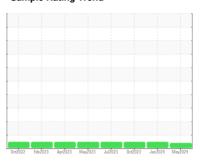


OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 931016

Natural Gas Engine

PETRO CANADA DURON GEO LD 15W40 (

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. 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.

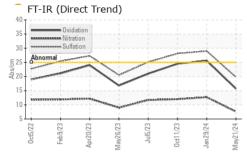
Fluid Condition

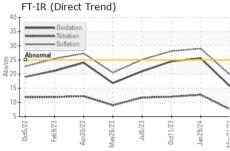
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

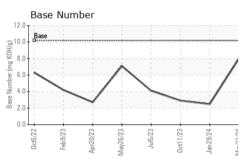
SAMPLE INFORMATION method limit/base current history1 history2	(GAL) 0x8022 Fm6023 Fm6023 Mm6023 Jus8023 0x8023 Jus8024 Mm/6024									
Sample Date Client Info 21 May 2024 29 Jan 2024 11 Oct 2023	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2			
Machine Age hrs Client Info 9842 9000 8147 Oil Age hrs Client Info 600 600 600 Oil Changed Client Info Changed Changed Changed Sample Status Image: Client Info Changed Changed Changed ATTENTION NCRMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Water WC Method 9.0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 21 15 11 Chromium ppm ASTM D5185m >4 <1 1 2 Iron ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >30 2 18 15 Copper ppm ASTM D5185m	Sample Number		Client Info		GFL0096054	GFL0095999	GFL0095985			
Oil Age hrs Client Info 600 600 600 600 Oil Changed Sample Status Client Info Changed ATTENTION Changed Changed Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL NO	Sample Date		Client Info		21 May 2024	29 Jan 2024	11 Oct 2023			
Oil Age hrs Client Info 600 600 600 600 Oil Changed Sample Status Client Info Changed ATTENTION Changed Changed Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL Changed NORMAL NO	Machine Age	hrs	Client Info		9842	9000	8147			
Sample Status Method Ilimit/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 21 15 11 Chromium ppm ASTM D5185m >4 <1 1 2 Nickel ppm ASTM D5185m >2 <1 <1 0 Sliver ppm ASTM D5185m >2 <1 <1 <1 Sliver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 2 18 15 Copper ppm ASTM D5185m >30 2 18 15 Copper ppm ASTM D5185m >30 2 18 15 Copper ppm ASTM D5185m >30 0 0 <t< td=""><td></td><td>hrs</td><td>Client Info</td><td></td><th>600</th><td>600</td><td>600</td></t<>		hrs	Client Info		600	600	600			
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 21 15 11 Chromium ppm ASTM D5185m >4 <1 1 2 Nickel ppm ASTM D5185m >3 0 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 0 Aluminum ppm ASTM D5185m >30 2 18 15 15 Copper ppm ASTM D5185m >30 2 18 15 1 Cadadium ppm ASTM D5185m >4 1 <1 <1 <1 Vanadium	Oil Changed		Client Info		Changed	Changed	Changed			
Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 21 15 11 Chromium ppm ASTM D5185m >4 <1 1 2 Nickel ppm ASTM D5185m >2 <1 <1 0 Titanium ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 2 18 15 Copper ppm ASTM D5185m >30 2 18 15 Copper ppm ASTM D5185m >30 2 18 15 Caddium ppm ASTM D5185m >4 1 <1 <1 <1 Vanadium ppm ASTM D5185m 50 27 1	Sample Status				ATTENTION	NORMAL	NORMAL			
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 21 15 11 Chromium ppm ASTM D5185m >4 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2			
Iron	Water		WC Method	>0.1	NEG	NEG	NEG			
Chromium ppm ASTM D5185m >4 <1 1 2 Nickel ppm ASTM D5185m >2 <1	WEAR METAL	S	method	limit/base	current	history1	history2			
Nickel	Iron	ppm	ASTM D5185m	>50	21	15	11			
Titanium ppm ASTM D5185m <1 <1 <1 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >9 2 4 2 Lead ppm ASTM D5185m >30 2 18 15 Copper ppm ASTM D5185m >35 6 3 2 Tin ppm ASTM D5185m >4 1 <1	Chromium	ppm	ASTM D5185m	>4	<1	1	2			
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >9 2 4 2 Lead ppm ASTM D5185m >30 2 18 15 Copper ppm ASTM D5185m >35 6 3 2 Tin ppm ASTM D5185m >4 1 <1 <1 <1 Vanadium ppm ASTM D5185m O 0 0 <1 Vanadium ppm ASTM D5185m O 0 0 <1 Cadmium ppm ASTM D5185m O 27 13 8 Boron ppm ASTM D5185m 5 <1 0 0 Molybdenum ppm ASTM D5185m 50 48 59 60 Mangaesium ppm ASTM D5185m 50 48 59 60 Calcium ppm ASTM D5185m 780 885	Nickel	ppm	ASTM D5185m	>2	<1	<1	0			
Aluminum	Titanium	ppm	ASTM D5185m		<1	<1	<1			
Lead ppm ASTM D5185m >30 2 18 15 Copper ppm ASTM D5185m >35 6 3 2 Tin ppm ASTM D5185m >4 1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 27 13 8 Barium ppm ASTM D5185m 5 <1 0 0 Molybdenum ppm ASTM D5185m 5 <1 0 0 Magnesium ppm ASTM D5185m 50 48 59 60 Galcium ppm ASTM D5185m 660 573 666 632 Calcium ppm ASTM D5185m 780 885	Silver	ppm	ASTM D5185m	>3	0	0	0			
Copper ppm ASTM D5185m >35 6 3 2 Tin ppm ASTM D5185m >4 1 <1	Aluminum	ppm	ASTM D5185m	>9	2	4	2			
Tin ppm ASTM D5185m >4 1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 27 13 8 Barium ppm ASTM D5185m 50 27 13 8 Barium ppm ASTM D5185m 50 48 59 60 Molybdenum ppm ASTM D5185m 50 48 59 60 Manganese ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m 560 573 666 632 Calcium ppm ASTM D5185m 780 385 900 865 Zinc ppm ASTM D5185m <t< td=""><td>Lead</td><td>ppm</td><td>ASTM D5185m</td><td>>30</td><th>2</th><td>18</td><td>15</td></t<>	Lead	ppm	ASTM D5185m	>30	2	18	15			
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 27 13 8 Barium ppm ASTM D5185m 50 27 13 8 Barium ppm ASTM D5185m 50 48 59 60 Molybdenum ppm ASTM D5185m 50 48 59 60 Magnesium ppm ASTM D5185m 560 573 666 632 Calcium ppm ASTM D5185m 780 885 900 865 Zinc ppm ASTM D5185m 780 885 900 865 Zinc ppm ASTM D5185m 20 2834 2621 2575 CONTAMINANTS method limit/base current history1	Copper	ppm	ASTM D5185m	>35	6	3	2			
