

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 946029-260309

Component Natural Gas Engine

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

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

🔺 Wear

The copper level is abnormal. All other component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

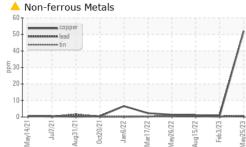
Fluid Condition

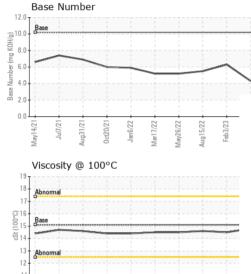
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number Client Info GFL0058500 GFL0058486 GFL0059486 Changed Chang				limit/base			history
Sample Date Client Info 25 May 2023 0.3 Feb 2023 15 Aug 2022 Machine Age hrs Client Info 5487 7269 38553 Oil Age hrs Client Info 600 1200 1200 1200 Oil Changed Client Info Changed Cha				imitoase			
Machine Age hrs Client Info 5487 7269 38553 Oil Age hrs Client Info 600 1200 1200 Oil Age hrs Client Info Changed Changed Changed Sample Status Imit/base current history1 history2 Water WC Method >0.1 NEG NEG Water WC Method >0.1 NEG NEG Chromium ppm ASTM D5185m >50 8 10 8 Chromium ppm ASTM D5185m >2 <1	•						
Oil Age hrs Client Info 600 1200 1200 Oil Changed Client Info Changed NORMAL NORMAL <t< td=""><td>•</td><td></td><td></td><td></td><td></td><td></td><td>0</td></t<>	•						0
Oil Changed Sample Status Client Info Changed ABNORMAL Changed NORMAL Changed NORMAL Changed NORMAL CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 8 10 8 Chromium ppm ASTM D5185m >2 <1	U						
Sample Status Image: Status ABNORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 8 10 8 Chromium ppm ASTM D5185m >2 <1 0 0 <1 Nickel ppm ASTM D5185m >3 0 0 <1 1 Lead ppm ASTM D5185m >3 0 0 <1 1 Lead ppm ASTM D5185m >30 <1 <1 <1 <1 Cadmium ppm ASTM D5185m >30 <1 <1 <1 <1 Lead ppm ASTM D5185m >30 <1 <1 <1 <1< <1 <1 <	-	hrs					
CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG Wear METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 8 10 8 Chromium ppm ASTM D5185m >4 <1	•		Client Info		-		
Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 8 10 8 Chromium ppm ASTM D5185m >2 -1 0 -1 Nickel ppm ASTM D5185m >2 -1 0 -1 Nickel ppm ASTM D5185m >3 0 0 -1 Silver ppm ASTM D5185m >3 0 0 -1 Aluminum ppm ASTM D5185m >3 0 0 -1 Copper ppm ASTM D5185m >30 <1	Sample Status				ABNORMAL	NORMAL	NORMAL
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 8 10 8 Chromium ppm ASTM D5185m >4 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
Iron ppm ASTM D5185m >50 8 10 8 Chromium ppm ASTM D5185m >2 <1	Water		WC Method	>0.1	NEG	NEG	NEG
Chromium ppm ASTM D5185m >4 <1 <1 <1 Nickel ppm ASTM D5185m >2 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >2 <1 0 <1 Titanium ppm ASTM D5185m 0 0 <1	Iron	ppm	ASTM D5185m	>50	8	10	8
Titanium ppm ASTM D5185m 0 0 <1 Silver ppm ASTM D5185m >3 0 0 <1	Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Silver ppm ASTM D5185m >3 0 0 <1 Aluminum ppm ASTM D5185m >9 3 3 1 Lead ppm ASTM D5185m >30 <1 <1 <1 Copper ppm ASTM D5185m >35 ▲ 52 <1 1 Tin ppm ASTM D5185m >4 <1 0 <1 Vanadium ppm ASTM D5185m >4 <1 0 <1 Vanadium ppm ASTM D5185m >4 <1 0 <1 1 Vanadium ppm ASTM D5185m 50 6 8 2 Boron ppm ASTM D5185m 50 5 2 0 0 Magnese ppm ASTM D5185m 50 5 2 0 0 Magnesium ppm ASTM D5185m 560 500 485 568 Calcium ppm AST	Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Aluminum ppm ASTM D5185m >9 3 3 1 Lead ppm ASTM D5185m >30 <1	Titanium	ppm	ASTM D5185m		0	0	<1
Lead ppm ASTM D5185m >30 <1	Silver	ppm	ASTM D5185m	>3	0	0	<1
Copper ppm ASTM D5185m >35 52 <1 1 Tin ppm ASTM D5185m >4 <1	Aluminum	ppm	ASTM D5185m	>9	3	3	1
Tin ppm ASTM D5185m >4 <1 0 <1 Vanadium ppm ASTM D5185m 0 0 0 <1	Lead	ppm	ASTM D5185m	>30	<1	<1	<1
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 6 8 2 Barium ppm ASTM D5185m 5 2 0 0 Molybdenum ppm ASTM D5185m 5 2 0 0 Magnesium ppm ASTM D5185m 50 57 49 53 Magnesium ppm ASTM D5185m 560 500 485 568 Calcium ppm ASTM D5185m 1510 1570 1296 1473 Phosphorus ppm ASTM D5185m 780 670 707 735 Zinc ppm ASTM D5185m 2040 2492 2268 2739 CONTAMINANTS method limit/base current history1 hi	Copper	ppm	ASTM D5185m	>35	<u> </u>	<1	1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 6 8 2 Barium ppm ASTM D5185m 50 6 8 2 Barium ppm ASTM D5185m 50 57 49 53 Manganese ppm ASTM D5185m 0 <1	Tin	ppm	ASTM D5185m	>4	<1	0	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 6 8 2 Barium ppm ASTM D5185m 50 5 2 0 0 Molybdenum ppm ASTM D5185m 50 57 49 53 Manganese ppm ASTM D5185m 0 <1	Vanadium	ppm	ASTM D5185m		0	0	<1
