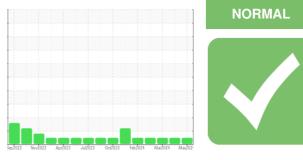


# **OIL ANALYSIS REPORT**

Sample Rating Trend



713017 Component Diesel Engine Fluid

# PETRO CANADA DURON SHP 15W40 (10 GAL)

SAMPLE INFORMATION method

### DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Machine Id

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

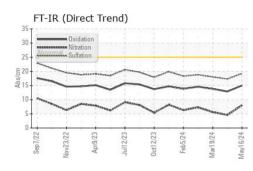
#### Fluid Condition

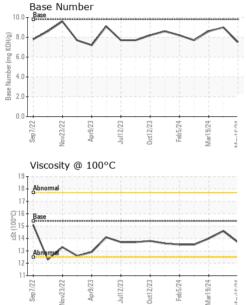
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFURI		method	IIIIII/Dase	current	nistory i	TIISTOLAS
Sample Number		Client Info		GFL0118249	GFL0118179	GFL0109135
Sample Date		Client Info		16 May 2024	08 Apr 2024	19 Mar 2024
Machine Age	hrs	Client Info		5201	970	4741
Oil Age	hrs	Client Info		700	300	140
Oil Changed		Client Info		Changed	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	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
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron		ASTM D5185m	>120	12	0	4
Chromium	ppm	ASTM D5185m	>120	12	0	4 <1
Nickel	ppm			2		
	ppm	ASTM D5185m	>5		<1	<1
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>2	1	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	3
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm		>330	2	0	<1
Tin	ppm		>15	1	<1	1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		<1	0	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base	current	history1 2	history2 0
	ppm ppm					
Boron		ASTM D5185m	0	<1	2	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	<1 <1	2 0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 <1 60	2 0 57	0 1 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 <1 60 <1	2 0 57 0	0 1 61 <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	<1 <1 60 <1 970	2 0 57 0 974	0 1 61 <1 935
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	<1 <1 60 <1 970 1094	2 0 57 0 974 1073	0 1 61 <1 935 1169
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	0 0 60 0 1010 1070 1150	<1 <1 60 <1 970 1094 998	2 0 57 0 974 1073 1083	0 1 61 <1 935 1169 1084
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm 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	<1 <1 60 <1 970 1094 998 1244	2 0 57 0 974 1073 1083 1287	0 1 61 <1 935 1169 1084 1230
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	0 0 60 1010 1070 1150 1270 2060	<1 <1 60 <1 970 1094 998 1244 3083 current	2 0 57 0 974 1073 1083 1287 3842 history1	0 1 61 <1 935 1169 1084 1230 3364 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	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	<1 <1 60 <1 970 1094 998 1244 3083 current 4	2 0 57 0 974 1073 1083 1287 3842 history1 6	0 1 61 <1 935 1169 1084 1230 3364 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	<1 <1 60 <1 970 1094 998 1244 3083 current	2 0 57 0 974 1073 1083 1287 3842 history1	0 1 61 <1 935 1169 1084 1230 3364 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Jimit/base</b> >25	<1 <1 60 <1 970 1094 998 1244 3083 <u>current</u> 4 3 3	2 0 57 0 974 1073 1083 1287 3842 history1 6 1 1	0 1 61 <1 935 1169 1084 1230 3364 history2 4 0 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >25	<1 <1 60 <1 970 1094 998 1244 3083 <u>current</u> 4 3 3 3	2 0 57 0 974 1073 1083 1287 3842 history1 6 1 1 1 history1	0 1 61 <1 935 1169 1084 1230 3364 history2 4 0 2 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 TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	<1 <1 60 <1 970 1094 998 1244 3083 <i>current</i> 4 3 3 <i>current</i> 0.6	2 0 57 0 974 1073 1083 1287 3842 history1 6 1 1 1 history1 0.1	0 1 61 <1 935 1169 1084 1230 3364 history2 4 0 2 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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 225 220 220 1imit/base >22 20	<1 <1 60 <1 970 1094 998 1244 3083 current 4 3 3 current 0.6 8.0	2 0 57 0 974 1073 1083 1287 3842 history1 6 1 1 1 history1 0.1 4.6	0 1 61 <1 935 1169 1084 1230 3364 history2 4 0 2 history2 0.2 5.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	<1 <1 60 <1 970 1094 998 1244 3083 <i>current</i> 4 3 3 <i>current</i> 0.6	2 0 57 0 974 1073 1083 1287 3842 history1 6 1 1 1 history1 0.1	0 1 61 <1 935 1169 1084 1230 3364 history2 4 0 2 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 2060 225 225 220 220 1imit/base >22 20	<1 <1 60 <1 970 1094 998 1244 3083 current 4 3 3 current 0.6 8.0	2 0 57 0 974 1073 1083 1287 3842 history1 6 1 1 1 history1 0.1 4.6	0 1 61 <1 935 1169 1084 1230 3364 history2 4 0 2 history2 0.2 5.6
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 20 225 20 20 20 20 20 20 20 20 20 20 20 20 20	<1 <1 60 <1 970 1094 998 1244 3083 <u>current</u> 4 3 3 3 <u>current</u> 0.6 8.0 19.2	2 0 57 0 974 1073 1083 1287 3842 history1 6 1 1 1 <i>history1</i> 0.1 4.6 17.3	0 1 61 <1 935 1169 1084 1230 3364 <b>history2</b> 4 0 2 <b>history2</b> 0.2 5.6 18.0
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 220 20 20 20 20 20 20 20 20	<1 <1 60 <1 970 1094 998 1244 3083 Current 4 3 3 Current 0.6 8.0 19.2 Current	2 0 57 0 974 1073 1083 1287 3842 history1 6 1 1 6 1 1 0.1 4.6 17.3 history1	0 1 61 <1 935 1169 1084 1230 3364 <b>history2</b> 4 0 2 <b>history2</b> 0.2 5.6 18.0 <b>history2</b>



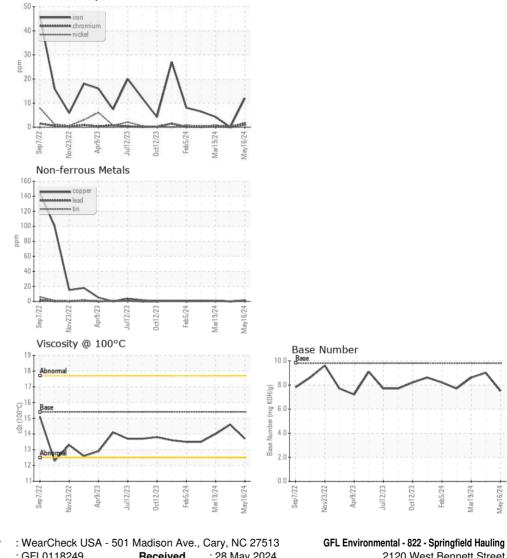
# **OIL ANALYSIS REPORT**





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
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	13.7	14.6	14.0
GRAPHS						

Ferrous Alloys



Laboratory Sample No. : GFL0118249 Received : 28 May 2024 2120 West Bennett Street Lab Number : 06191833 Tested : 29 May 2024 Springfield, MO Unique Number : 11048585 Diagnosed : 29 May 2024 - Wes Davis US 65807 Test Package : FLEET Contact: Dennis Moore Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. dennis.moore@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (417)403-3641 

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Report Id: GFL822 [WUSCAR] 06191833 (Generated: 05/29/2024 10:35:57) Rev: 1

Submitted By: Dennis Moore

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