

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 945015-260272

Component Natural Gas Engine

PETRO CANADA DURON GEO LD 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

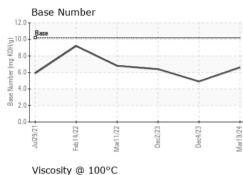
Fluid Condition

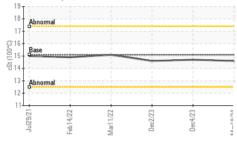
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0106924	GFL0092115	GFL0092071
Sample Date		Client Info		19 Mar 2024	04 Dec 2023	02 Dec 2023
Machine Age	hrs	Client Info		33284	32674	27404
Oil Age	hrs	Client Info		600	600	13219
Oil Changed		Client Info		Changed	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	14	11	8
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	4	3	1
Lead	ppm	ASTM D5185m	>30	1	1	0
Copper	ppm	ASTM D5185m	>35	13	27	17
Tin	ppm	ASTM D5185m	>4	<1	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES						history2
ADDITIVES		method	IIIIII/Dase	current	history1	mstoryz
Boron	ppm	ASTM D5185m	50	20	10	25
	ppm ppm					
Boron		ASTM D5185m	50	20	10	25
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5	20 0	10 0	25 2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	20 0 50	10 0 51	25 2 51
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	20 0 50 <1	10 0 51 0	25 2 51 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	20 0 50 <1 561	10 0 51 0 712	25 2 51 0 538
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	20 0 50 <1 561 1540	10 0 51 0 712 1727 829 1124	25 2 51 0 538 1469
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 ASTM D5185m	50 5 50 0 560 1510 780	20 0 50 <1 561 1540 779	10 0 51 0 712 1727 829	25 2 51 0 538 1469 668
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	20 0 50 <1 561 1540 779 928	10 0 51 0 712 1727 829 1124 2513 history1	25 2 51 0 538 1469 668 884
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 ASTM D5185m	50 50 0 560 1510 780 870 2040 >+100	20 0 50 <1 561 1540 779 928 2621	10 0 51 0 712 1727 829 1124 2513 history1 5	25 2 51 0 538 1469 668 884 2363 history2 4
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	50 50 0 560 1510 780 870 2040 >+100	20 0 50 <1 561 1540 779 928 2621 current	10 0 51 0 712 1727 829 1124 2513 history1	25 2 51 0 538 1469 668 884 2363 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 ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100	20 0 50 <1 561 1540 779 928 2621 2621 current 9	10 0 51 0 712 1727 829 1124 2513 history1 5	25 2 51 0 538 1469 668 884 2363 history2 4
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	20 0 50 <1 561 1540 779 928 2621 current 9 6	10 0 51 0 712 1727 829 1124 2513 history1 5 6	25 2 51 0 538 1469 668 884 2363 history2 4 8
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 50 00 560 1510 780 870 2040 >+100 >20	20 0 50 <1 561 1540 779 928 2621 current 9 6 2	10 0 51 0 712 1727 829 1124 2513 history1 5 6 6 6	25 2 51 0 538 1469 668 884 2363 history2 4 8 2
Boron 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 >+100 >20 imit/base	20 0 50 <1 561 1540 779 928 2621 current 9 6 2 2	10 0 51 0 712 1727 829 1124 2513 history1 5 6 6 6 6 8	25 2 51 0 538 1469 668 884 2363 history2 4 8 2 2 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 TS	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 2040 >+100 >+100 >20 imit/base	20 0 50 <1 561 1540 779 928 2621 current 9 6 2 2 2 2 2 0	10 0 51 0 712 1727 829 1124 2513 history1 5 6 6 6 6 history1 0	25 2 51 0 538 1469 668 884 2363 history2 4 8 2 2 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 50 00 560 1510 780 870 2040 imit/base >+100 >20 imit/base	20 0 50 <1 561 1540 779 928 2621 <i>current</i> 9 6 2 2 <i>current</i> 0 9.1	10 0 51 0 712 1727 829 1124 2513 history1 5 6 6 6 6 history1 0 9.9	25 2 51 0 538 1469 668 884 2363 history2 4 8 2 4 8 2 2 history2 0 8.3
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 ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 0 560 1510 780 870 2040 imit/base >+100 imit/base >20 30 imit/base	20 0 50 <1 561 1540 779 928 2621 current 9 6 2 2 current 0 9.1 19.7	10 0 51 0 712 1727 829 1124 2513 history1 5 6 6 6 6 6 history1 0 9.9 21.1	25 2 51 0 538 1469 668 884 2363 history2 4 8 2 2 history2 0 8.3 20.1
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 D7624 *ASTM D7415	50 50 0 560 1510 780 870 2040 imit/base >+100 imit/base >20 30 imit/base	20 0 50 <1 561 1540 779 928 2621 current 9 6 2 2 current 0 9.1 19.7	10 0 51 0 712 1727 829 1124 2513 history1 5 6 6 6 6 history1 0 9.9 21.1 history1	25 2 51 0 538 1469 668 884 2363 history2 4 8 2 history2 0 8.3 20.1 history2

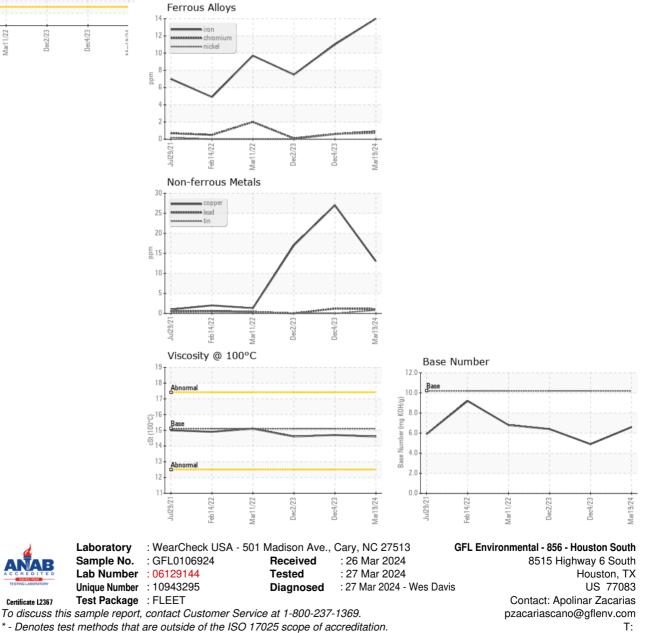


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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*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	14.6	14.7	14.6
GRAPHS						



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

Certificate L2367

Submitted By: Apolinar Zacarias Page 2 of 2

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