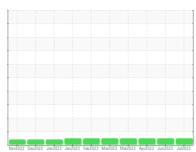


# **OIL ANALYSIS REPORT**

## Sample Rating Trend









Machine Id **413008** 

Component **Bottom Diesel Engine** 

PETRO CANADA DURON SHP 15W40 (11 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

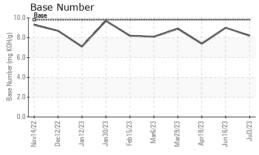
## **Fluid Condition**

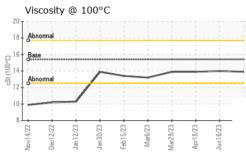
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATIO <u>N</u>	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0086284	GFL0086294	GFL0081496
Sample Date		Client Info		03 Jul 2023	16 Jun 2023	18 Apr 2023
Machine Age	hrs	Client Info		1783	1649	1228
Oil Age	hrs	Client Info		833	0	278
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	6	4	8
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	0	<1
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	<1	<1	<1
Aluminum	ppm	ASTM D5185m	>20	2	2	3
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	28	31	13
Tin	ppm	ASTM D5185m	>15	0	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
0 1!	10 10 100	ACTM DE10Em		^	^	0
Cadmium	ppm	ASTM D5185m		0	0	U
ADDITIVES	ррпі	method	limit/base	current	history1	history2
	ppm		limit/base			-
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current	history1	history2 <1
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 1 0	history1 3 0	history2 <1 0
ADDITIVES Boron Barium Molybdenum	ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 1 0 57	history1 3 0 60	history2 <1 0 59
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m	0 0 60 0	current 1 0 57 0	history1 3 0 60 <1	history2 <1 0 59 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method  ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current  1 0 57 0 940	history1  3  0 60 <1 989	history2 <1 0 59 <1 974
ADDITIVES  Boron  Barium  Molybdenum  Manganese  Magnesium  Calcium  Phosphorus  Zinc	ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070	current  1 0 57 0 940 982	history1  3  0 60 <1 989 1052	history2 <1 0 59 <1 974 1045 1016 1252
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method  ASTM D5185m	0 0 60 0 1010 1070 1150	current  1 0 57 0 940 982 975	history1  3  0 60 <1 989 1052 1040	history2 <1 0 59 <1 974 1045 1016
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current  1 0 57 0 940 982 975 1232 3310 current	history1  3  0 60 <1 989 1052 1040 1304 3756 history1	history2 <1 0 59 <1 974 1045 1016 1252
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current  1 0 57 0 940 982 975 1232 3310 current	history1  3  0 60 <1 989 1052 1040 1304 3756 history1	history2  <1 0 59 <1 974 1045 1016 1252 3621 history2 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current  1 0 57 0 940 982 975 1232 3310 current 2	history1  3  0 60 <1 989 1052 1040 1304 3756 history1 3	history2 <1 0 59 <1 974 1045 1016 1252 3621 history2 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current  1 0 57 0 940 982 975 1232 3310 current	history1  3  0 60 <1 989 1052 1040 1304 3756 history1	history2  <1 0 59 <1 974 1045 1016 1252 3621 history2 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current  1 0 57 0 940 982 975 1232 3310 current 2	history1  3  0 60 <1 989 1052 1040 1304 3756 history1 3	history2 <1 0 59 <1 974 1045 1016 1252 3621 history2 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current  1 0 57 0 940 982 975 1232 3310 current 2 2 current 0.2	history1  3  0 60 <1 989 1052 1040 1304 3756 history1  3 1	history2 <1 0 59 <1 974 1045 1016 1252 3621 history2 4 2 4
ADDITIVES 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	method  ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current  1 0 57 0 940 982 975 1232 3310 current 2 2 current	history1  3  0 60 <1 989 1052 1040 1304 3756 history1  3 history1	history2 <1 0 59 <1 974 1045 1016 1252 3621 history2 4 2 4 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m  method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current  1 0 57 0 940 982 975 1232 3310 current 2 2 current 0.2	history1  3  0 60 <1 989 1052 1040 1304 3756 history1  3 history1 0.1	history2 <1 0 59 <1 974 1045 1016 1252 3621 history2 4 2 4 history2 0.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method  ASTM D5185m method  ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current  1 0 57 0 940 982 975 1232 3310 current 2 2 current 0.2 6.7	history1  3  0 60 <1 989 1052 1040 1304 3756 history1  3 history1 0.1 6.0	history2 <1 0 59 <1 974 1045 1016 1252 3621 history2 4 2 4 history2 0.2 6.4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method  ASTM D5185m  method  *ASTM D5185m ASTM D7844  *ASTM D7624  *ASTM D7415	0 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30	current  1 0 57 0 940 982 975 1232 3310 current 2 2 2 current 0.2 6.7 19.6	history1  3  0 60 <1 989 1052 1040 1304 3756 history1  3 history1 0.1 6.0 18.7	history2 <1 0 59 <1 974 1045 1016 1252 3621 history2 4 2 4 history2 0.2 6.4 17.1



## **OIL ANALYSIS REPORT**

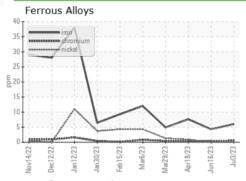


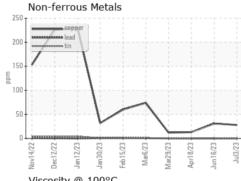


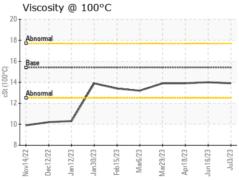
VISUAL		method	limit/base			history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE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

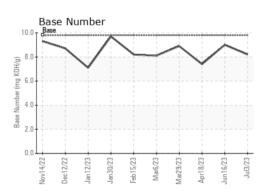
FLUID PROPERTIES		method				history2	
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	14.0	13.9	

## **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number Test Package : FLEET

: GFL0086284 : 05895952 Unique Number : 10551762

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 12 Jul 2023 Diagnosed

: 12 Jul 2023 Diagnostician : Wes Davis

GFL Environmental - 868 - Childersburg Fines Hauling (Alpine)

13737 Plant Rd Childersburg, AL US 35044

Contact: JONATHAN WILLIAMS

jonathan.williams@gflenv.com T:

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)

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