

# **OIL ANALYSIS REPORT**

# Sample Rating Trend

# NORMAL



Machine Id **212024** Component **Diesel Engine** 

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



# DIAGNOSIS

## Recommendation

Resample at the next service interval to monitor.

Metal levels are typical for a new component breaking in.

## Contamination

There is no indication of any contamination in the

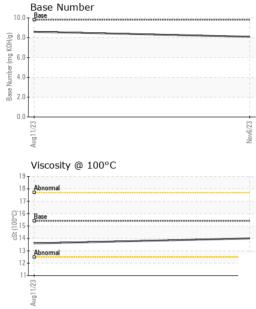
### **Fluid Condition**

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

ON SHP 15W40 (	- GAL)		Aug2023	Nov2023		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0086851	GFL0068304	
Sample Date		Client Info		06 Nov 2023	11 Aug 2023	
Machine Age	hrs	Client Info		600	600	
Oil Age	hrs	Client Info		600	600	
Oil Changed	1110	Client Info		Changed	Changed	
Sample Status		Onoric iriio		NORMAL	NORMAL	
	ION	.1	11 11 11			
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	0	3	
Chromium	ppm	ASTM D5185m	>5	0	0	
Nickel	ppm	ASTM D5185m	>2	<1	0	
Titanium	ppm	ASTM D5185m		0	0	
Silver	ppm	ASTM D5185m	>3	0	0	
Aluminum	ppm	ASTM D5185m	>30	2	<1	
Lead	ppm	ASTM D5185m	>30	<1	0	
Copper	ppm	ASTM D5185m	>150	<1	0	
Tin	ppm	ASTM D5185m	>5	<1	0	
Vanadium	ppm	ASTM D5185m		0	<1	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	9	2	
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	0	9	2	
Barium	ppm	ASTM D5185m	0	0	0	
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	0 60	0 57	0 55	
Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	0 57 <1	0 55 0	
Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010	0 57 <1 922	0 55 0 902	
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	0 57 <1 922 1022	0 55 0 902 1057	
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	0 57 <1 922 1022 1035	0 55 0 902 1057 978	
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	0 57 <1 922 1022 1035 1286	0 55 0 902 1057 978 1200	
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	0 60 0 1010 1070 1150 1270 2060	0 57 <1 922 1022 1035 1286 3192	0 55 0 902 1057 978 1200 3548	
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	0 57 <1 922 1022 1035 1286 3192 current	0 55 0 902 1057 978 1200 3548	     history2
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 57 <1 922 1022 1035 1286 3192 current	0 55 0 902 1057 978 1200 3548 history1	    history2
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 57 <1 922 1022 1035 1286 3192 current 5 <1	0 55 0 902 1057 978 1200 3548 history1 2	history2
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 >20	0 57 <1 922 1022 1035 1286 3192 current 5 <1	0 55 0 902 1057 978 1200 3548 history1 2 <1	history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm	ASTM D5185m  method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >20	0 57 <1 922 1022 1035 1286 3192 current 5 <1 2	0 55 0 902 1057 978 1200 3548 history1 2 <1 <1 history1 0.1	history2 history2
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	0 60 0 1010 1070 1150 1270 2060 limit/base >20 	0 57 <1 922 1022 1035 1286 3192 current 5 <1 2 current 0.1	0 55 0 902 1057 978 1200 3548 history1 2 <1 <1	history2 history2
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 D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  *ASTM D76185m ASTM D76185m  *ASTM D76185m  *ASTM D76185m	0 60 0 1010 1070 1150 1270 2060 limit/base >20  >20 limit/base >3 >20	0 57 <1 922 1022 1035 1286 3192  current 5 <1 2  current 0.1 4.2	0 55 0 902 1057 978 1200 3548 history1 2 <1 <1 history1 0.1 5.1	history2 history2
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 D76124 *ASTM D76115  Method	0 60 0 1010 1070 1150 1270 2060 limit/base >20 >3 >20 simit/base	0 57 <1 922 1022 1035 1286 3192 current 5 <1 2 current 0.1 4.2 16.4 current	0 55 0 902 1057 978 1200 3548 history1 2 <1 <1 history1 0.1 5.1 16.8 history1	history2 history2 history2 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m  Method  ASTM D5185m  ASTM D7185m  Method  *ASTM D7844  *ASTM D7624  *ASTM D7415  Method  *ASTM D7414	0 60 0 1010 1070 1150 1270 2060 limit/base >20  >20 limit/base >3 >20 >30	0 57 <1 922 1022 1035 1286 3192 current 5 <1 2 current 0.1 4.2 16.4	0 55 0 902 1057 978 1200 3548 history1 2 <1 <1 history1 0.1 5.1 16.8	history2 history2



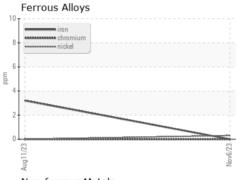
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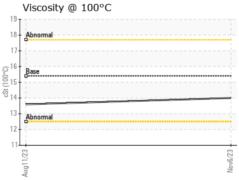
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance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

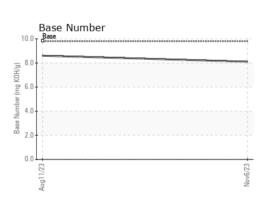
FLUID PROPE	ERITES	method	limit/base		history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	13.6	

## **GRAPHS**



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_	copper					
8-	manananan tin					
6						
4						
2						
ملاه		THE STREET	 	.000000000	 Access 44	
Aug11/23						Nov6/23 -
Vi	scosity @ 1	00°C				







Certificate L2367

Laboratory Sample No. Lab Number

Unique Number : 10738606 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0086851 : 06004844

Received : 10 Nov 2023 Diagnosed : 13 Nov 2023 Diagnostician : Wes Davis

GFL Environmental - 419 - Metro Saginaw 6950 N Michigan

Saginaw, MI US 48604 Contact: Jeremy Hines jhines@gflenv.com T: (800)684-1277

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)