



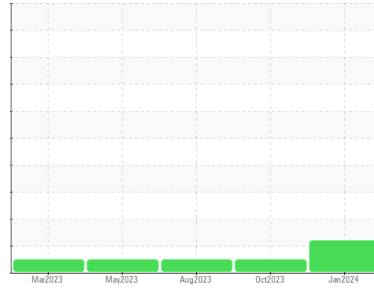
# OIL ANALYSIS REPORT

Sample Rating Trend

FUEL



Machine Id  
**420092 - SW4020**  
 Component  
**Diesel Engine**  
 Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**



## DIAGNOSIS

### Recommendation

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. ( Customer Sample Comment: Engine )

### Wear

All component wear rates are normal.

### Contamination

There is a moderate amount of fuel present in the oil.

### Fluid Condition

Fuel is present in the oil and is lowering the viscosity. 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>GFL0105542</b>	GFL0094084	GFL0089453
Sample Date	Client Info		<b>10 Jan 2024</b>	18 Oct 2023	14 Aug 2023
Machine Age	mls	Client Info	<b>141662</b>	132193	123904
Oil Age	mls	Client Info	<b>141662</b>	132193	123904
Oil Changed	Client Info		<b>Changed</b>	N/A	Changed
Sample Status			<b>ABNORMAL</b>	NORMAL	NORMAL

## CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol	WC Method		<b>NEG</b>	NEG	NEG

## WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >120	<b>6</b>	2	6
Chromium	ppm	ASTM D5185m >20	<b>0</b>	<1	0
Nickel	ppm	ASTM D5185m >5	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m >2	<b>0</b>	<1	0
Silver	ppm	ASTM D5185m >2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >20	<b>&lt;1</b>	2	<1
Lead	ppm	ASTM D5185m >40	<b>&lt;1</b>	2	2
Copper	ppm	ASTM D5185m >330	<b>1</b>	2	2
Tin	ppm	ASTM D5185m >15	<b>&lt;1</b>	<1	<1
Vanadium	ppm	ASTM D5185m	<b>0</b>	0	<1
Cadmium	ppm	ASTM D5185m	<b>0</b>	<1	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 0	<b>5</b>	0	0
Barium	ppm	ASTM D5185m 0	<b>0</b>	9	0
Molybdenum	ppm	ASTM D5185m 60	<b>50</b>	49	45
Manganese	ppm	ASTM D5185m 0	<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m 1010	<b>5</b>	6	0
Calcium	ppm	ASTM D5185m 1070	<b>2392</b>	2562	2446
Phosphorus	ppm	ASTM D5185m 1150	<b>1091</b>	988	1135
Zinc	ppm	ASTM D5185m 1270	<b>1238</b>	1243	1318
Sulfur	ppm	ASTM D5185m 2060	<b>3081</b>	3710	3908

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	<b>7</b>	5	7
Sodium	ppm	ASTM D5185m	<b>2</b>	0	2
Potassium	ppm	ASTM D5185m >20	<b>0</b>	4	0
Fuel	%	ASTM D3524 >3.0	<b>▲ 5.0</b>	<1.0	<1.0

## INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >4	<b>0.2</b>	0.2	0.2
Nitration	Abs/cm	*ASTM D7624 >20	<b>8.8</b>	7.9	8.0
Sulfation	Abs/.1mm	*ASTM D7415 >30	<b>20.2</b>	19.5	19.4

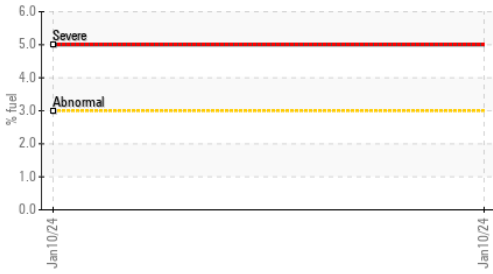
## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	<b>11.5</b>	11.3	11.2
Base Number (BN)	mg KOH/g	ASTM D2896 9.8	<b>5.2</b>	5.6	5.7