Boron ppm ASTM D5185m 50 6 8 2 Barium ppm ASTM D5185m 5 2 0 0 Molybdenum ppm ASTM D5185m 50 57 49 53 Manganese ppm ASTM D5185m 0 <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 5 2 0 0 Molybdenum ppm ASTM D5185m 50 57 49 53 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 50 57 49 53 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	50	6	8	2
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 560 500 485 568 Calcium ppm ASTM D5185m 1510 1570 1296 1473 Phosphorus ppm ASTM D5185m 780 670 707 735 Zinc ppm ASTM D5185m 870 980 896 978 Sulfur ppm ASTM D5185m 2040 2492 2268 2739 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 4 5 Sodium ppm ASTM D5185m >20 3 5 <1	Barium	ppm	ASTM D5185m	5	2	0	0
Magnesium ppm ASTM D5185m 560 500 485 568 Calcium ppm ASTM D5185m 1510 1570 1296 1473 Phosphorus ppm ASTM D5185m 780 670 707 735 Zinc ppm ASTM D5185m 870 980 896 978 Sulfur ppm ASTM D5185m 2040 2492 2268 2739 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 4 5 Sodium ppm ASTM D5185m >+100 3 4 5 Sodium ppm ASTM D5185m >20 3 5 <1	Molybdenum	ppm	ASTM D5185m	50	57	49	53
Calcium ppm ASTM D5185m 1510 1570 1296 1473 Phosphorus ppm ASTM D5185m 780 670 707 735 Zinc ppm ASTM D5185m 780 670 707 735 Zinc ppm ASTM D5185m 870 980 896 978 Sulfur ppm ASTM D5185m 2040 2492 2268 2739 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 4 5 Sodium ppm ASTM D5185m >+20 3 5 <1	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 780 670 707 735 Zinc ppm ASTM D5185m 870 980 896 978 Sulfur ppm ASTM D5185m 2040 2492 2268 2739 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 4 5 Sodium ppm ASTM D5185m >+20 3 5 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 11.0 10.1 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 21.0	Magnesium	ppm	ASTM D5185m	560	500	485	568
Zinc ppm ASTM D5185m 870 980 896 978 Sulfur ppm ASTM D5185m 2040 2492 2268 2739 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 4 5 Sodium ppm ASTM D5185m >+100 3 4 5 Sodium ppm ASTM D5185m >20 3 5 <1	Calcium	ppm	ASTM D5185m	1510	1570	1296	1473
Sulfur ppm ASTM D5185m 2040 2492 2268 2739 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 4 5 Sodium ppm ASTM D5185m >+100 3 4 5 Potassium ppm ASTM D5185m >20 3 5 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 11.0 10.1 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 21.0	Phosphorus	ppm	ASTM D5185m	780	670	707	735
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 3 4 5 Sodium ppm ASTM D5185m >+100 3 4 5 Potassium ppm ASTM D5185m >20 3 5 <1	Zinc	ppm	ASTM D5185m	870	980	896	978
Silicon ppm ASTM D5185m >+100 3 4 5 Sodium ppm ASTM D5185m 5 27 8 Potassium ppm ASTM D5185m >20 3 5 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 11.0 10.1 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 21.0	Sulfur	ppm	ASTM D5185m	2040	2492	2268	2739
Sodium ppm ASTM D5185m 5 27 8 Potassium ppm ASTM D5185m >20 3 5 <1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 3 5 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 11.0 10.1 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 21.0	Silicon	ppm	ASTM D5185m	>+100	3	4	5
Potassium ppm ASTM D5185m >20 3 5 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 11.0 10.1 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 21.0	Sodium	ppm	ASTM D5185m		5	27	8
Soot % % *ASTM D7844 0 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 11.0 10.1 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 21.0	Potassium	ppm	ASTM D5185m	>20	3	5	<1
Nitration Abs/cm *ASTM D7624 >20 11.0 10.1 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 21.0	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 21.0	Soot %	%	*ASTM D7844		0	0.1	0.1
Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 21.0	Nitration	Abs/cm	*ASTM D7624	>20	11.0	10.1	11.1
FLUID DEGRADATION method limit/base current history1 history2							
	FLUID DEGRAD	DATION	method	limit/base	current	history1	history2
Oxidation Abs/.1mm *ASTM D7414 >25 20.5 16.3 17.8	Oxidation	Abs/.1mm	*ASTM D7414	>25	20.5	16.3	17.8
Base Number (BN) mg KOH/g ASTM D2896 10.2 4.3 6.3 5.5							