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 27 13 8 Barium ppm ASTM D5185m 50 48 59 60 Molybdenum ppm ASTM D5185m 50 48 59 60 Manganese ppm ASTM D5185m 50 48 59 60 Manganesium ppm ASTM D5185m 50 573 666 632 Calcium ppm ASTM D5185m 780 885 900 865 Zinc ppm ASTM D5185m 780 988 1170 1107 Sulfur ppm ASTM D5185m 2040 2834 2621 2575 CONTAMINANTS method limit/base current history1	Tin	ppm	ASTM D5185m	>4	1	<1	<1			
Boron	Vanadium	ppm	ASTM D5185m		0	0	<1			
Boron	Cadmium	ppm	ASTM D5185m		0	0	0			
Barium ppm ASTM D5185m 5 <1 0 0 Molybdenum ppm ASTM D5185m 50 48 59 60 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2			
Molybdenum ppm ASTM D5185m 50 48 59 60 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 560 573 666 632 Calcium ppm ASTM D5185m 1510 1317 1769 1674 Phosphorus ppm ASTM D5185m 780 885 900 865 Zinc ppm ASTM D5185m 870 998 1170 1107 Sulfur ppm ASTM D5185m 2040 2834 2621 2575 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 7 6 Sodium ppm ASTM D5185m >20 2 8 9 Potassium ppm ASTM D5185m >20 2 1 1 INFRA-RED method limit/base	Boron	ppm	ASTM D5185m	50	27	13	8			
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 560 573 666 632 Calcium ppm ASTM D5185m 1510 1317 1769 1674 Phosphorus ppm ASTM D5185m 780 885 900 865 Zinc ppm ASTM D5185m 870 998 1170 1107 Sulfur ppm ASTM D5185m 2040 2834 2621 2575 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 7 6 Sodium ppm ASTM D5185m >20 2 8 9 Potassium ppm ASTM D5185m >20 2 <1	Barium	ppm	ASTM D5185m	5	<1	0	0			
Magnesium ppm ASTM D5185m 560 573 666 632 Calcium ppm ASTM D5185m 1510 1317 1769 1674 Phosphorus ppm ASTM D5185m 780 885 900 865 Zinc ppm ASTM D5185m 870 998 1170 1107 Sulfur ppm ASTM D5185m 2040 2834 2621 2575 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 7 6 Sodium ppm ASTM D5185m >20 2 8 9 Potassium ppm ASTM D5185m >20 2 <1	Molybdenum	ppm	ASTM D5185m	50	48	59	60			
Calcium ppm ASTM D5185m 1510 1317 1769 1674 Phosphorus ppm ASTM D5185m 780 885 900 865 Zinc ppm ASTM D5185m 870 998 1170 1107 Sulfur ppm ASTM D5185m 2040 2834 2621 2575 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 7 6 Sodium ppm ASTM D5185m >2 8 9 Potassium ppm ASTM D5185m >20 2 <1	Manganese	ppm	ASTM D5185m	0	<1	<1	<1			
Phosphorus ppm ASTM D5185m 780 885 900 865 Zinc ppm ASTM D5185m 870 998 1170 1107 Sulfur ppm ASTM D5185m 2040 2834 2621 2575 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 7 6 Sodium ppm ASTM D5185m 2 8 9 Potassium ppm ASTM D5185m >20 2 <1	Magnesium	ppm	ASTM D5185m	560	573	666	632			
Zinc ppm ASTM D5185m 870 998 1170 1107 Sulfur ppm ASTM D5185m 2040 2834 2621 2575 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 7 6 Sodium ppm ASTM D5185m 2 8 9 Potassium ppm ASTM D5185m >20 2 <1	Calcium	ppm	ASTM D5185m	1510	1317	1769	1674			
Sulfur ppm ASTM D5185m 2040 2834 2621 2575 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 7 6 Sodium ppm ASTM D5185m 2 8 9 Potassium ppm ASTM D5185m >20 2 <1	Phosphorus	ppm	ASTM D5185m	780	885	900	865			
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 4 7 6 Sodium ppm ASTM D5185m 2 8 9 Potassium ppm ASTM D5185m >20 2 <1	Zinc	ppm	ASTM D5185m	870	998	1170	1107			
Silicon ppm ASTM D5185m >+100 4 7 6 Sodium ppm ASTM D5185m 2 8 9 Potassium ppm ASTM D5185m >20 2 <1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.7 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.6 12.7 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.8 29.0 28.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 25.6 24.5	Sulfur	ppm	ASTM D5185m	2040	2834	2621	2575			
Sodium ppm ASTM D5185m 2 8 9 Potassium ppm ASTM D5185m >20 2 <1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.7 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.6 12.7 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.8 29.0 28.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 25.6 24.5	CONTAMINAN	ITS	method	limit/base	current	history1	history2			
Potassium ppm ASTM D5185m >20 2 <1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.7 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.6 12.7 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.8 29.0 28.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 25.6 24.5	Silicon	ppm	ASTM D5185m	>+100	4	7	6			
INFRA-RED	Sodium	ppm	ASTM D5185m		2	8	9			
Soot % % *ASTM D7844 0.7 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.6 12.7 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.8 29.0 28.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 25.6 24.5	Potassium	ppm	ASTM D5185m	>20	2	<1	1			
Nitration Abs/cm *ASTM D7624 >20 7.6 12.7 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 19.8 29.0 28.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 25.6 24.5	INFRA-RED		method	limit/base	current	history1	history2			
Sulfation Abs/.1mm *ASTM D7415 >30 19.8 29.0 28.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 25.6 24.5	Soot %	%	*ASTM D7844		0.7	0.1	0.1			
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.7 25.6 24.5	Nitration	Abs/cm	*ASTM D7624	>20	7.6	12.7	12.0			
Oxidation Abs/.1mm *ASTM D7414 >25 15.7 25.6 24.5	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.8	29.0	28.1			
	FLUID DEGRA	OITAC	method	limit/base	current	history1	history2			
Base Number (BN) mg KOH/g ASTM D2896 10.2 8.0 2.5 2.9	Oxidation	Abs/.1mm	*ASTM D7414	>25	15.7	25.6	24.5			
	Base Number (BN)	mg KOH/g	ASTM D2896	10.2	8.0	2.5	2.9			

