

# **OIL ANALYSIS REPORT**

## Sample Rating Trend



NORMAL



# (MB9197) Machine Id 2510

Component **Diesel Engine** 

PETRO CANADA DURON SHP 15W40 (10 GAL)

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

### Contamination

Test for glycol is negative. There is no indication of any contamination in the oil.

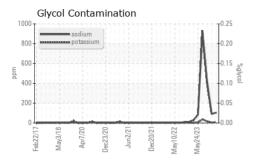
### **Fluid Condition**

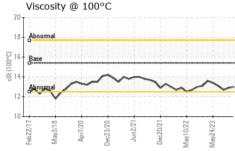
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

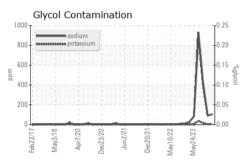
ual)			10 7012020 0002020	Jun 2021 Dec 2021 May 2022 N		
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0113424	PCA0095854	PCA0095859
Sample Date		Client Info		13 Feb 2024	13 Nov 2023	23 Oct 2023
Machine Age	hrs	Client Info		23944	23363	23274
Oil Age	hrs	Client Info		581	657	657
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METALS	3	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>165	22	6	13
Chromium	ppm	ASTM D5185m	>5	<1	0	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	1	2
Lead	ppm	ASTM D5185m	>150	<1	0	<1
Copper	ppm	ASTM D5185m	>90	3	<1	2
Tin	ppm	ASTM D5185m	>5	<1	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
		motriou		541.511	Thotory	,=
Boron	ppm	ASTM D5185m	0	13	19	33
	ppm ppm					
Boron	• •	ASTM D5185m	0	13	19	33
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	13 0	19 7	33
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	13 0 68	19 7 66	33 3 90
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	13 0 68 <1	19 7 66 0	33 3 90 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	13 0 68 <1 848	19 7 66 0 735	33 3 90 0 789
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	13 0 68 <1 848 1230	19 7 66 0 735 1118	33 3 90 0 789 1185
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	13 0 68 <1 848 1230 990	19 7 66 0 735 1118 972	33 3 90 0 789 1185 997
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 0 60 0 1010 1070 1150 1270	13 0 68 <1 848 1230 990 1212	19 7 66 0 735 1118 972 1087	33 3 90 0 789 1185 997 1163
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 0 60 0 1010 1070 1150 1270 2060	13 0 68 <1 848 1230 990 1212 3037	19 7 66 0 735 1118 972 1087 3399	33 3 90 0 789 1185 997 1163 3297
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	13 0 68 <1 848 1230 990 1212 3037 current	19 7 66 0 735 1118 972 1087 3399 history1	33 3 90 0 789 1185 997 1163 3297 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	13 0 68 <1 848 1230 990 1212 3037 current	19 7 66 0 735 1118 972 1087 3399 history1 6	33 3 90 0 789 1185 997 1163 3297 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	13 0 68 <1 848 1230 990 1212 3037 current 8 105	19 7 66 0 735 1118 972 1087 3399 history1 6 91	33 3 90 0 789 1185 997 1163 3297 history2 17 ▲ 416
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	13 0 68 <1 848 1230 990 1212 3037 current 8 105 6	19 7 66 0 735 1118 972 1087 3399 history1 6 91 5	33 3 90 0 789 1185 997 1163 3297 history2 17 ▲ 416 17
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >35	13 0 68 <1 848 1230 990 1212 3037 current 8 105 6 NEG	19 7 66 0 735 1118 972 1087 3399 history1 6 91 5 0.0	33 3 90 0 789 1185 997 1163 3297 history2 17  416 17 NEG
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m *ASTM D2982 *Method	0 0 60 0 1010 1150 1270 2060 limit/base >35 >20	13 0 68 <1 848 1230 990 1212 3037 current 8 105 6 NEG	19 7 66 0 735 1118 972 1087 3399 history1 6 91 5 0.0	33 3 90 0 789 1185 997 1163 3297 history2 17 ▲ 416 17 NEG history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm	ASTM D5185m *ASTM D5185m *ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D2982 *Method  *ASTM D7844	0 0 60 0 1010 1150 1270 2060 limit/base >35 >20	13 0 68 <1 848 1230 990 1212 3037 current 8 105 6 NEG current 0.7	19 7 66 0 735 1118 972 1087 3399 history1 6 91 5 0.0 history1 0.3	33 3 90 0 789 1185 997 1163 3297 history2 17 ▲ 416 17 NEG history2 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 60 0 1010 1070 1150 1270 2060 limit/base >35 >20	13 0 68 <1 848 1230 990 1212 3037 current 8 105 6 NEG current 0.7 10.6	19 7 66 0 735 1118 972 1087 3399 history1 6 91 5 0.0 history1 0.3 5.7	33 3 90 0 789 1185 997 1163 3297 history2 17 ▲ 416 17 NEG history2 0.4 6.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m *ASTM D2982 *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7415 *Method	0 0 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base >7.5 >20 >30 limit/base	13 0 68 <1 848 1230 990 1212 3037 current 8 105 6 NEG current 0.7 10.6 22.4 current	19 7 66 0 735 1118 972 1087 3399 history1 6 91 5 0.0 history1 0.3 5.7 17.6 history1	33 3 90 0 789 1185 997 1163 3297 history2 17 ▲ 416 17 NEG history2 0.4 6.8 18.0 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 0 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base >7.5 >20 >30	13 0 68 <1 848 1230 990 1212 3037 current 8 105 6 NEG current 0.7 10.6 22.4	19 7 66 0 735 1118 972 1087 3399 history1 6 91 5 0.0 history1 0.3 5.7 17.6	33 3 90 0 789 1185 997 1163 3297 history2 17 ▲ 416 17 NEG history2 0.4 6.8 18.0



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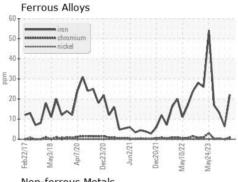


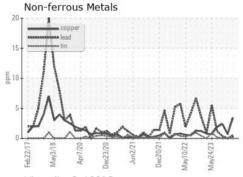


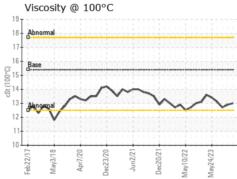
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

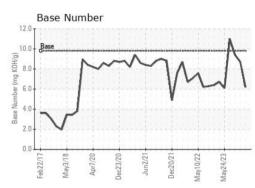
FLUID PROPERTIES		method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.0	12.9	12.7

### **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number : 06089886

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0113424

Received **Tested** Unique Number: 10882739 Diagnosed

: 19 Feb 2024 : 19 Feb 2024 - Jonathan Hester Test Package: FLEET (Additional Tests: Glycol)

: 15 Feb 2024

GFL Environmental - 002 - Vance-Granville 241 Vanco Mill Rd Henderson, NC

US 27537 Contact: Cameron King cameron.king@gflenv.com

T: (252)438-5333

F: (252)431-1635

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)

Report Id: GFL002 [WUSCAR] 06089886 (Generated: 02/22/2024 23:30:47) Rev: 1

Submitted By: Cameron King