OIL ANALYSIS REPORT





Mar17/22

Jan 6/22

/av26/22

				VISUAL		method	limit/base	current	history1	history2
		1		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
		1		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
		1		Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
	1			Silt	scalar	*Visual	NONE	NONE	NONE	NONE
	1			Debris	scalar	*Visual	NONE	NONE	NONE	NONE
			_	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
77/0 Bm	Feb3/23 -	5/23		Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
- Rac	Feb	Mav25/23		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	14.8	14.5	14.6
				GRAPHS						
				Ferrous Alloys						
1	23	-		iron	$ \land $					
375 B B	Feb3/23			nickel						
L,						\searrow				
			bpm							
			hale	6						
				4						
				2						
	-			0		State of the local division of the local div	No. of Concession, Name			
				2 2 2						
				/14/ 31/	17/2	26/22 15/22 b3/23	25/23 -			
				May14/21 Juf7/21 Aug31/21 Oct20/21	Jan6/22 Mar17/22	May26/22 - Aug15/22 - Feb3/23 -	May25/23 -			
4			4	🔺 Non-ferrous Meta		May26/22 Aug15/22 Feb3/23	May25/23 -			
7.7./c B	eb3/23		i			May26/22 Aug15/22 Feb3/23	May25/23			
37/c - Roc	Feb3/23		(Non-ferrous Meta		May26/22 Aug15/22 Feb3/23	May25/23			
377/01 Rec	Feb3/23	-	1	Non-ferrous Meta		May26/22 Aug15/22 Feb3/23	May25/23			
77/C Row	Feb3/23		6	Non-ferrous Metal		May26/22 Aug15/22 Feb3/23	Ma/25/23			
	Feb 3/23	-	1	Non-ferrous Metal		May26/22 Aug15/22	Ma/25/23			
777/C Base	Feb3/23	_	udd	Non-ferrous Metal		May26/22 Aug15/22	Ma/25/23			
77/r - Bmu	Feb3/23	-	udd	Non-ferrous Metal		May26/22 Aug15/22	May(25/23			
77 /n i Brow	Feb3/23	-	udd	Non-ferrous Metal		May26/22 Aug15/22 Feb3/23	May(25/23			
11/2 BBC	Feb3/23	-	udd	Non-ferrous Metal	ls		2			
777 /n Bmu	Feb3/23	-	udd	Non-ferrous Metal	ls		2			
77/C APA	Feb3/23	-	udd	Non-ferrous Metal	Jan6.22		2	Raco Number		
77./o 800	Feb.3/23 +	-	udd :	Non-ferrous Metal	Jan6.22		2	Base Number		
77/0 Bmu	Feb3/23 +	-	udd :	Non-ferrous Metal	Jan6.22		2 E2/52/eW 12.0			
77/n Box	Feb3/23 +		u dd	Non-ferrous Metal	Jan6.22		2 CZ/SZ/EW 12.0	Base		
7.77/n I Bruz	Feb3/23		u dd	Non-ferrous Metal	Jan6.22		2 CZ/SZ/EW 12.0	Base		
77/c Ano	Feb3/23	-	u dd	Non-ferrous Metal	Jan6.22		2 CZ/SZ/EW 12.0	Base		
77//= 200L	Feb 3/23	-	uid dd	Non-ferrous Metal	Jan6.22		2 CZ/SZ/EW 12.0	Base		
777/n Bav	Feb3(23	-	cSt (100°C)	Non-ferrous Metal	Jan6.22		2 E2/52/eW 12.0 (0)H0X 8.0 10.0 (0)H0X 8.0 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Base		
77/0 Rmu	Feb3(23 +	-	cSt (100°C)	Non-ferrous Metal	Jan6.22		2 CZ/SZ/EW 12.0	Base		
177/n Brow	Feb3/23		cSt (100°C)	Non-ferrous Metal	ls	May26/22 8 Aug15/22 Feb323	2 EC2527/eW 12.0 (D)HOJ CM 12.0 (D)HOJ CM 12.0 10.0	Base		
777/6 i Rou	Feb3/23		cSt (100°C)	Non-ferrous Metal	Jan6.22		2 EC2552/EW 12.0 ())HO() 8.0 10.0 ())HO() 8.0 10.0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0	Base	Oct2021	Aug15/22 +



Mav14/21

ug31/21

Unique Number : 10492254 Diagnostician : Don Baldridge Test Package : FLEET Contact: JEFF COOPERSMITH Certificate L2367 JCOOPERSMITH@GFLENV.COM To discuss this sample report, contact Customer Service at 1-800-237-1369. * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Recieved

Diagnosed

: 26 May 2023

: 30 May 2023

Sample No.

Lab Number

: GFL0058500

: 05857789

1378 South Volusia Ave

Orange City, FL

T: (386)503-8468

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F:

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