

OIL ANALYSIS REPORT

Sample Rating Trend

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(YA169069) 932005 Component Natural Gas Engine

PETRO CANADA DURON GEO LD 15W40 (5 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Fluid

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 INFORI		method	limit/base	current	history1	history2
			mmubase			
Sample Number		Client Info		GFL0112946	GFL0098140	GFL0098124
Sample Date	la un	Client Info		13 Mar 2024	17 Jan 2024	04 Dec 2023
Machine Age	hrs	Client Info		490	490	490
Oil Age	hrs	Client Info		499 N/A	271 Observed	514 N/A
Oil Changed		Client Info		N/A NORMAL	Changed NORMAL	N/A NORMAL
Sample Status				NORMAL	NORMAL	NORIVIAL
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	12	9	9
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	7	4	7
Lead	ppm	ASTM D5185m	>30	1	<1	1
Copper	ppm	ASTM D5185m	>35	<1	<1	<1
Tin	ppm	ASTM D5185m	>4	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 50	current 13	history1 13	history2 6
	ppm ppm					
Boron		ASTM D5185m	50	13	13	6
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5 50	13 0	13 0	6 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	13 0 53	13 0 51	6 0 54
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	13 0 53 <1	13 0 51 0	6 0 54 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	13 0 53 <1 551	13 0 51 0 596	6 0 54 <1 586
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	13 0 53 <1 551 1549	13 0 51 0 596 1644	6 0 54 <1 586 1571
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	13 0 53 <1 551 1549 710	13 0 51 0 596 1644 816	6 0 54 <1 586 1571 756
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	13 0 53 <1 551 1549 710 928	13 0 51 0 596 1644 816 987	6 0 54 <1 586 1571 756 1029
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	13 0 53 <1 551 1549 710 928 2667	13 0 51 0 596 1644 816 987 2712	6 0 54 <1 586 1571 756 1029 2530
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	50 5 50 0 560 1510 780 870 2040 >+100	13 0 53 <1 551 1549 710 928 2667 current	13 0 51 0 596 1644 816 987 2712 history1	6 0 54 <1 586 1571 756 1029 2530 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	13 0 53 <1 551 1549 710 928 2667 2667 <u>current</u> 5	13 0 51 0 596 1644 816 987 2712 history1 4	6 0 54 <1 586 1571 756 1029 2530 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 ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100	13 0 53 <1 551 1549 710 928 2667 <u>current</u> 5 8	13 0 51 0 596 1644 816 987 2712 history1 4 6	6 0 54 <1 586 1571 756 1029 2530 history2 4 6
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 0 560 1510 780 870 2040 limit/base >+100	13 0 53 <1 551 1549 710 928 2667 <u>current</u> 5 8 2	13 0 51 0 596 1644 816 987 2712 history1 4 6 2	6 0 54 <1 586 1571 756 1029 2530 history2 4 6 2
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 0 560 1510 780 870 2040 2040 >+100 >20 }	13 0 53 <1 551 1549 710 928 2667 current 5 8 2 2 2 2 current	13 0 51 0 596 1644 816 987 2712 history1 4 6 2 2 history1	6 0 54 <1 586 1571 756 1029 2530 history2 4 6 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 ppm ppm	ASTM D5185m ASTM D5185m	50 50 00 560 1510 780 870 2040 Iimit/base >+100 20 Iimit/base	13 0 53 <1 551 1549 710 928 2667 <u>current</u> 5 8 2 2 2 2 0	13 0 51 0 596 1644 816 987 2712 history1 4 6 2 2 history1 0	6 0 54 <1 586 1571 756 1029 2530 history2 4 6 2 2 history2 0
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 ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 00 560 1510 780 870 2040 Iimit/base >+100 20 Iimit/base	13 0 53 <1 551 1549 710 928 2667 current 5 8 2 current 0 11.0	13 0 51 0 596 1644 816 987 2712 history1 4 6 2 2 history1 0 9.5	6 0 54 <1 586 1571 756 1029 2530 history2 4 6 2 2 history2 0 11.0
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	13 0 53 <1 551 1549 710 928 2667 current 5 8 2 current 0 11.0 21.7 current	13 0 51 0 596 1644 816 987 2712 history1 4 6 2 2 history1 0 9.5 19.5	6 0 54 <1 586 1571 756 1029 2530 history2 4 6 2 history2 0 11.0 21.3
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 50 560 1510 780 870 2040 imit/base >+100 >20 imit/base >20 30 imit/base	13 0 53 <1 551 1549 710 928 2667 <u>current</u> 5 8 2 <u>current</u> 0 11.0 21.7	13 0 51 0 596 1644 816 987 2712 history1 4 6 2 2 history1 0 9.5 19.5 19.5	6 0 54 <1 586 1571 756 1029 2530 history2 4 6 2 2 history2 0 11.0 21.3 history2



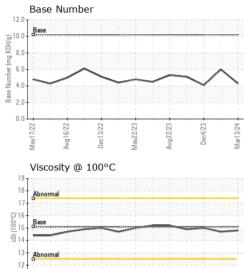
11 May17/22

Aug16/22

Dec13/22

OIL ANALYSIS REPORT

VISUAL



Laboratory Sample No. Lab Number Unique Number Test Package To discuss this sample report,		: 10926499	Rece Test	eived : 1 ed : 1	ry, NC 27513 3 Mar 2024 4 Mar 2024 4 Mar 2024 -		L Environmental - 017 - Durhan 148 Stone Park Cour Durham, NC US 27703 Contact: bill.waring@wearcheck.con	
		May17/22	Dec13/22	Aug22/23	Mar13/24		_	Aug.c2/23
		⁴³ 14 13 12			Base Numb	4.0	\sim	~~~
		17 3 16 00 15 8 ase 15 15 14			Base Number (mg KOH/g)	8.0		~
		18 - Abnormal			1	0.0 Base		
	Viscosity @ 1				Base Number			
		May 17/22 Aug 16/22 Aug 16/22	Deci 3/22	Aug22/23	Mar13/24			
		Non-ferrous	Metals					
		May17/22	Dec13/22 May/22/23	Aug22/23	Mar13/24			
May22/23 Aug22/23	Dec4/23 ^ ^ ^ * * * * * *	50						
		Ferrous Alloy						
		Visc @ 100°C GRAPHS	cSt	ASTM D44	5 15.1	14.8	14.7	15.0
		FLUID PR			limit/base		history1	history2
	Free Water	scalar	*Visual		NEG	NEG	NEG	
		Emulsified Wat			>0.1	NEG	NEG	NEG
May22/23 Aug22/23	Dec4/23 Mar13/24	Odor	scalar		NORML	NORML	NORML	NORML
	Sand/Dirt Appearance	scalar scalar		NONE NORML	NONE NORML	NONE NORML	NONE NORML	
	Debris	scalar		NONE	NONE	NONE	NONE	
	Silt	scalar		NONE	NONE	NONE	NONE	
	Precipitate	scalar		NONE	NONE	NONE	NONE	
	T CHOW WICtar	ooului	1.00.00					
		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

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

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