

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 948002-172503

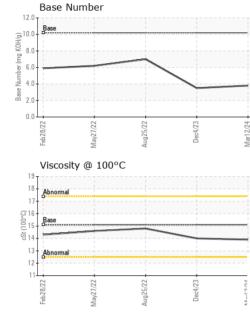
Component Natural Gas Engine

PETRO CANADA DURON GEO LD 15W40 (8 GAL)

Recommendation Sample Number Client Info GFL010803 GFL0040940 Resample Date Client Info 12 Mar2024 04 Dec 2023 25 Aug 2023 All component wear rates are normal. Contamination 14721 14166 12845 Dil Changed Inse client Info 600 600 650 Dil Changed Client Info 600 600 660 Sample Status Interes in client Info 600 600 660 Sample Status Interes in client Info 600 600 660 660 Sample Status Interes in client Info Client Info 600 600 66 66 66 61 61 61 61 61 61 61 61 61 61 61 61 61 61 61 61			,	Feb2022	May2022	Aug2022 Dec2023	Mar2024	
Resample at the next service interval to monitor. Simple Date Client Info 12 M2 2024 04 Doc 2023 25 Aug 2022 Machine Age hrs Client Info 14721 14166 12845 Machine Age hrs Client Info 14721 14166 12845 Thore is no indication of any contamination in the oil. Thore is no indication of any contamination of the off. Client Info Changed Changed Changed Changed Changed Changed Changed NEG	DIAGNOSIS	SAMPLE INFORI	MATION	method	limit/base	e current	history1	history2
Wear All component wear rates are normal. Contamination Client Info 14721 14166 12845 Contamination There is no indication of any contamination in the il. Oil Changed Client Info Changed	Recommendation	Sample Number		Client Info		GFL0110803	GFL0088456	GFL0040940
Oil Age hrs Client Info 600 600 650 There is no indication of any contamination in the oil. Sample Status Client Info Changed	Resample at the next service interval to monitor.	Sample Date		Client Info		12 Mar 2024	04 Dec 2023	25 Aug 2022
Contamination Changed <thchanged< th=""> Changed Changed<!--</td--><td>Wear</td><td>Machine Age</td><td>hrs</td><td>Client Info</td><td></td><th>14721</th><td>14166</td><td>12845</td></thchanged<>	Wear	Machine Age	hrs	Client Info		14721	14166	12845
Sample Status NORMAL ABNORMAL NORMAL Ol. CONTAMINATION method imitbase current Halony1 fision/2 Water WCMehod >0.1 NEG NEG NEG Mailallinity menuing in the oil. The condition of the olitic current Halony1 Halony2 Halony2 Halony2 Iron ppm ASIIL051666 S5 1 2 1 Nickel ppm ASIIL051666 S5 1 2 1 Nickel ppm ASIIL051666 S5 1 2 1 2 Silver ppm ASIIL051666 S5 1 2 1 2 Auminum ppm ASIIL051666 S2 6 10 7 Lead ppm ASIIL051666 S4 1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 <td>All component wear rates are normal.</td> <td>Oil Age</td> <td>hrs</td> <td>Client Info</td> <td></td> <th>600</th> <td>600</td> <td>650</td>	All component wear rates are normal.	Oil Age	hrs	Client Info		600	600	650
Sample Status NORMAL ABNORMAL NORMAL Fuild Condition The Bh result indicates that there is suitable dialluity remaining in the di. The condition dithe dialluity remaining the di. The condition dial dialluity remaining the distribution distem distrematedial dialluity remaining the di. The condition dis	Contamination	Oil Changed		Client Info		Changed	Changed	Changed
Oil. CONTAMINATION mathod imit/base current history1 history2 Fuld Condition The Diversite indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for lurther service. Water WC Method >0.1 NEG NEG NEG Iron ppm ASTIL0586m >50 20 3.4 15 Chromium ppm ASTIL0586m >50 20 3.4 1 <		Sample Status				NORMAL	ABNORMAL	NORMAL
Water WC Method NEG NEG NEG NEG NEG NEG Water WC Method 0.11 NEG Current History1 History2 Water WC Method 0.11 WEG Current History1 History2 Vice Ppm ASTM Disition 5.0 2.0 3.4 1.5 Chromium ppm ASTM Disition 5.5 1 2 1 Nickal ppm ASTM Disition 5.5 1 2 1 1 Nickal ppm ASTM Disition 3.3 0 0 1 2 1	oil.	CONTAMINAT	ION	method	limit/base	e current	history1	history2
