

# **OIL ANALYSIS REPORT**

Sample Rating Trend

### NORMAL

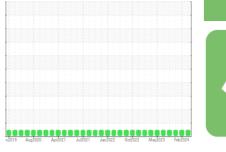


(YA147109) [oil service] 2847

Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (12 GAL)

SAMPLE INFORMATION method





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.

				Current		
Sample Number		Client Info		GFL0124460	GFL0111065	GFL0098491
Sample Date		Client Info		03 Jun 2024	05 Feb 2024	28 Dec 2023
Machine Age	hrs	Client Info		14709	13788	13422
Oil Age	hrs	Client Info		921	636	270
Oil Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT		mathad	limit/bass	ourroot	biotond	biotory ()
CONTAMINAT		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	ppm	ASTM D5185m	>120	12	6	2
Chromium	ppm	ASTM D5185m	>20	0	<1	0
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	2
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm		>330	1	<1	<1
Tin			>15	، <1	<1	<1
Vanadium	ppm	ASTM D5185m	>15	0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
	ppm	ASTIVI DOTODIII		0	0	0
ADDITIVES						
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	method ASTM D5185m	limit/base	current 2	4	3
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	2	4	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	2 <1	4	3 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 <1 61	4 0 58	3 0 56
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 <1 61 <1	4 0 58 <1	3 0 56 <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	2 <1 61 <1 933	4 0 58 <1 921	3 0 56 <1 936
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	2 <1 61 <1 933 1090	4 0 58 <1 921 948	3 0 56 <1 936 1027
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	2 <1 61 <1 933 1090 1021	4 0 58 <1 921 948 989	3 0 56 <1 936 1027 1012
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	2 <1 61 <1 933 1090 1021 1221	4 0 58 <1 921 948 989 1219	3 0 56 <1 936 1027 1012 1254
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	2 <1 61 <1 933 1090 1021 1221 2767	4 0 58 <1 921 948 989 1219 2664	3 0 56 <1 936 1027 1012 1254 2955
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	2 <1 61 <1 933 1090 1021 1021 1221 2767 current 5	4 0 58 <1 921 948 989 1219 2664 history1	3 0 56 <1 936 1027 1012 1254 2955 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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>	0 0 60 1010 1070 1150 1270 2060	2 <1 61 <1 933 1090 1021 1221 2767 current	4 0 58 <1 921 948 989 1219 2664 history1 3	3 0 56 <1 936 1027 1012 1254 2955 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	2 <1 61 <1 933 1090 1021 1221 2767 current 5 5	4 0 58 <1 921 948 989 1219 2664 history1 3 2	3 0 56 <1 936 1027 1012 1254 2955 history2 3 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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 >20 20	2 <1 61 <1 933 1090 1021 1221 2767 current 5 5 2 2	4 0 58 <1 921 948 989 1219 2664 history1 3 2 2 <1 history1	3 0 56 <1 936 1027 1012 1254 2955 history2 3 2 <1 ×1
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 <b>limit/base</b> >25 >20 <b>limit/base</b>	2 <1 61 <1 933 1090 1021 1221 2767 current 5 5 5 2 2 current 0.7	4 0 58 <1 921 948 989 1219 2664 history1 3 2 2 <1 history1 0.4	3 0 56 <1 936 1027 1012 1254 2955 history2 3 2 <1 ×1 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	2 <1 61 <1 933 1090 1021 1221 2767 <i>current</i> 5 5 2 2 <i>current</i> 0.7 9.1	4 0 58 <1 921 948 989 1219 2664 history1 3 2 2 64 history1 0.4 7.9	3 0 56 <1 936 1027 1012 1254 2955 history2 3 2 2 <1 history2 0.2 6.3
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 TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20 <b>limit/base</b>	2 <1 61 <1 933 1090 1021 1221 2767 current 5 5 5 2 2 current 0.7	4 0 58 <1 921 948 989 1219 2664 history1 3 2 2 <1 history1 0.4	3 0 56 <1 936 1027 1012 1254 2955 history2 3 2 <1 <1 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm spm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	2 <1 61 <1 933 1090 1021 1221 2767 <i>current</i> 5 5 2 2 <i>current</i> 0.7 9.1	4 0 58 <1 921 948 989 1219 2664 history1 3 2 2 64 history1 0.4 7.9	3 0 56 <1 936 1027 1012 1254 2955 history2 3 2 2 <1 history2 0.2 6.3
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 TS ppm ppm ppm ppm spm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <b>imit/base</b> >20 <b>imit/base</b> >20	2 <1 61 <1 933 1090 1021 1221 2767 <i>current</i> 5 5 2 2 <i>current</i> 0.7 9.1 21.0	4 0 58 <1 921 948 989 1219 2664 history1 3 2 2 <1 0.4 7.9 19.4	3 0 56 <1 936 1027 1012 1254 2955 <b>history2</b> 3 2 <1 <b>history2</b> 0.2 6.3 18.4
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 TS ppm ppm ppm ppm ppm % Abs/cm Abs/cm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 220 220 220 220 230 20 20 20 20 20 20 20 20 20 20 20 20 20	2 <1 61 <1 933 1090 1021 1221 2767 <i>current</i> 5 5 2 2 <i>current</i> 0.7 9.1 21.0 <i>current</i>	4 0 58 <1 921 948 989 1219 2664 history1 3 2 2 64 history1 0.4 7.9 19.4 history1	3 0 56 <1 936 1027 1012 1254 2955 history2 3 2 2 <1 history2 0.2 6.3 18.4 history2

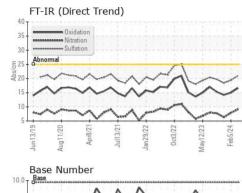


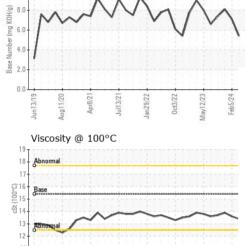
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## **OIL ANALYSIS REPORT**





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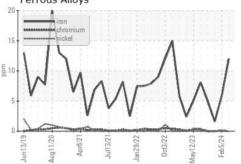
Feb5/24

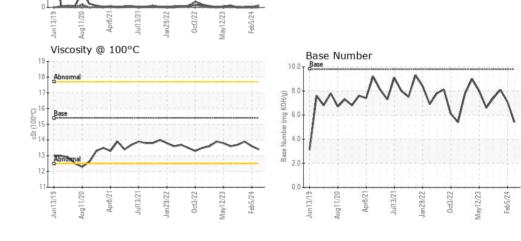
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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*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	13.4	13.6	13.9
GRAPHS						

Ferrous Alloys

Non-ferrous Metals





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 006 - Wilmington Sample No. : GFL0124460 Received : 05 Jun 2024 3618 US Highway 421 N Lab Number : 06199822 Tested : 05 Jun 2024 Wilmington, NC US 28401 Unique Number : 11061945 Diagnosed : 05 Jun 2024 - Wes Davis Test Package : FLEET Contact: Eric Wood Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. eric.wood@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (717)723-1956 F: (910)762-6880

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

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Submitted By: NEIL GRIFFIN

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