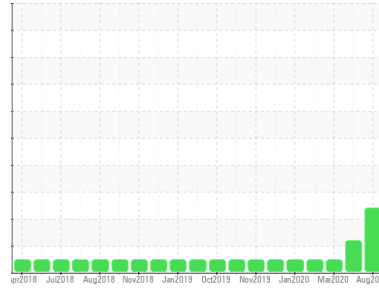


Area  
**Plymouth & Brockton**  
Machine Id  
**405**

Component  
**Diesel Engine**  
Fluid

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



## DIAGNOSIS

### Recommendation

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

### Wear

All component wear rates are normal.

### Contamination

There is a high amount of fuel present in the oil. Tests confirm the presence of fuel 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		<b>PCA0083325</b>	PCA0083269	PCA0013280
Sample Date	Client Info		<b>24 Aug 2023</b>	08 Apr 2023	16 Mar 2020
Machine Age	mls	Client Info	<b>636875</b>	624827	33311
Oil Age	mls	Client Info	<b>12000</b>	24000	0
Oil Changed	Client Info		<b>Not Chngd</b>	Changed	N/A
Sample Status			<b>SEVERE</b>	ABNORMAL	NORMAL

## CONTAMINATION

	method	limit/base	current	history1	history2
Glycol	WC Method		<b>NEG</b>	NEG	NEG

## WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >200	<b>47</b>	52	9
Chromium	ppm	ASTM D5185m >10	<b>2</b>	4	<1
Nickel	ppm	ASTM D5185m >4	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m >2	<b>0</b>	0	<1
Silver	ppm	ASTM D5185m >2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >30	<b>6</b>	12	2
Lead	ppm	ASTM D5185m >30	<b>22</b>	2	0
Copper	ppm	ASTM D5185m >30	<b>&lt;1</b>	3	<1
Tin	ppm	ASTM D5185m >4	<b>2</b>	<1	0
Antimony	ppm	ASTM D5185m	<b>---</b>	---	4
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>9</b>	6	11
Barium	ppm	ASTM D5185m 0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m 60	<b>58</b>	54	54
Manganese	ppm	ASTM D5185m 0	<b>&lt;1</b>	1	<1
Magnesium	ppm	ASTM D5185m 1010	<b>883</b>	828	848
Calcium	ppm	ASTM D5185m 1070	<b>1032</b>	1021	1024
Phosphorus	ppm	ASTM D5185m 1150	<b>919</b>	866	982
Zinc	ppm	ASTM D5185m 1270	<b>1131</b>	1118	1035
Sulfur	ppm	ASTM D5185m 2060	<b>3332</b>	2912	2378

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >30	<b>19</b>	5	3
Sodium	ppm	ASTM D5185m	<b>4</b>	6	2
Potassium	ppm	ASTM D5185m >20	<b>1</b>	0	9
Fuel	%	ASTM D3524 >3.0	<b>6.4</b>	5.5	<1.0

## INFRA-RED

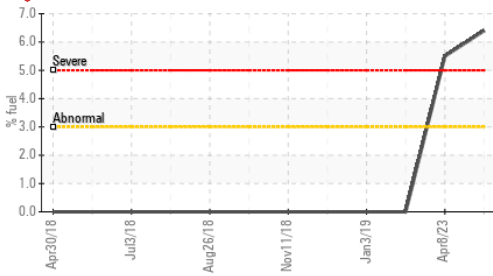
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	<b>2.3</b>	1.5	0.7
Nitration	Abs/cm	*ASTM D7624 >20	<b>12.3</b>	9.8	6.7
Sulfation	Abs/.1mm	*ASTM D7415 >30	<b>26.8</b>	20.4	18.8

## FLUID DEGRADATION

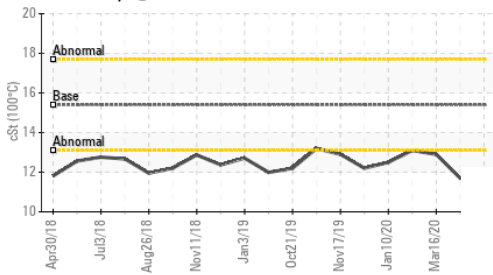
	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	<b>22.7</b>	15.9	13.3
Base Number (BN)	mg KOH/g	ASTM D2896 9.8	<b>7.42</b>	7.83	8.66

