

## **OIL ANALYSIS REPORT**

Sample Rating Trend NORMAL



# Area (00691H8) 811055

Component Diesel Engine PETRO CANADA DURON SHP 15W40 (9 GAL)

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0098889	GFL0099015	GFL0098864
Sample Date		Client Info		30 Apr 2024	21 Mar 2024	29 Feb 2024
Machine Age	hrs	Client Info		6851	6384	6384
Oil Age	hrs	Client Info		3826	3826	3826
Oil Changed		Client Info		Diff Oil	Diff Oil	N/A
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<b>2</b> .1
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	15	9	16
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>5	2	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	6	1	3
Lead	ppm	ASTM D5185m	>40	0	0	4
Copper	ppm	ASTM D5185m	>330	36	<1	<1
Tin	ppm	ASTM D5185m	>15	1	0	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	37	0	1
Barium		AOTH DEADE	0	0	0	0
	ppm	ASTM D5185m	0		0	0
Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	60	68	57	72
-			60	68 1	÷	
Manganese	ppm	ASTM D5185m	60		57	72
Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m	60 0 1010	1	57 <1	72 0
Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010	1 853	57 <1 962	72 0 981
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070	1 853 1113	57 <1 962 1124	72 0 981 1149
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150	1 853 1113 972	57 <1 962 1124 1022	72 0 981 1149 1199
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270	1 853 1113 972 1120	57 <1 962 1124 1022 1289	72 0 981 1149 1199 1283
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	1 853 1113 972 1120 2920 current 12	57 <1 962 1124 1022 1289 3788 history1 3	72 0 981 1149 1199 1283 3676 history2 4
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	1 853 1113 972 1120 2920 current	57 <1 962 1124 1022 1289 3788 history1 3 2	72 0 981 1149 1199 1283 3676 history2
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	60 0 1010 1070 1150 1270 2060 limit/base >25	1 853 1113 972 1120 2920 current 12	57 <1 962 1124 1022 1289 3788 history1 3	72 0 981 1149 1199 1283 3676 history2 4
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	60 0 1010 1070 1150 1270 2060 limit/base >25	1 853 1113 972 1120 2920 current 12 1	57 <1 962 1124 1022 1289 3788 history1 3 2	72 0 981 1149 1199 1283 3676 history2 4 ▲ 128
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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	60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	1 853 1113 972 1120 2920 current 12 1 15	57 <1 962 1124 1022 1289 3788 history1 3 2 2	72 0 981 1149 1199 1283 3676 history2 4 ▲ 128 ▲ 80
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	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 ASTM D5185m	60 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25	1 853 1113 972 1120 2920 current 12 1 15 current	57 <1 962 1124 1022 1289 3788 history1 3 2 2 2 history1	72 0 981 1149 1199 1283 3676 history2 4 ▲ 128 ▲ 80 history2
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	60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20 <b>limit/base</b> >4	1 853 1113 972 1120 2920 current 12 1 15 current 0.2	57 <1 962 1124 1022 1289 3788 history1 3 2 2 2 history1 0.4	72 0 981 1149 1199 1283 3676 history2 4 ▲ 128 ▲ 80 history2 0.4
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 D51854	60 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 -20 <b>imit/base</b> >4 >20	1 853 1113 972 1120 2920 current 12 1 15 current 0.2 6.8	57 <1 962 1124 1022 1289 3788 history1 3 2 2 2 history1 0.4 6.7	72 0 981 1149 1199 1283 3676 history2 4 ▲ 128 ▲ 80 history2 0.4 6.3
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 D7844 *ASTM D7624	60 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 >20 <b>imit/base</b> >4 >20 >30	1 853 1113 972 1120 2920 current 12 1 15 current 0.2 6.8 19.7	57 <1 962 1124 1022 1289 3788 history1 3 2 2 2 history1 0.4 6.7 17.8	72 0 981 1149 1199 1283 3676 history2 4 128 ▲ 128 ▲ 128 ▲ 80 history2 0.4 6.3 18.4

### 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

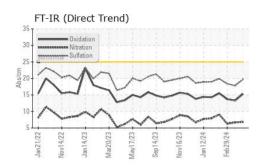
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

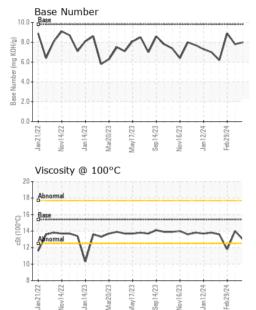
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Jan21/22 Vov14/22 Jan 14/23 Aar20/23 Mav17/23 Sep14/23 Vov16/23

## **OIL ANALYSIS REPORT**

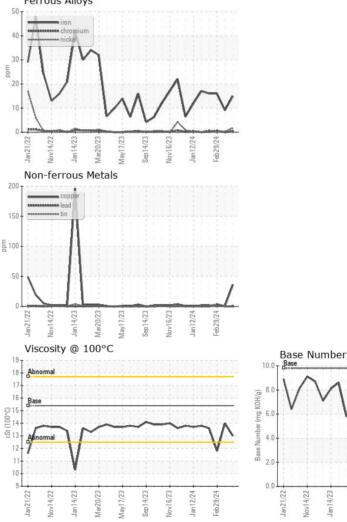


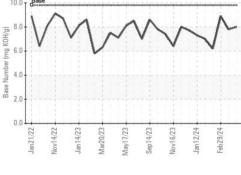


VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	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	13.0	14.0	11.8
GRAPHS						

Ferrous Alloys

eb29/24





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 084 - Clarksville Sample No. : GFL0098889 Received : 09 May 2024 699 Jack Miller Boulevard Lab Number : 06174954 Tested : 10 May 2024 Clarksville, TN Unique Number : 11021007 Diagnosed : 10 May 2024 - Wes Davis US 37042 Test Package : FLEET Contact: ROBERT THIBAULT Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. robert.thibault@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (931)552-7276 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (931)572-9674

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