

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Area (BC97716) 912080 Omponent Diesel Engine Fluid PETRO CANADA

Component Diesel Engine Fluid

# PETRO CANADA DURON SHP 15W40 (38 QTS)

Recommendation
Resample at the next service interval to monitor. ( Customer Sample Comment: Sampled oil ) $\label{eq:comment}$

Wear All component wear rates are normal.

#### Contamination

DIAGNOSIS

There is no indication of any contamination in the oil.

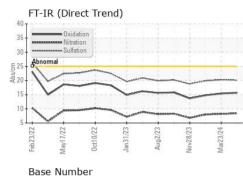
### Fluid Condition

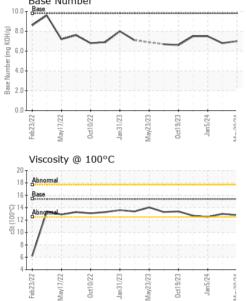
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0120933	GFL0110332	GFL0102769
Sample Date		Client Info		30 May 2024	23 Mar 2024	05 Jan 2024
Machine Age	hrs	Client Info		7080	6677	6088
Oil Age	hrs	Client Info		403	589	599
Oil Changed		Client Info		Not Changd	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
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method	20.2	NEG	NEG	NEG
WEAR METAL	\$	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	12	15	14
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	<1	1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	<1	1
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m		6	5	4
Tin	ppm	ASTM D5185m	>15	0	0	1
Vanadium	ppm	ASTM D5185m		0	<1 0	0
Cadmium	ppm	ASTM D5185m				0
	pp			U	0	ő
ADDITIVES	PP	method	limit/base	current	history1	history2
	ppm		limit/base	-	-	
ADDITIVES		method ASTM D5185m		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 0	history1 4	history2 6
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0	current 0 0	history1 4 0	history2 6 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 0 0 58	history1 4 0 61	history2 6 0 64
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 0 0 58 <1	history1 4 0 61 0	history2 6 0 64 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current     0     58     <1     863	history1 4 0 61 0 950 1158 1005	history2 6 0 64 <1 933 1127 1054
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 0 0 58 <1 863 1106	history1 4 0 61 0 950 1158	history2 6 0 64 <1 933 1127 1054 1292
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	Current 0 58 <1 863 1106 979	history1 4 0 61 0 950 1158 1005	history2 6 0 64 <1 933 1127 1054
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current     0     58     <1     863     1106     979     1165	history1 4 0 61 0 950 1158 1005 1265	history2 6 0 64 <1 933 1127 1054 1292 2718 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	current     0     0     58     <1     863     1106     979     1165     3002     current     0	history1     4     0     61     0     950     1158     1005     1265     3212     history1     3	history2     6     0     64     <1     933     1127     1054     1292     2718     history2     3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method 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 limit/base >25	Current 0 0 58 <1 863 1106 979 1165 3002 Current	history1   4   0   61   0   950   1158   1005   1265   3212   history1   3   23	history2     6     0     64     <1     933     1127     1054     1292     2718     history2     3     4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base >25	current     0     0     58     <1     863     1106     979     1165     3002     current     0	history1     4     0     61     0     950     1158     1005     1265     3212     history1     3	history2     6     0     64     <1     933     1127     1054     1292     2718     history2     3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base >25	current     0     0     58     <1     863     1106     979     1165     3002     current     0     3	history1   4   0   61   0   950   1158   1005   1265   3212   history1   3   23	history2     6     0     64     <1     933     1127     1054     1292     2718     history2     3     4
ADDITIVES 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 <b>TS</b> ppm ppm	method     ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current     0     0     58     <1     863     1106     979     1165     3002     current     0     3     <1     0.3     <1     current     0.7	history1   4   0   61   0   950   1158   1005   1265   3212   history1   3   23   3   23   3   0.9	history2     6     0     64     <1     933     1127     1054     1292     2718     history2     3     4     <1     history2     3     4     <1     history2     0.8
ADDITIVES 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 <b>TS</b>	method     ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current     0     0     58     <1     863     1106     979     1165     3002     current     0     3     <1     current     0     3     <1     current     0.7     8.4	history1   4   0   61   0   950   1158   1005   1265   3212   history1   3   23   3   23   3   0.9   8.2	history2     6     0     64     <1     933     1127     1054     1292     2718     history2     3     4     <1     history2     3     4     <1     history2
ADDITIVES 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 <b>TS</b> ppm ppm	method     ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current     0     0     58     <1     863     1106     979     1165     3002     current     0     3     <1     0.3     <1     current     0.7	history1   4   0   61   0   950   1158   1005   1265   3212   history1   3   23   3   23   3   0.9	history2     6     0     64     <1     933     1127     1054     1292     2718     history2     3     4     <1     history2     3     4     <1     history2     0.8
ADDITIVES 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	method     ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >20 imit/base	current     0     0     58     <1     863     1106     979     1165     3002     current     0     3     <1     current     0     3     <1     current     0.7     8.4	history1   4   0   61   0   950   1158   1005   1265   3212   history1   3   23   3   23   3   0.9   8.2	history2     6     0     64     <1     933     1127     1054     1292     2718     history2     3     4     <1     history2     3     4.     <1     history2
ADDITIVES 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	method     ASTM D5185m     ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >20 <b>imit/base</b> >4 >20	current     0     0     58     <1     863     1106     979     1165     3002     current     0     3     <1     current     0     3     <1     current     0.7     8.4     20.1	history1   4   0   61   0   950   1158   1005   1265   3212   history1   3   23   3   23   3   0.9   8.2   20.3	history2     6     0     64     <1     933     1127     1054     1292     2718     history2     3     4     <1     history2     0.8     8.0     19.9



## **OIL ANALYSIS REPORT**





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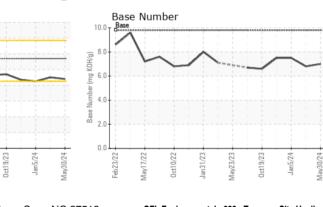
<sup>रु</sup> 10

Feb23/22

Mav17/22

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
		method	iiiiii/base	Current	HISTOLAL	THSTOLYZ
Visc @ 100°C	cSt	ASTM D445	15.4	12.8	13.0	12.5
GRAPHS						

GRAPH Ferrous Alloys 20 10 0 Feb23/22 Mav17/22 n5/74 Jan 31/23 /av23/23 Non-ferrous Metals lead 40 ۲<u>ط</u> 30 20 10 0 Feb23/22 C12010 w30/7 /lav1 Viscosity @ 100°C 10.0 Ba



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 622 - Traverse City Hauling Sample No. : GFL0120933 Received : 04 Jun 2024 160 Hughes Dr Lab Number : 06198882 Tested : 05 Jun 2024 Traverse City, MI US 49686 Unique Number : 11061005 Diagnosed : 06 Jun 2024 - Don Baldridge Test Package : FLEET Contact: GARY BREWER Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. T: \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. F:

Jan31/23

Mav23/23

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

Submitted By: TECHNICIAN ACCOUNT