Bill All Milling remaining in the oil. The condition of the oil is suitable for further service. WEAR METALS mathed Initibase current History1 History2 Iron ppm ASTM 0518im >50 20 34 15 Chromium ppm ASTM 0518im >50 1 2 1 Nickel ppm ASTM 0518im >4 <1		Water		WC Method	>0.1	NEG	NEG	NEG
Chromium ppm ASTM D5165m >5 1 2 1 Nickel ppm ASTM D5165m >4 <1 <1 <1 Titanium ppm ASTM D5165m >3 0 0 <1 Silver ppm ASTM D5165m >3 0 0 <1 Lead ppm ASTM D5165m >40 2 <1 2 Copper ppm ASTM D5165m >40 2 <1 2 Cadmium ppm ASTM D5165m >4 1 <1 <1 <1 Vanadium ppm ASTM D5165m >4 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	alkalinity remaining in the oil. The condition of the	WEAR METAL	S	method	limit/base	e current	history1	history2
Nickel ppm ASTM D5185m s-4		Iron	ppm	ASTM D5185m	>50	20	34	15
Titanium ppm ASTM D5185n >5 <1 4 <1 Silver ppm ASTM D5185n >32 0 0 <1		Chromium	ppm	ASTM D5185m	>5	1	2	1
Silver ppm ASTM 05185m >3 0 0 <1 Aluminum ppm ASTM 05185m >2-5 6 1.00 7 Lead ppm ASTM 05185m >150 2.0 6.1 <1		Nickel	ppm	ASTM D5185m	>4	<1	<1	<1
Atuminum ppm ASTM D5185m >25 6 10 7 Lead ppm ASTM D5185m >40 2 <1		Titanium	ppm	ASTM D5185m	>5	<1	4	<1
Lead ppm ASTM D5185m >400 2 <1		Silver	ppm	ASTM D5185m	>3	0	0	<1
Copper ppm ASTM D5165m >150 2 6 <1 Tin ppm ASTM D5165m >4 1 <1		Aluminum	ppm	ASTM D5185m	>25	6	10	7
Tin ppm ASTM D588m >4 1 <1		Lead	ppm	ASTM D5185m	>40	2	<1	2
Tin ppm ASTM D5185m >-4 1 <1		Copper		ASTM D5185m	>150	2	6	<1
Vanadium ppm ASTM D5185m								
Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 6 3 23 Barium ppm ASTM D5185m 50 62 0 0 Molybdenum ppm ASTM D5185m 50 62 60 90 Magnesium ppm ASTM D5185m 50 532 935 610 Calcium ppm ASTM D5185m 500 532 935 610 Calcium ppm ASTM D5185m 780 729 1061 743 Zinc ppm ASTM D5185m 780 729 1061 743 Sulfur ppm ASTM D5185m 700 983 1315 947 Sulfur ppm ASTM D5185m 700 983 1315 947 Sulfur ppm ASTM D5185m 870 983 1315 947 Sulfur ppm ASTM D5185m 50 5<								
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 6 3 23 Barium ppm ASTM D5185m 50 6 3 23 Barium ppm ASTM D5185m 50 62 60 90 Manganese ppm ASTM D5185m 50 62 60 90 Magnesium ppm ASTM D5185m 560 532 935 610 Calcium ppm ASTM D5185m 760 52 901 743 Zinc ppm ASTM D5185m 70 983 1315 947 Sulfur ppm ASTM D5185m 70 983 1315 947 Sulfur ppm ASTM D5185m 2040 2530 3427 2697 Sulfur ppm ASTM D5185m >20 5 5 9 36 Sodium ppm ASTM D5185m >20								
Barium ppm ASTM D5165m 5 2 0 0 Molybdenum ppm ASTM D5185m 50 62 60 90 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1510 1718 1201 1661 Calcium ppm ASTM D5185m 1510 1718 1201 1661 Phosphorus ppm ASTM D5185m 780 729 1061 743 Zinc ppm ASTM D5185m 2040 2530 3427 2697 CONTAMINANT method imit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 9 Sodium ppm ASTM D5185m >20 5 10 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7644 0		ADDITIVES		method	limit/base	e current	history1	history2
Barium ppm ASTM D5185m 5 2 0 0 Molybdenum ppm ASTM D5185m 50 62 60 90 Manganese ppm ASTM D5185m 0 <1		Boron	maa	ASTM D5185m	50	6	3	23
Molybdenum ppm ASTM D5185m 50 62 60 90 Manganese ppm ASTM D5185m 0 <1				ASTM D5185m	5			
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 560 532 935 610 Calcium ppm ASTM D5185m 1510 1718 1201 1661 Phosphorus ppm ASTM D5185m 780 729 1061 743 Zinc ppm ASTM D5185m 870 983 1315 947 Sulfur ppm ASTM D5185m 2040 2530 3427 2697 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 9 Sodium ppm ASTM D5185m >20 5 10 8 INFRA-RED method limit/base current history1 history2 Soot % % 'ASTM D7844 0 0 0 0 Nitration Abs/tm< 'ASTM D7844		Molvbdenum						
Magnesium ppm ASTM D5185m 560 532 935 610 Calcium ppm ASTM D5185m 1510 1718 1201 1661 Phosphorus ppm ASTM D5185m 780 729 1061 743 Zinc ppm ASTM D5185m 870 983 1315 947 Sulfur ppm ASTM D5185m 870 983 3427 2697 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 9 Sodium ppm ASTM D5185m >20 5 5 9 Sodium ppm ASTM D5185m >20 5 5 9 Sodium ppm ASTM D5185m >20 5 10 8 Potassium ppm ASTM D5185m >20 5 10 8 INFRA-RED method limit/base current history1 history2 Soot % % 'ASTM D7624		-						