# OIL ANALYSIS REPORT

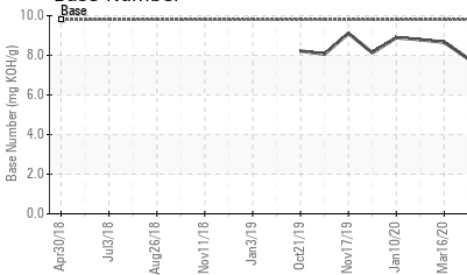
## Fuel Dilution



## Viscosity @ 100°C



## Base Number

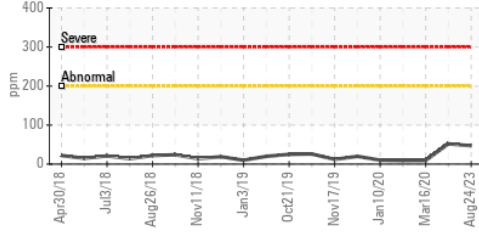


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

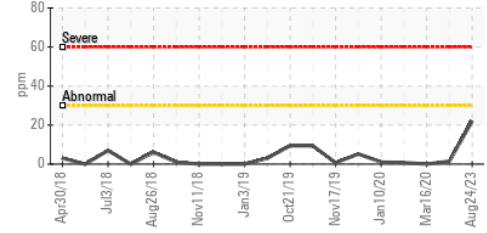
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	15.4	▲ 11.7	▲ 11.7	12.9

## GRAPHS

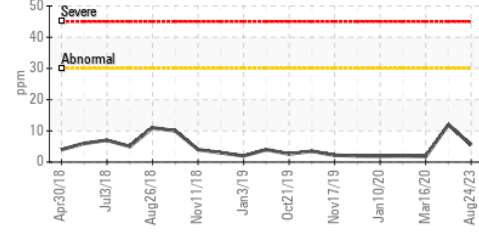
### Iron (ppm)



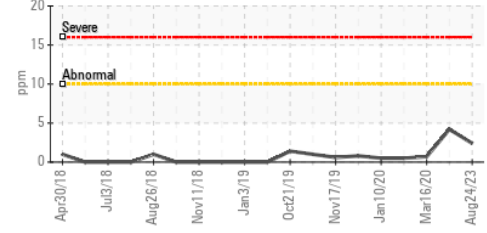
### Lead (ppm)



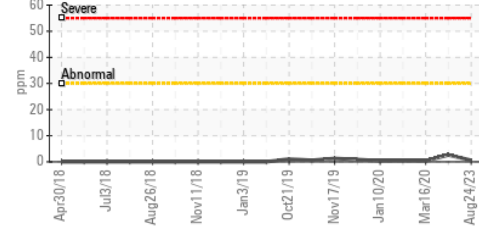
### Aluminum (ppm)



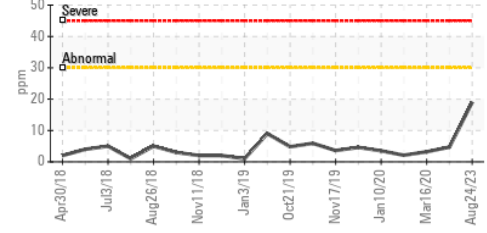
### Chromium (ppm)



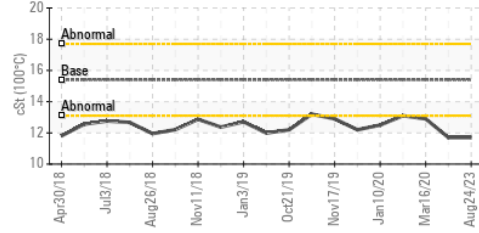
### Copper (ppm)



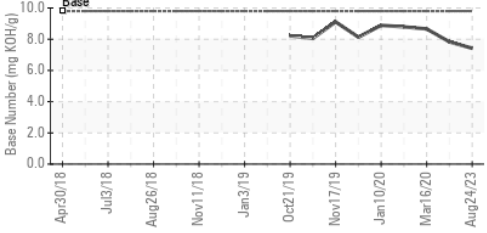
### Silicon (ppm)



### Viscosity @ 100°C



### Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PCA0083325 **Received** : 14 Sep 2023  
**Lab Number** : 05951603 **Diagnosed** : 18 Sep 2023  
**Unique Number** : 10647562 **Diagnostician** : Wes Davis  
**Test Package** : MOB 2 ( Additional Tests: PercentFuel )

**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)