

OIL ANALYSIS REPORT

(YA117956) 10538C

Component **Natural Gas Engine**

PETRO CANADA DURON GEO LD 15W40 (29 QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

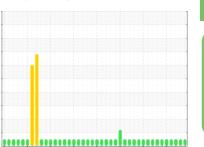
All component wear rates are normal.

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.



Sample Rating Trend

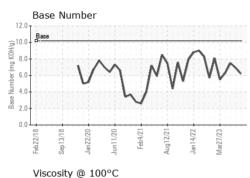


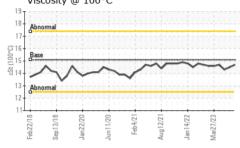
NORMAL

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0112930	GFL0098096	GFL0079596
Sample Date		Client Info		21 Mar 2024	20 Dec 2023	03 Oct 2023
Machine Age	hrs	Client Info		13144	13144	13144
Oil Age	hrs	Client Info		251	441	558
Oil Changed		Client Info		N/A	N/A	N/A
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	8	9	15
Chromium	ppm	ASTM D5185m	>4	<1	<1	1
Nickel	ppm	ASTM D5185m	>2	<1	<1	<1
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	2	1	1
Lead	ppm	ASTM D5185m	>30	1	0	2
Copper	ppm	ASTM D5185m	>35	<1	<1	1
Tin	ppm	ASTM D5185m	>4	<1	<1	1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	<1
ADDITIVES		method				history2
					,	
Boron	ppm	ASTM D5185m	50	19	17	20
Boron Barium	ppm ppm					
Boron		ASTM D5185m	50	19	17	20
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5 50	19 0	17 0	20 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	19 0 55	17 0 51	20 0 51
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510	19 0 55 <1	17 0 51 <1	20 0 51 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780	19 0 55 <1 566 1596 710	17 0 51 <1 598	20 0 51 4 863 1499 782
Boron 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	19 0 55 <1 566 1596	17 0 51 <1 598 1559	20 0 51 4 863 1499
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	50 5 50 0 560 1510 780	19 0 55 <1 566 1596 710	17 0 51 <1 598 1559 824	20 0 51 4 863 1499 782
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	50 5 50 0 560 1510 780 870	19 0 55 <1 566 1596 710 958	17 0 51 <1 598 1559 824 989	20 0 51 4 863 1499 782 1021
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	50 5 50 0 560 1510 780 870 2040	19 0 55 <1 566 1596 710 958 2169	17 0 51 <1 598 1559 824 989 2551	20 0 51 4 863 1499 782 1021 2851
Boron 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 limit/base	19 0 55 <1 566 1596 710 958 2169 current	17 0 51 <1 598 1559 824 989 2551 history1	20 0 51 4 863 1499 782 1021 2851 history2
Boron 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 limit/base >+100	19 0 55 <1 566 1596 710 958 2169 current 6	17 0 51 <1 598 1559 824 989 2551 history1 8	20 0 51 4 863 1499 782 1021 2851 history2 15
Boron 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 5 50 0 560 1510 780 870 2040 limit/base >+100	19 0 55 <1 566 1596 710 958 2169 2169 current 6 5	17 0 51 <1 598 1559 824 989 2551 history1 8 7	20 0 51 4 863 1499 782 1021 2851 history2 15 13
Boron 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 5 50 0 560 1510 780 870 2040 limit/base >+100	19 0 55 <1 566 1596 710 958 2169 current 6 5 13	17 0 51 <1 598 1559 824 989 2551 history1 8 7 5	20 0 51 4 863 1499 782 1021 2851 history2 15 13 13 19
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100 	19 0 55 <1 566 1596 710 958 2169 current 6 5 13 current	17 0 51 <1 598 1559 824 989 2551 history1 8 7 5 5 history1	20 0 51 4 863 1499 782 1021 2851 history2 15 13 13 19 history2
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	50 5 50 0 560 1510 780 870 2040 limit/base >+100 	19 0 55 <1 566 1596 710 958 2169 current 6 5 13 current 0	17 0 51 <1 598 1559 824 989 2551 history1 8 7 5 history1 0	20 0 51 4 863 1499 782 1021 2851 history2 15 13 13 19 history2 0
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	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 imit/base >+100 imit/base	19 0 55 <1 566 1596 710 958 2169 <i>current</i> 6 5 13 <i>current</i> 0 9.4	17 0 51 <1 598 1559 824 989 2551 history1 8 7 5 history1 0 9.4	20 0 51 4 863 1499 782 1021 2851 history2 15 13 13 19 history2 0 8.7
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	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 imit/base >+100 imit/base >20 imit/base	19 0 55 <1 566 1596 710 958 2169 current 6 5 13 current 0 9.4 20.2	17 0 51 <1 598 1559 824 989 2551 history1 8 7 5 history1 0 9.4 19.5	20 0 51 4 863 1499 782 1021 2851 history2 15 13 19 history2 0 8.7 19.6
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	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	50 5 50 0 560 1510 780 870 2040 imit/base >2040 imit/base >20 imit/base >20 imit/base	19 0 55 <1 566 1596 710 958 2169 current 6 5 13 current 0 9.4 20.2 current	17 0 51 <1 598 1559 824 989 2551 history1 8 7 5 5 history1 0 9.4 19.5 history1	20 0 51 4 863 1499 782 1021 2851 history2 15 13 19 history2 0 8.7 19.6 8.7

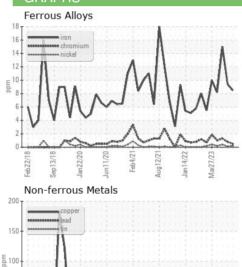


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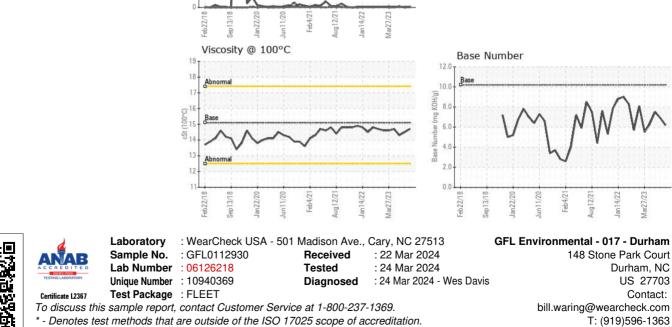




VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	14.7	14.5	14.3
GRAPHS						



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

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