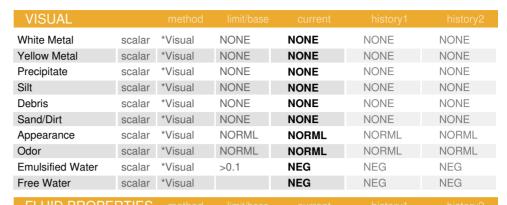


OIL ANALYSIS REPORT



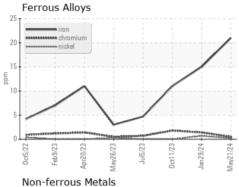


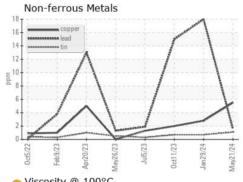


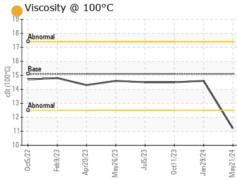


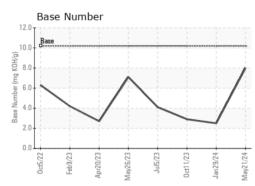
FLUID FROF	EULIES					
Visc @ 100°C	cSt	ASTM D445	15.1	11.2	14.6	14.5

GRAPHS













Certificate 12367

Laboratory Sample No. Unique Number : 11044160 Test Package : FLEET

: GFL0096054 Lab Number : 06187408

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received **Tested**

: 22 May 2024 : 31 May 2024 Diagnosed : 31 May 2024 - Jonathan Hester

GFL Environmental - 883 - Orange City 1378 South Volusia Ave

Orange City, FL US 32763

Contact: JEFF COOPERSMITH 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.

T: (386)503-8468 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Report Id: GFL883 [WUSCAR] 06187408 (Generated: 05/31/2024 18:53:10) Rev: 1

Submitted By: Kenneth Pearce