

OIL ANALYSIS REPORT

Sample Rating Trend

..............................

NORMAL

(YA122769) 10565C

Natural Gas Engine

Fluid PETRO CANADA DURON GEO LD 15W40 (32 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Area

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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SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0109661	GFL0109691	GFL0092662
Sample Date		Client Info		01 Apr 2024	18 Mar 2024	24 Nov 2023
Machine Age	hrs	Client Info		0	21135	20018
Oil Age	hrs	Client Info		0	525	379
Oil Changed		Client Info		N/A	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	17	29	3
Chromium	ppm	ASTM D5185m	>4	2	3	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	3	5	<1
Lead	ppm	ASTM D5185m	>30	9	17	0
Copper	ppm	ASTM D5185m	>35	1	2	0
Tin	ppm	ASTM D5185m	>4	<1	1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	50	21	4	24
Boron Barium	ppm ppm			21 0		24 0
		ASTM D5185m	50		4	
Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m	50 5	0	4	0
Barium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	0 58	4 0 67	0 52
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	0 58 <1	4 0 67 <1	0 52 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	0 58 <1 767	4 0 67 <1 862	0 52 <1 725
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510	0 58 <1 767 1570	4 0 67 <1 862 1563	0 52 <1 725 1221
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780	0 58 <1 767 1570 952	4 0 67 <1 862 1563 1008	0 52 <1 725 1221 861
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	50 5 50 0 560 1510 780 870	0 58 <1 767 1570 952 1111	4 0 67 <1 862 1563 1008 1242	0 52 <1 725 1221 861 1033
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	50 5 50 0 560 1510 780 870 2040	0 58 <1 767 1570 952 1111 2959	4 0 67 <1 862 1563 1008 1242 2834	0 52 <1 725 1221 861 1033 2588
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 ASTM D5185m	50 5 50 0 560 1510 780 870 2040	0 58 <1 767 1570 952 1111 2959 current	4 0 67 <1 862 1563 1008 1242 2834 history1	0 52 <1 725 1221 861 1033 2588 history2
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 method	50 5 50 0 560 1510 780 870 2040	0 58 <1 767 1570 952 1111 2959 current 7	4 0 67 <1 862 1563 1008 1242 2834 history1 7	0 52 <1 725 1221 861 1033 2588 history2 7
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 method ASTM D5185m	50 50 50 560 1510 780 870 2040 limit/base >+100	0 58 <1 767 1570 952 1111 2959 current 7 6	4 0 67 <1 862 1563 1008 1242 2834 history1 7 7	0 52 <1 725 1221 861 1033 2588 history2 7 3
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	50 50 0 560 1510 780 870 2040 limit/base >+100	0 58 <1 767 1570 952 1111 2959 current 7 6 0	4 0 67 <1 862 1563 1008 1242 2834 history1 7 7 7 2	0 52 <1 725 1221 861 1033 2588 history2 7 3 1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 2040 >+100 >20 20 20 20 20 20 20 20 20 20 20 20 20 2	0 58 <1 767 1570 952 1111 2959 current 7 6 0	4 0 67 <1 862 1563 1008 1242 2834 history1 7 7 7 2 8 history1	0 52 <1 725 1221 861 1033 2588 history2 7 3 1 1 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 2040 >+100 >20 20 20 20 20 20 20 20 20 20 20 20 20 2	0 58 <1 767 1570 952 1111 2959 current 7 6 0 0 current 0.1	4 0 67 <1 862 1563 1008 1242 2834 history1 7 7 7 2 history1 0	0 52 <1 725 1221 861 1033 2588 history2 7 3 1 1 history2 0
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	50 50 0 560 1510 780 870 2040 limit/base >+100 20 limit/base	0 58 <1 767 1570 952 1111 2959 <u>current</u> 7 6 0 0 <u>current</u> 0.1 10.0	4 0 67 <1 862 1563 1008 1242 2834 history1 7 7 7 2 history1 0 12.6	0 52 <1 725 1221 861 1033 2588 history2 7 3 1 1 history2 0 7.3
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	50 50 560 1510 780 870 2040 Iinit/base >+100 	0 58 <1 767 1570 952 1111 2959 <u>current</u> 7 6 0 0 <u>current</u> 0.1 10.0 24.2	4 0 67 <1 862 1563 1008 1242 2834 history1 7 7 7 2 8 history1 0 12.6 28.7	0 52 <1 725 1221 861 1033 2588 history2 7 3 1 5 8 1 history2 0 7.3 1 8.2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	50 50 560 1510 780 870 2040 >100 >+100 >20 100 20 20 20 20 20 20 20 20 20 20 20 20 2	0 58 <1 767 1570 952 1111 2959 current 7 6 0 0 current 0.1 10.0 24.2 current	4 0 67 <1 862 1563 1008 1242 2834 history1 7 7 7 2 history1 0 12.6 28.7 history1	0 52 <1 725 1221 861 1033 2588 history2 7 3 1 1 history2 0 7.3 1 8.2 history2



Base

20

18 Abnormal

16 Base

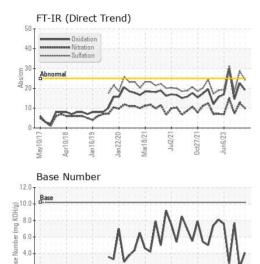
(100°C) 14 12 10 cSt (100°C)

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4.

Mav10/17

OIL ANALYSIS REPORT



an16/1

Viscosity @ 100°C

nr10/1 Mav10/

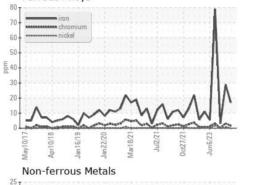
Apr10/18

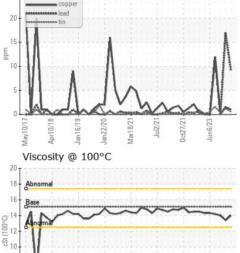
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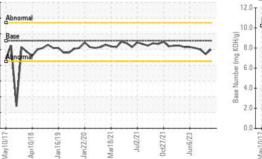
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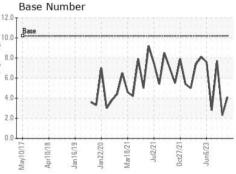
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	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	15.1	14.0	13.4	14.0
GRAPHS						

Ferrous Alloys









Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 005 - Wilson/Tri-East(CNG) Sample No. : GFL0109661 Received : 08 Apr 2024 2810 Contentnea Road S Lab Number : 06141084 Tested : 09 Apr 2024 Wilson, NC Unique Number : 10965892 Diagnosed : 09 Apr 2024 - Wes Davis US 27893-8501 Test Package : FLEET Contact: SPENCER LIGGON Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. spencer.liggon@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (800)207-6618 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Report Id: GFL005 [WUSCAR] 06141084 (Generated: 04/09/2024 12:49:57) Rev: 1

Submitted By: WALTER SKOKOWSKI

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