

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend

## NORMAL



### Component

**Diesel Engine** Fluid

# PETRO CANADA DURON SHP 15W40 (42 QTS)

## 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.

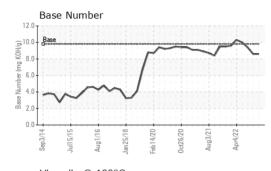
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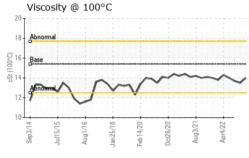
# 2014 Jul2015 Aug2016 Jan2018 Feb2020 Oct2020 Aug2021 Apr2022

SAMPLE INFORM	<b>MATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0071604	GFL0071541	GFL0061709
Sample Date		Client Info		15 Sep 2023	09 May 2023	06 Jan 2023
Machine Age	hrs	Client Info		43742	43742	43742
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	13	15	8
Chromium	ppm	ASTM D5185m	>20	<1	1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	4	2
Lead	ppm	ASTM D5185m	>40	<1	1	<1
Copper	ppm	ASTM D5185m	>330	2	1	<1
Tin	ppm	ASTM D5185m	>15	<1	1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
C a aluas is una	nom	ASTM D5185m		•	0	0
Cadmium	ppm	ASTIVI DOTIODITI		0	0	0
ADDITIVES	ррп	method	limit/base	0 current	0 history1	history2
	ppm		limit/base	-		
ADDITIVES		method	0	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 2	history1 8	history2 13
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 2 0	history1 8 0	history2 13 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 2 0 64	history1 8 0 64	history2 13 0 61
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 2 0 64 <1	history1 8 0 64 <1	history2 13 0 61 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	Current 2 0 64 <1 918 1095 1048	history1 8 0 64 <1 903	history2 13 0 61 <1 878
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	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	current           2           0           64           <1           918           1095	history1 8 0 64 <1 903 1114	history2 13 0 61 <1 878 1098
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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 2 0 64 <1 918 1095 1048	history1 8 0 64 <1 903 1114 1043	history2 13 0 61 <1 878 1098 982
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           2           0           64           <1           918           1095           1048           1265	history1 8 0 64 <1 903 1114 1043 1289	history2         13         0         61         <1         878         1098         982         1192
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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	Current 2 0 64 <1 918 1095 1048 1265 3363	history1  8  0  64  <1  903  1114  1043  1289  3822	history2         13         0         61         <1         878         1098         982         1192         3606
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 1010 1070 1150 1270 2060	current           2           0           64           <1           918           1095           1048           1265           3363           current	history1  8  0  64  <1 903 11114 1043 1289 3822 history1	history2         13         0         61         <1         878         1098         982         1192         3606         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 ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	current           2           0           64           <1           918           1095           1048           1265           3363           current           7	history1           8           0           64           <1           903           1114           1043           1289           3822           history1           11	history2         13         0         61         <1         878         1098         982         1192         3606         history2         5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	method ASTM D5185m 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           2           0           64           <1           918           1095           1048           1265           3363           current           7           <1	history1         8         0         64         <1         903         1114         1043         1289         3822         history1         11         3	history2         13         0         61         <1         878         1098         982         1192         3606         history2         5         1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	current           2           0           64           <1           918           1095           1048           1265           3363           current           7           <1           3	history1         8         0         64         <1         903         1114         1043         1289         3822         history1         11         3         2	history2         13         0         61         <1         878         1098         982         1192         3606         history2         5         1         0         0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	current           2           0           64           <1           918           1095           1048           1265           3363           current           7           <1           3           current	history1         8         0         64         <1         903         1114         1043         1289         3822         history1         11         3         2         history1	history2         13         0         61         <1         878         1098         982         1192         3606         history2         5         1         0         bistory2         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 1imit/base >20	current           2           0           64           <1           918           1095           1048           1265           3363           current           7           <1           3           current           0.4	history1         8         0         64         <1         903         1114         1043         1289         3822         history1         11         3         2         history1         0.3	history2         13         0         61         <1         878         1098         982         1192         3606         history2         5         1         0         history2         0         history2         0.2
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           ASTM D7844           *ASTM D7624           *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	current           2           0           64           <1           918           1095           1048           1265           3363           current           7           <1           3           current           0.4           6.7	history1         8         0         64         <1         903         1114         1043         1289         3822         history1         11         3         2         history1         0.3         7.1	history2         13         0         61         <1         878         1098         982         1192         3606         history2         5         1         0         history2         0         history2         0         6.2
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 D7844           *ASTM D7624           *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <b>imit/base</b> >3 20 20	current           2           0           64           <1           918           1095           1048           1265           3363           current           7           <1           3           current           0.4           6.7           18.2	history1         8         0         64         <1         903         1114         1043         1289         3822         history1         11         3         2         history1         0.3         7.1         18.7	history2         13         0         61         <1         878         1098         982         1192         3606         history2         5         1         0         history2         0.2         6.2         17.6



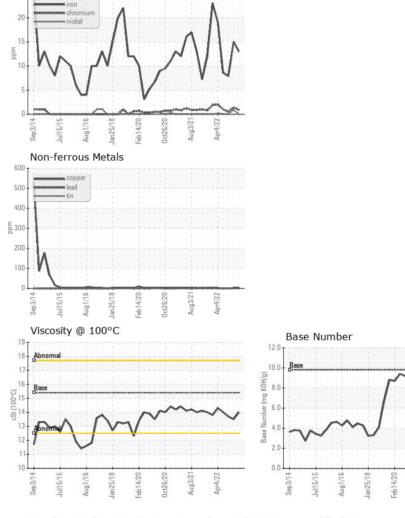
# **OIL ANALYSIS REPORT**





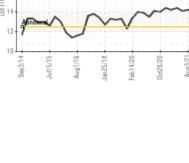
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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	LIGHT	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*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	14.0	13.5	13.7
GRAPHS						
Ferrous Alloys						



: WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 035 - Greensboro Laboratory Sample No. : GFL0071604 Received : 20 Sep 2023 1236 Elon Place Lab Number : 05956289 Diagnosed : 21 Sep 2023 High Point, NC Unique Number : 10657502 Diagnostician : Wes Davis US 27263 Test Package : FLEET Contact: JORGE COSTA Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. jorge.costa@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (336)668-3712 F:

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



0ct26/20 Aug3/21 Apr4/22