

# **OIL ANALYSIS REPORT**

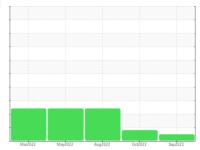
# Sample Rating Trend

# NORMAL



Machine Id **4609M** Component **Diesel Engine** 

PETRO CANADA DURON SHP 15W40 (36 QTS)





# DIAGNOSIS

## Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

## Contamination

There is no indication of any contamination in the

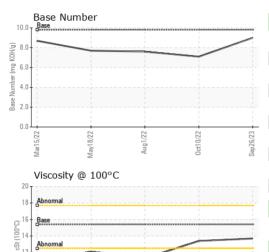
## **Fluid Condition**

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

		Mar2022	May2022	Aug2022 Oct2022	Sep 2023	
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0084985	GFL0059182	GFL0052091
Sample Date		Client Info		26 Sep 2023	10 Oct 2022	01 Aug 2022
Machine Age	hrs	Client Info		21092	18144	17558
Oil Age	hrs	Client Info		21092	18144	17558
Oil Changed		Client Info		N/A	Changed	N/A
Sample Status				NORMAL	MARGINAL	SEVERE
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<u> </u>	<b>11.1</b>
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	6	21	28
Chromium	ppm	ASTM D5185m	>20	<1	1	1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	4	3
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m	>330	6	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		and the section of	11 1. //			
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm		0 limit/base	current 2	history1 0	history2 4
	ppm		0			
Boron		ASTM D5185m	0	2	0	4
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	2 0	0	4
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 67	0 0 55	4 2 51
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 67 1	0 0 55 <1	4 2 51 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 0 67 1 1020	0 0 55 <1 916	4 2 51 <1 736
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	2 0 67 1 1020 1120	0 0 55 <1 916 1076	4 2 51 <1 736 875
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 0 60 0 1010 1070 1150	2 0 67 1 1020 1120 1045	0 0 55 <1 916 1076 934	4 2 51 <1 736 875 867
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	2 0 67 1 1020 1120 1045 1313	0 0 55 <1 916 1076 934 1243	4 2 51 <1 736 875 867 1046
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 0 67 1 1020 1120 1045 1313 3003	0 0 55 <1 916 1076 934 1243 3042	4 2 51 <1 736 875 867 1046 2441
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 0 67 1 1020 1120 1045 1313 3003	0 0 55 <1 916 1076 934 1243 3042 history1	4 2 51 <1 736 875 867 1046 2441 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 0 67 1 1020 1120 1045 1313 3003 current	0 0 55 <1 916 1076 934 1243 3042 history1	4 2 51 <1 736 875 867 1046 2441 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	2 0 67 1 1020 1120 1045 1313 3003 current 4	0 0 55 <1 916 1076 934 1243 3042 history1 6 24	4 2 51 <1 736 875 867 1046 2441 history2 5 26
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	2 0 67 1 1020 1120 1045 1313 3003 current 4 4	0 0 55 <1 916 1076 934 1243 3042 history1 6 24	4 2 51 <1 736 875 867 1046 2441 history2 5 26 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	2 0 67 1 1020 1120 1045 1313 3003 current 4 4 5	0 0 55 <1 916 1076 934 1243 3042 history1 6 24 2 history1	4 2 51 <1 736 875 867 1046 2441 history2 5 26 2 history2
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 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	2 0 67 1 1020 1120 1045 1313 3003 current 4 4 5 current	0 0 55 <1 916 1076 934 1243 3042 history1 6 24 2 history1 0.8	4 2 51 <1 736 875 867 1046 2441 history2 5 26 2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m  method  *ASTM D5185m  *ASTM D5185m ASTM D5185m  *ASTM D7844  *ASTM D7624  *ASTM D76145	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	2 0 67 1 1020 1120 1045 1313 3003 current 4 4 5 current 0.5 6.5	0 0 55 <1 916 1076 934 1243 3042 history1 6 24 2 history1 0.8 12.4	4 2 51 <1 736 875 867 1046 2441 history2 5 26 2 history2 1 12.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m  method  *ASTM D5185m  *ASTM D5185m ASTM D5185m  *ASTM D7844  *ASTM D7624  *ASTM D76145	0 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30	2 0 67 1 1020 1120 1045 1313 3003 current 4 4 5 current 0.5 6.5 18.9	0 0 55 <1 916 1076 934 1243 3042 history1 6 24 2 history1 0.8 12.4 24.8	4 2 51 <1 736 875 867 1046 2441 history2 5 26 2 history2 1 12.7 23.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m  Method  ASTM D5185m  Method	0 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30 limit/base	2 0 67 1 1020 1120 1045 1313 3003 current 4 4 5 current 0.5 6.5 18.9	0 0 55 <1 916 1076 934 1243 3042 history1 6 24 2 history1 0.8 12.4 24.8 history1	4 2 51 <1 736 875 867 1046 2441 history2 5 26 2 history2 1 12.7 23.9 history2



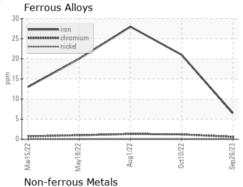
# **OIL ANALYSIS REPORT**

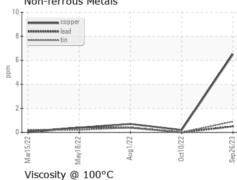


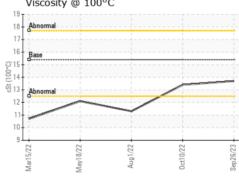
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

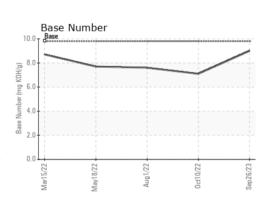
I LOID I HOI L	ITTILO					
Visc @ 100°C	cSt	ASTM D445	15.4	13.7	13.4	<b>△</b> 11.3

## **GRAPHS**











Certificate L2367

Laboratory Sample No. Lab Number

Unique Number : 10670574 Test Package : FLEET

: GFL0084985 : 05964023

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

: 28 Sep 2023 : 29 Sep 2023 Diagnostician : Wes Davis

GFL Environmental - 410 - Michigan West

39000 Van Born Rd Wayne, MI US 48184

Contact: Belal Dgheish bdgheish@gflenv.com T: (734)714-2340

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)