

## **OIL ANALYSIS REPORT**

Sample Rating Trend

#### NORMAL



Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (60 QTS)

# N SHP 15W40 (60 QTS) SAMPLE INFORMATION method limit/base current h



### 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.

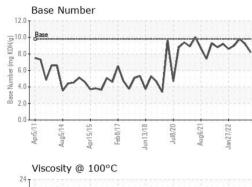
#### Fluid Condition

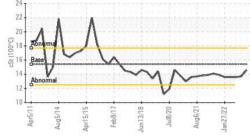
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

		methou	iiiiii/base	current	mistory	
Sample Number		Client Info		GFL0090111	GFL0041928	GFL0040120
Sample Date		Client Info		10 Oct 2023	29 Apr 2022	14 Apr 2022
Machine Age	hrs	Client Info		824000	38258	38166
Oil Age	hrs	Client Info		600	619	527
Oil Changed		Client Info		N/A	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
•			11 1. //			
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	48	33	11
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	<1	<1	3
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum	ppm	ASTM D5185m	>20	2	1	10
Lead	ppm	ASTM D5185m	>40	5	4	<1
Copper	ppm	ASTM D5185m		3	2	3
Tin	ppm		>15	<1	<1	<1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
oddiniani	ppm				Ŭ	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	4	4	6
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	4 10	4 0	6 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 10 60	4 0 57	6 0 57
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	4 10 60 <1	4 0 57 <1	6 0 57 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	4 10 60 <1 819	4 0 57 <1 946	6 0 57 <1 1045
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	4 10 60 <1 819 967	4 0 57 <1 946 1048	6 0 57 <1 1045 1233
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm 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	4 10 60 <1 819 967 906	4 0 57 <1 946 1048 1007	6 0 57 <1 1045 1233 1123
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm 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 1270	4 10 60 <1 819 967 906 1048	4 0 57 <1 946 1048 1007 1210	6 0 57 <1 1045 1233 1123 1296
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm 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	4 10 60 <1 819 967 906	4 0 57 <1 946 1048 1007	6 0 57 <1 1045 1233 1123
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 0 60 0 1010 1070 1150 1270	4 10 60 <1 819 967 906 1048	4 0 57 <1 946 1048 1007 1210	6 0 57 <1 1045 1233 1123 1296
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	0 0 60 0 1010 1070 1150 1270 2060	4 10 60 <1 819 967 906 1048 2783	4 0 57 <1 946 1048 1007 1210 2670	6 0 57 <1 1045 1233 1123 1296 2908
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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 1010 1070 1150 1270 2060	4 10 60 <1 819 967 906 1048 2783 current	4 0 57 <1 946 1048 1007 1210 2670 history1	6 0 57 <1 1045 1233 1123 1296 2908 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	4 10 60 <1 819 967 906 1048 2783 <u>current</u> 3	4 0 57 <1 946 1048 1007 1210 2670 history1 3	6 0 57 <1 1045 1233 1123 1296 2908 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	4 10 60 <1 819 967 906 1048 2783 <b>current</b> 3 0	4 0 57 <1 946 1048 1007 1210 2670 history1 3 2	6 0 57 <1 1045 1233 1123 1296 2908 history2 3 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	4 10 60 <1 819 967 906 1048 2783 current 3 0 5	4 0 57 <1 946 1048 1007 1210 2670 history1 3 2 2 2	6 0 57 <1 1045 1233 1123 1296 2908 history2 3 2 32
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	4 10 60 <1 819 967 906 1048 2783 current 3 0 5	4 0 57 <1 946 1048 1007 1210 2670 history1 3 2 2 2 history1	6 0 57 <1 1045 1233 1123 1296 2908 history2 3 2 32 history2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	4 10 60 <1 819 967 906 1048 2783 <u>current</u> 3 0 5 <u>current</u> 2.5	4 0 57 <1 946 1048 1007 1210 2670 history1 3 2 2 2 history1 3.3	6 0 57 <1 1045 1233 1123 1296 2908 history2 3 2 32 history2 0.2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	4 10 60 <1 819 967 906 1048 2783 current 3 0 5 current 2.5 8.3	4 0 57 <1 946 1048 1007 1210 2670 history1 3 2 2 2 history1 3.3 9.6	6 0 57 <1 1045 1233 1123 1296 2908 history2 3 2 32 history2 0.2 7.8
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 25 20 220 20 20 20 20 20 20 20 20 20 20 20	4 10 60 <1 819 967 906 1048 2783 current 3 0 5 current 2.5 8.3 22.5	4 0 57 <1 946 1048 1007 1210 2670 history1 3 2 2 2 <u>history1</u> 3.3 9.6 25.7	6 0 57 <1 1045 1233 1123 1296 2908 history2 3 2 32 history2 0.2 7.8 20.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7615	0 0 0 1010 1070 1150 1270 2060 2060 2060 225 20 225 20 20 20 20 20 20 20 20 20 20 20 20 20	4 10 60 <1 819 967 906 1048 2783 Current 3 0 5 Current 2.5 8.3 22.5 Current	4 0 57 <1 946 1048 1007 1210 2670 history1 3 2 2 2 history1 3.3 9.6 25.7 history1	6 0 57 <1 1045 1233 1123 1296 2908 history2 3 2 32 history2 0.2 7.8 20.1 history2



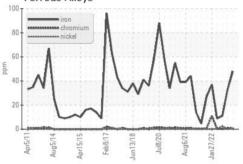
## **OIL ANALYSIS REPORT**



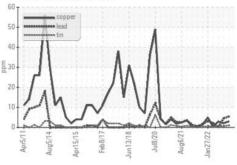


VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.6	13.7	13.6
GRAPHS						

Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C 24 20 14 12

Apr15/15

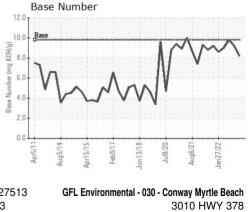
Feb 8/17

Aug5/14

cSt (100°C)

10

Apr5/11



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : GFL0090111 Received : 17 Oct 2023 Lab Number : 05981122 Diagnosed : 18 Oct 2023 Unique Number : 10698417 Diagnostician : Wes Davis Test Package : FLEET Contact: CHET STROSCHINE To discuss this sample report, contact Customer Service at 1-800-237-1369. cstroschine@gflenv.com \* - 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)

Aug6/21

Jan27/22

ul8/20

un13/18



Report Id: GFL030 [WUSCAR] 05981122 (Generated: 10/23/2023 03:53:35) Rev: 1

Certificate L2367

Submitted By: CHET STROSCHINE

Conway, SC

US 29527

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