1</b>	31.4	27.8

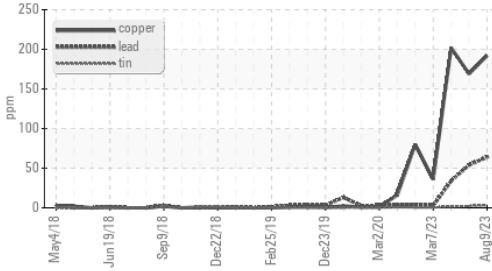
FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	<b>34.9</b>	28.4	24.1
Base Number (BN)	mg KOH/g	ASTM D2896 9.8	<b>6.61</b>	7.17	9.23

# OIL ANALYSIS REPORT

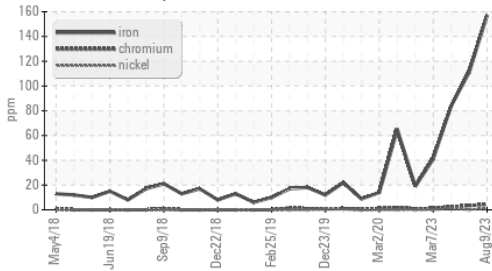
## ▲ Glycol Contamination



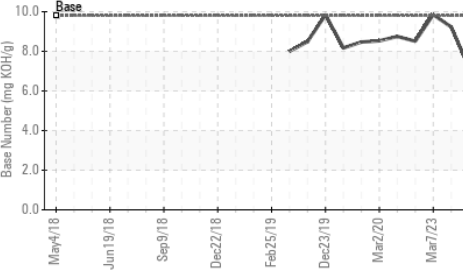
## ▲ Non-ferrous Metals



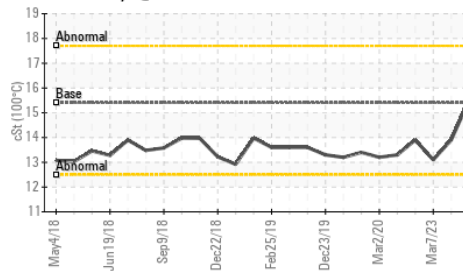
## ▲ Ferrous Alloys



## Base Number



## Viscosity @ 100°C

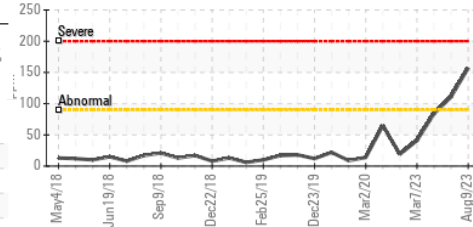


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

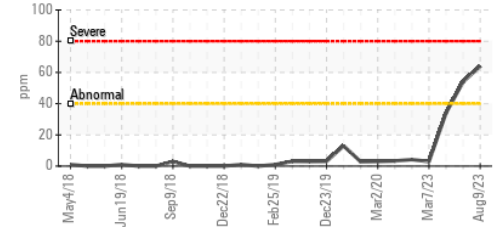
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	16.7	15.5

## GRAPHS

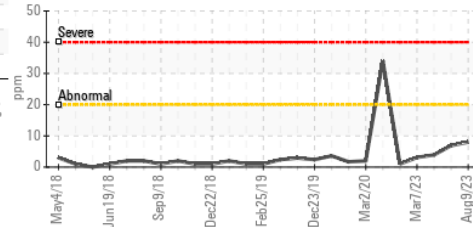
### ▲ Iron (ppm)



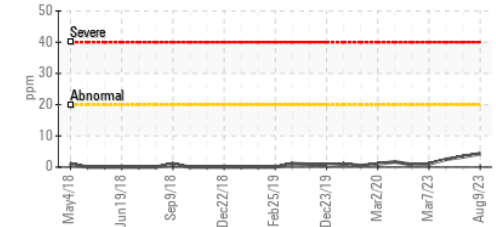
### ▲ Lead (ppm)



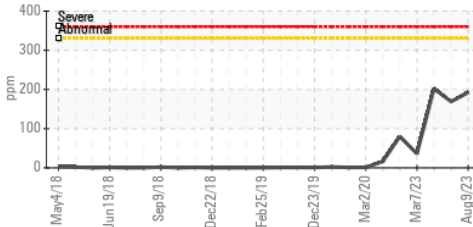
### Aluminum (ppm)



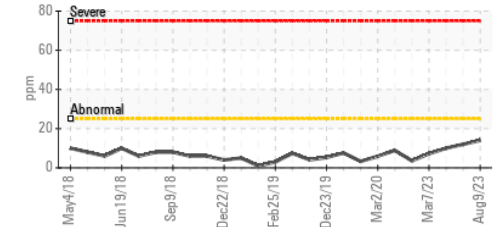
### Chromium (ppm)



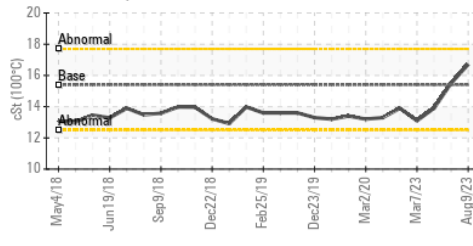
### Copper (ppm)



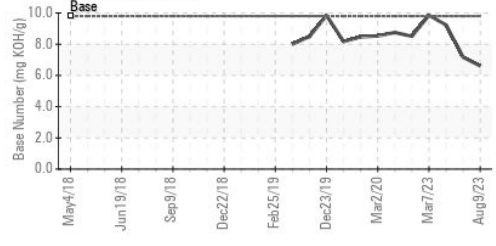
### Silicon (ppm)



### Viscosity @ 100°C



### Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PCA0013379 **Received** : 31 Aug 2023  
**Lab Number** : 05939845 **Diagnosed** : 05 Sep 2023  
**Unique Number** : 10630457 **Diagnostician** : Don Baldrige  
**Test Package** : MOB 2 ( Additional Tests: Glycol )

**PLYMOUTH & BROCKTON**  
 8 INDUSTRIAL PARK RD  
 PLYMOUTH, MA  
 US 02360  
 Contact: Donald Pelquin  
 Dpelquin@P-B.com  
 T: (508)732-6039  
 F: (508)732-6091

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)