Calcium ppm ASTM D5185m 1510 1718 1201 1661 Phosphorus ppm ASTM D5185m 780 729 1061 743 Zinc ppm ASTM D5185m 870 983 1315 947 Sulfur ppm ASTM D5185m 2040 2530 3427 2697 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 9 Sodium ppm ASTM D5185m >20 5 10 8 Potassium ppm ASTM D5185m >20 5 10 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 0 0 Nitration Abs/cm *ASTM D7844 0 0 0 0 0 Sulfation Abs/cm *ASTM D7844 20 11.1 10.6 10.0 Sulfation Abs/.1mm		e e						
Phosphorus ppm ASTM D5185m 780 729 1061 743 Zinc ppm ASTM D5185m 870 983 1315 947 Sulfur ppm ASTM D5185m 2040 2530 3427 2697 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 9 Sodium ppm ASTM D5185m >20 5 10 8 INFRA-RED method limit/base current history1 history2 Soot % % 'ASTM D7624 >20 11.1 10.6 10.0 Sulfation Abs/.mm<''ASTM D7624 >20 11.1 10.6 10.0 FLUID DEGRADATION method limit/base <t< td=""><td></td><td>-</td><td></td><td></td><td></td><th></th><td></td><td></td></t<>		-						
Zinc ppm ASTM D5185m 870 983 1315 947 Sulfur ppm ASTM D5185m 2040 2530 3427 2697 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 9 Sodium ppm ASTM D5185m >25 5 5 9 Sodium ppm ASTM D5185m >20 5 10 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7415 >30 22.6 22.6 21.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.2 18.4 16.4								
SulfurppmASTM D5185m2040253034272697CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25559SodiumppmASTM D5185m>205108PotassiumppmASTM D5185m>205108INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844000NitrationAbs/cm*ASTM D7624>2011.110.610.0SulfationAbs/tm*ASTM D7415>3022.622.621.2FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/tm*ASTM D7414>2518.218.216.4								
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25559SodiumppmASTM D5185m>205183PotassiumppmASTM D5185m>205108INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844000NitrationAbs/cm*ASTM D7624>2011.110.610.0SulfationAbs/tm*ASTM D7415>3022.622.621.2FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/tm*ASTM D7414>2518.218.216.4								
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PotassiumppmASTM D5185m>205108INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844000NitrationAbs/cm*ASTM D7624>2011.110.610.0SulfationAbs/.1mm*ASTM D7415>3022.622.621.2FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2518.218.216.4					200			
INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844000NitrationAbs/cm*ASTM D7624>2011.110.610.0SulfationAbs/.1mm*ASTM D7415>3022.622.621.2FLUID DEGRADATION methodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2518.218.216.4					>20			
Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 >20 11.1 10.6 10.0 Sulfation Abs/.1mm *ASTM D7415 >30 22.6 22.6 21.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.2 18.2 16.4			ppm					
Nitration Abs/cm *ASTM D7624 >20 11.1 10.6 10.0 Sulfation Abs/.1mm *ASTM D7415 >30 22.6 22.6 21.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.2 18.2 16.4			<u> </u>		limit/base		· · · · ·	
SulfationAbs/.1mm*ASTM D7415>3022.622.621.2FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2518.218.216.4					00			
FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2518.218.216.4								
Oxidation Abs/.1mm *ASTM D7414 >25 18.2 18.2 16.4		Sulfation	Abs/.1mm	*ASTM D7415	>30	22.6	22.6	21.2
		FLUID DEGRA		method	limit/base	e current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 10.2 3.8 🔶 3.5 7		Oxidation	Abs/.1mm	*ASTM D7414	>25	18.2	18.2	16.4
		Base Number (BN)	mg KOH/g	ASTM D2896	10.2	3.8	▲ 3.5	7



