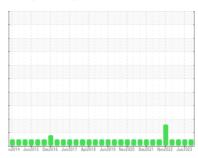


# **OIL ANALYSIS REPORT**

Sample Rating Trend







Machine Id 2433 Component

**Diesel Engine** 

PETRO CANADA DURON SHP 15W40 (8 GAL)

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the oil

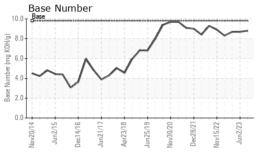
### **Fluid Condition**

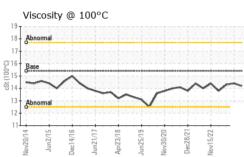
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

n/2014 Jun/2015 Dec/2016 Jun/2017 Apr/2018 Jun/2019 Nov/2020 Dec/2021 Nov/2022 Jun/2023						
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0074440	GFL0080512	GFL0074424
Sample Date		Client Info		29 Sep 2023	02 Jun 2023	11 May 2023
Machine Age	hrs	Client Info		512899	512899	512899
Oil Age	hrs	Client Info		512899	512899	512899
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel	ION	WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
			>75	53	26	19
Iron	ppm	ASTM D5185m				
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	<1	0	1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>54	1	0	4
Lead	ppm	ASTM D5185m	>20	2	<1	2
Copper	ppm	ASTM D5185m	>240	6	4	3
Tin	ppm	ASTM D5185m	>5	<1	<1	1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method				history2
ADDITIVEO						
Boron	ppm	ASTM D5185m	0	1	2	5
	ppm		0	1	2	5
Boron		ASTM D5185m				
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	0	0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	0 63	0 61	0 61
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	0 63 <1	0 61 <1	0 61 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010	0 63 <1 937	0 61 <1 937	0 61 <1 988
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	0 63 <1 937 1037	0 61 <1 937 1063	0 61 <1 988 1073
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150	0 63 <1 937 1037 1039	0 61 <1 937 1063 1059	0 61 <1 988 1073 1096
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270	0 63 <1 937 1037 1039 1271	0 61 <1 937 1063 1059 1236	0 61 <1 988 1073 1096
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 63 <1 937 1037 1039 1271 3189	0 61 <1 937 1063 1059 1236 3314	0 61 <1 988 1073 1096 1352 3969
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 63 <1 937 1037 1039 1271 3189	0 61 <1 937 1063 1059 1236 3314 history1	0 61 <1 988 1073 1096 1352 3969
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 63 <1 937 1037 1039 1271 3189 current	0 61 <1 937 1063 1059 1236 3314 history1	0 61 <1 988 1073 1096 1352 3969 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base	0 63 <1 937 1037 1039 1271 3189 current 5	0 61 <1 937 1063 1059 1236 3314 history1	0 61 <1 988 1073 1096 1352 3969 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >35	0 63 <1 937 1037 1039 1271 3189 current 5 3 18	0 61 <1 937 1063 1059 1236 3314 history1 3 <1	0 61 <1 988 1073 1096 1352 3969 history2 5 2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m  method  *ASTM D5185m  *ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  *ASTM D5185m  *ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base	0 63 <1 937 1037 1039 1271 3189  current 5 3 18  current 1.2	0 61 <1 937 1063 1059 1236 3314 history1 3 <1 1	0 61 <1 988 1073 1096 1352 3969 history2 5 2 3 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >35	0 63 <1 937 1037 1039 1271 3189 current 5 3 18	0 61 <1 937 1063 1059 1236 3314 history1 3 <1	0 61 <1 988 1073 1096 1352 3969 history2 5 2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m  Method  ASTM D5185m  Method  *ASTM D7844  *ASTM D7624  *ASTM D76145	0 60 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base >3 >20 >30	0 63 <1 937 1037 1039 1271 3189 current 5 3 18 current 1.2 7.2 20.0	0 61 <1 937 1063 1059 1236 3314 history1 3 <1 1 history1 0.7 6.6 19.7	0 61 <1 988 1073 1096 1352 3969 history2 5 2 3 history2 0.5 6.2 19.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm	ASTM D5185m  Method  *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  Method  *ASTM D7844  *ASTM D7624  *ASTM D7415  Method	0 60 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base >3 >20 >30 limit/base	0 63 <1 937 1037 1039 1271 3189 current 5 3 18 current 1.2 7.2 20.0 current	0 61 <1 937 1063 1059 1236 3314 history1 3 <1 1 history1 0.7 6.6 19.7 history1	0 61 <1 988 1073 1096 1352 3969 history2 5 2 3 history2 0.5 6.2 19.3 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m  Method  ASTM D5185m  Method  *ASTM D7844  *ASTM D7624  *ASTM D76145	0 60 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base >3 >20	0 63 <1 937 1037 1039 1271 3189 current 5 3 18 current 1.2 7.2 20.0	0 61 <1 937 1063 1059 1236 3314 history1 3 <1 1 history1 0.7 6.6 19.7	0 61 <1 988 1073 1096 1352 3969 history2 5 2 3 history2 0.5 6.2 19.3



# **OIL ANALYSIS REPORT**

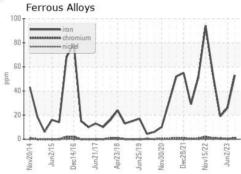


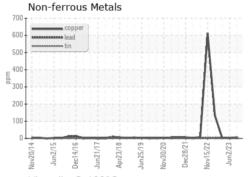


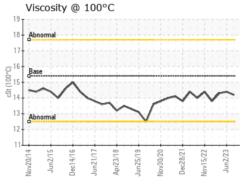
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

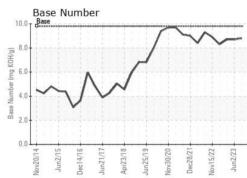
FLUID PROP	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.2	14.4	14.3

### **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number

**Unique Number** Test Package : FLEET

: GFL0074440 : 05966020 : 10672571

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 02 Oct 2023 : 02 Oct 2023 Diagnosed

Diagnostician : Wes Davis

GFL Environmental - 018 - Fayetteville

4621 Marracco Drive Hope Mills, NC US 28348

Contact: Robert Carter robert.carter@gflenv.com T: (910)596-1170

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)