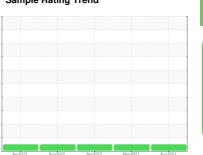


# **OIL ANALYSIS REPORT**

### Sample Rating Trend









Machine Id **927055** Component **Diesel Engine** 

PETRO CANADA DURON SHP 15W40 (--- GAL)

# 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

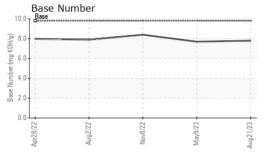
### **Fluid Condition**

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

0.4401-5-445	44740					
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0092520	GFL0077937	GFL0062155
Sample Date		Client Info		21 Aug 2023	09 May 2023	08 Nov 2022
Machine Age	hrs	Client Info		15393	14818	13759
Oil Age	hrs	Client Info		602	458	597
Oil Changed		Client Info		Changed	Changed	Changed
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	14	7	10
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	3
Aluminum	ppm	ASTM D5185m	>20	8	5	4
Lead	ppm	ASTM D5185m	>40	1	<1	1
Copper	ppm	ASTM D5185m	>330	4	4	1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
//DDITTVEO						
Boron	ppm	ASTM D5185m	0	0	0	3
	ppm	ASTM D5185m ASTM D5185m	0	0 2	0	3
Boron Barium	• •					
Boron	ppm	ASTM D5185m	0	2	0	0
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m	0	2 62	0 59	0 60
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	2 62 <1	0 59 <1	0 60 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010	2 62 <1 952	0 59 <1 981	0 60 <1 954
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	2 62 <1 952 1065	0 59 <1 981 1111	0 60 <1 954 1075
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150	2 62 <1 952 1065 1014	0 59 <1 981 1111 1016	0 60 <1 954 1075 982
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	0 60 0 1010 1070 1150 1270	2 62 <1 952 1065 1014 1211	0 59 <1 981 1111 1016 1280	0 60 <1 954 1075 982 1245
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	0 60 0 1010 1070 1150 1270 2060	2 62 <1 952 1065 1014 1211 2983	0 59 <1 981 1111 1016 1280 3437	0 60 <1 954 1075 982 1245 3237
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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 60 0 1010 1070 1150 1270 2060	2 62 <1 952 1065 1014 1211 2983	0 59 <1 981 1111 1016 1280 3437 history1	0 60 <1 954 1075 982 1245 3237 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	2 62 <1 952 1065 1014 1211 2983 current	0 59 <1 981 1111 1016 1280 3437 history1	0 60 <1 954 1075 982 1245 3237 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 >25	2 62 <1 952 1065 1014 1211 2983 current 5	0 59 <1 981 1111 1016 1280 3437 history1 4	0 60 <1 954 1075 982 1245 3237 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	2 62 <1 952 1065 1014 1211 2983 current 5 3	0 59 <1 981 1111 1016 1280 3437 history1 4	0 60 <1 954 1075 982 1245 3237 history2 3 3
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  method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	2 62 <1 952 1065 1014 1211 2983 current 5 3 2 current	0 59 <1 981 1111 1016 1280 3437 history1 4 4 2 history1	0 60 <1 954 1075 982 1245 3237 history2 3 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m  method ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	2 62 <1 952 1065 1014 1211 2983 current 5 3 2	0 59 <1 981 1111 1016 1280 3437 history1 4 2	0 60 <1 954 1075 982 1245 3237 history2 3 3 1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m  Method  ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20	2 62 <1 952 1065 1014 1211 2983 current 5 3 2 current 0.9 8.9	0 59 <1 981 1111 1016 1280 3437 history1 4 4 2 history1 0.6 8.7	0 60 <1 954 1075 982 1245 3237 history2 3 1 history2 0.6 9.7
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 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 >25 >20 limit/base >4 >20 >30 limit/base	2 62 <1 952 1065 1014 1211 2983 current 5 3 2 current 0.9 8.9 20.4	0 59 <1 981 1111 1016 1280 3437 history1 4 4 2 history1 0.6 8.7 19.5 history1	0 60 <1 954 1075 982 1245 3237 history2 3 1 history2 0.6 9.7 21.6 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 ASTM D7844 *ASTM D7624 *ASTM D76145	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30 limit/base	2 62 <1 952 1065 1014 1211 2983 current 5 3 2 current 0.9 8.9 20.4	0 59 <1 981 1111 1016 1280 3437 history1 4 2 history1 0.6 8.7 19.5	0 60 <1 954 1075 982 1245 3237 history2 3 1 history2 0.6 9.7 21.6



# **OIL ANALYSIS REPORT**

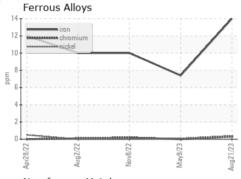


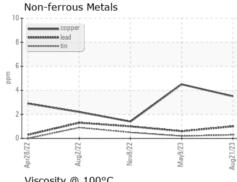
Viscosit	y @ 100°0	C		
18 - Abnormal				
17-				
Base				
Base 15				
13 - Abnormal				
12 Abnormal				
11				
Apr28/22	Aug2/22	Nov8/22	/9/23	
Aprí	Aug	N	May9)	

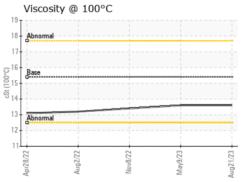
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

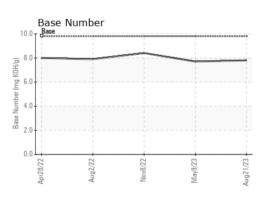
FLUID PROPERTIES		method				history2	
Visc @ 100°C	cSt	ASTM D445	15.4	13.6	13.6	13.4	

### **GRAPHS**













Laboratory Sample No. Lab Number Unique Number : 10621791

: GFL0092520 : 05936520 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 28 Aug 2023

Diagnosed Diagnostician : Don Baldridge

: 29 Aug 2023

GFL Environmental - 935 - Omro HC

250 Alder Avenue Omro, WI US 54963 Contact: Tim Kieffer

tim.kieffer@gflenv.com T: (608)219-0288

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)