OIL ANALYSIS REPORT



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 Emulsified Water	scalar scalar	*Visual *Visual	NORML >0.1	NORML NEG	NORML NEG	NORML NEG
Free Water	scalar	*Visual	>0.1	NEG	NEG	NEG
FLUID PROPE			limit/base	current	history1	history
Visc @ 100°C	cSt	ASTM D445	15.1	13.9	14.0	14.8
GRAPHS						
Ferrous Alloys						
35 30 iron		\wedge				
25		$/ \land$				
	/					
15		, , , , , , , , , , , , , , , , , , , ,				
10-						
5						

	Aug25/22 -	Dec4/23 -	Mar12/24 -			
Feb 28/22 May 27/22	Aug2	Dec	Marl			
Non-ferrous Meta	ıls					
10 copper						
8 - tin						
6						
4		$/ \setminus$				
	~					
2	-/-		\geq			
2			74			
2	4ug25/22	Dec4/23	Mar12/24			
4 2 0 27 27 27 27 27 27 27 27 27 27	Aug ^{25/22}	Dec4/23	Mar12/24	Base Number		
4 2 0 10 10 10 10 10 10 10 10 10		Dec4/23	47/21/meW			
4 2 0 27 27 27 27 27 27 27 27 27 27		Dec4/23	12.0	Base		
4 2 0 27 17 10 10 10 10 10 10 10 10 10 10		Deci/23	12.0	Base		
4 2 0 27 17 10 10 10 10 10 10 10 10 10 10		Dect/23	12.0	Base		
4 2 0 27 17 10 10 10 10 10 10 10 10 10 10		Decir23	12.0	Base		
4 2 0 10 10 10 10 10 10 10 10 10		Decrit23	12.0	Base		
Viscosity @ 100%		Dec4/23	12.0 (0) (0) (0) (0) (0) (0) (0) (0) (0) (0	Base		
4 2 0 2 2 2 2 2 2 2 2 2 2 2 2 2	c	Deci23	12.0 (0)(10.0)(10.	Base		
4 2 0 27 17 10 10 10 10 10 10 10 10 10 10		Dack/23	12.0 (0) (0) (0) (0) (0) (0) (0) (0) (0) (0	Base	Aug25/22	Dect/23



Submitted By: CHRISTOPHER FARRER