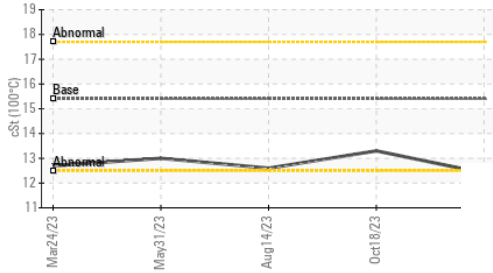


# OIL ANALYSIS REPORT

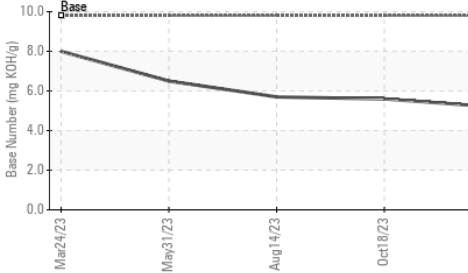
### ▲ Fuel Dilution



### ▲ Viscosity @ 100°C



### Base Number

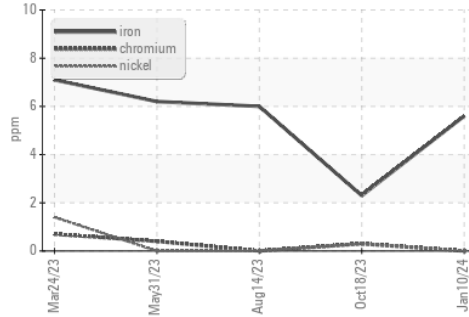


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

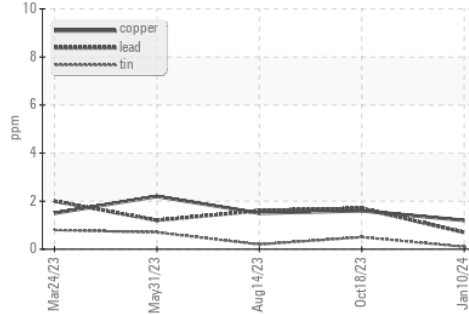
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4 ▲ 12.4	13.3	12.6

### GRAPHS

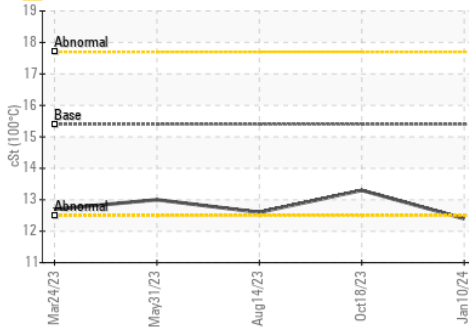
#### Ferrous Alloys



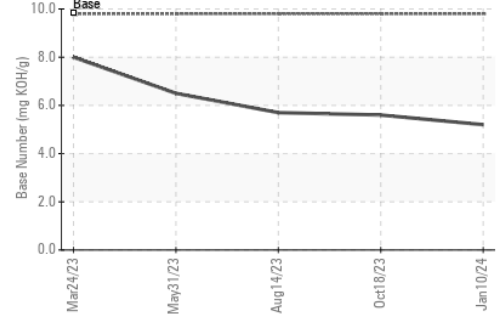
#### Non-ferrous Metals



### ▲ Viscosity @ 100°C



### Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0105542 **Received** : 16 Jan 2024  
**Lab Number** : 06060725 **Diagnosed** : 18 Jan 2024  
**Unique Number** : 10832107 **Diagnostician** : Don Baldrige  
**Test Package** : FLEET ( Additional Tests: FuelDilution, PercentFuel )

**GFL Environmental - 983 - Sugar Land Hauling**  
 16011 West Belfort Street  
 Sugar Land, TX  
 US 77498  
 Contact: Gino Griego  
 ggriego@gflenv.com  
 T: (720)999-0726  
 F:

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)