

OIL ANALYSIS REPORT

Sample Rating Trend DIRT

Machine Id **928113-443**

Component **Diesel Engine**

PETRO CANADA DURON SHP 15W40 (--- G

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

All component wear rates are normal.

Contamination

Elemental level of silicon (Si) above normal.

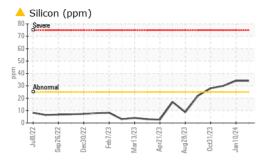
Fluid Condition

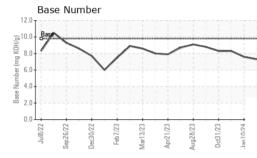
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

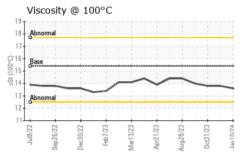
SAMPLE INFORMATION method limit/base current history1 history2 Sample Number Client Info GFL0100268 GFL0100265 GFL0100235 GFL010025 GFL010025							
Sample Number Client Info GFL0100268 GFL0100205 GFL0100205 Sample Date Client Info 30 Jan 2024 10 Jan 2024 15 Nov 2023 15 Nov 2023 16 Nose 2 Nov 2023 16 Nose 2 Nov 2023 Nov 202	AL)		lul2022 Sep 20	122 Dec2022 Feb2023 Ma	ar2023 Apr2023 Aug2023 Oct2023	Jan 2024	
Sample Date	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age mls	Sample Number		Client Info		GFL0100268	GFL0100205	GFL0100233
Dil Age	Sample Date		Client Info		30 Jan 2024	10 Jan 2024	15 Nov 2023
Client Info	Machine Age	mls	Client Info		164540	22788	160862
ABNORMAL ABNORMAL ABNORMAL ABNORMAL ABNORMAL CONTAMINATION method limit/base current history1 history2 history2 All	Oil Age	mls	Client Info		149215	150	0
CONTAMINATION	Oil Changed		Client Info		Changed	Not Changd	Not Changd
Valer	Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
Water Glycol WC Method >0.2 NEG	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Description	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	S	method	limit/base	current	history1	history2
Strickel	ron	ppm	ASTM D5185m	>100	11	10	5
Titanium ppm ASTM D5185m 0 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 <1 <1 1 Lead ppm ASTM D5185m >40 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 <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	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>4	0	0	0
Aluminum ppm ASTM D5185m >20 <1 <1 <1 1 Lead ppm ASTM D5185m >40 1 <1 <1 <1 Copper ppm ASTM D5185m >40 1 <1 <1 <1 Copper ppm ASTM D5185m >15 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Γitanium	ppm	ASTM D5185m		0	0	0
Lead ppm ASTM D5185m >40 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 <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 <1 <1 <1 <1 <1 <1 <1	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper	Aluminum	ppm	ASTM D5185m	>20	<1	<1	1
Copper	_ead	ppm	ASTM D5185m	>40	1	<1	<1
Princ	Copper	ppm	ASTM D5185m	>330	5	4	2
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 10 14 16 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 54 56 54 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1070 1113 1146 1174 Phosphorus ppm ASTM D5185m 1070 1113 1146 1174 Phosphorus ppm ASTM D5185m 1270 1202 1260 1250 Sulfur ppm ASTM D5185m 2060 2869 2947 2990 CONTAMINANTS method limit/base current history1 <td></td> <td></td> <td>ASTM D5185m</td> <td>>15</td> <td><1</td> <td><1</td> <td><1</td>			ASTM D5185m	>15	<1	<1	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 10 14 16 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1	Vanadium		ASTM D5185m		0	0	0
Boron	Cadmium		ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 54 56 54 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 54 56 54 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 834 863 880 Calcium ppm ASTM D5185m 1070 1113 1146 1174 Phosphorus ppm ASTM D5185m 1150 993 1039 1014 Zinc ppm ASTM D5185m 1270 1202 1260 1250 Sulfur ppm ASTM D5185m 2060 2869 2947 2990 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 34 4 4 2 Potassium ppm ASTM D5185m >20 2 0 <1 INFRA-RED method limit/base current history1 history2 Soot % % *	Boron	ppm	ASTM D5185m	0	10	14	16
Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 834 863 880 Calcium ppm ASTM D5185m 1070 1113 1146 1174 Phosphorus ppm ASTM D5185m 1150 993 1039 1014 Zinc ppm ASTM D5185m 1270 1202 1260 1250 Sulfur ppm ASTM D5185m 2060 2869 2947 2990 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 34 34 30 Sodium ppm ASTM D5185m >20 2 0 <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 834 863 880 Calcium ppm ASTM D5185m 1070 1113 1146 1174 Phosphorus ppm ASTM D5185m 1150 993 1039 1014 Zinc ppm ASTM D5185m 1270 1202 1260 1250 Sulfur ppm ASTM D5185m 2060 2869 2947 2990 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 ▲ 34 ▲ 34 ▲ 30 Sodium ppm ASTM D5185m >20 2 0 <1	Molybdenum	ppm	ASTM D5185m	60	54	56	54
Calcium ppm ASTM D5185m 1070 1113 1146 1174 Phosphorus ppm ASTM D5185m 1150 993 1039 1014 Zinc ppm ASTM D5185m 1270 1202 1260 1250 Sulfur ppm ASTM D5185m 2060 2869 2947 2990 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >25 ▲ 34 ▲ 34 ▲ 30 Sodium ppm ASTM D5185m >20 2 0 <1	Manganese	ppm	ASTM D5185m	0	<1	0	<1
Phosphorus ppm ASTM D5185m 1150 993 1039 1014 Zinc ppm ASTM D5185m 1270 1202 1260 1250 Sulfur ppm ASTM D5185m 2060 2869 2947 2990 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 ▲ 34 ▲ 34 ▲ 30 Godium ppm ASTM D5185m >20 2 0 <1	Magnesium	ppm	ASTM D5185m	1010	834	863	880
Zinc ppm ASTM D5185m 1270 1202 1260 1250 Sulfur ppm ASTM D5185m 2060 2869 2947 2990 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 ▲ 34 ▲ 30 Sodium ppm ASTM D5185m 4 4 2 Potassium ppm ASTM D5185m >20 2 0 <1	Calcium	ppm	ASTM D5185m	1070	1113	1146	1174
Sulfur ppm ASTM D5185m 2060 2869 2947 2990 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 34 34 30 Sodium ppm ASTM D5185m 20 2 0 <1	Phosphorus	ppm	ASTM D5185m	1150	993	1039	1014
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 ▲ 34 ▲ 34 ▲ 30 Sodium ppm ASTM D5185m 4 4 2 Potassium ppm ASTM D5185m >20 2 0 <1	Zinc	ppm	ASTM D5185m	1270	1202	1260	1250
Silicon ppm ASTM D5185m >25 ▲ 34 ▲ 30 Sodium ppm ASTM D5185m 4 4 2 Potassium ppm ASTM D5185m >20 2 0 <1 INFRA-RED method limit/base current history1 history2 Goot % % *ASTM D7844 >3 0.6 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 9.0 8.5 7.6 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.2 19.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 15.4	Sulfur	ppm	ASTM D5185m	2060	2869	2947	2990
Sodium ppm ASTM D5185m 4 4 2 Potassium ppm ASTM D5185m >20 2 0 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 9.0 8.5 7.6 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.2 19.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 15.4	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 0 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.6 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 9.0 8.5 7.6 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.2 19.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 15.4	Silicon	ppm	ASTM D5185m	>25	4 34	▲ 34	3 0
INFRA-RED	Sodium	ppm	ASTM D5185m		4	4	2
Soot % % *ASTM D7844 >3 0.6 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 9.0 8.5 7.6 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.2 19.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 15.4	Potassium	ppm	ASTM D5185m	>20	2	0	<1
Nitration Abs/cm *ASTM D7624 >20 9.0 8.5 7.6 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.2 19.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 15.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.2 19.7 FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 15.4	Soot %	%	*ASTM D7844	>3	0.6	0.5	0.4
FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >25 16.4 15.8 15.4	Nitration	Abs/cm	*ASTM D7624	>20	9.0	8.5	7.6
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.6	20.2	19.7
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.4	15.8	15.4
	Base Number (BN)	mg KOH/g			7.3	7.6	



OIL ANALYSIS REPORT



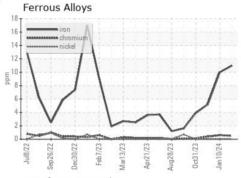


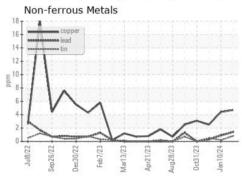


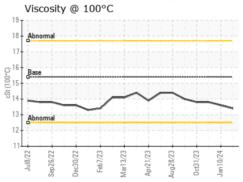
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

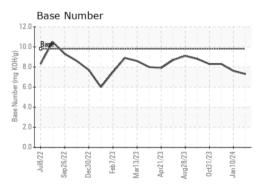
FLUID PROPI	ERIIE2	method	ilmit/base	current	nistory i	nistory
Visc @ 100°C	cSt	ASTM D445	15.4	13.4	13.6	13.8

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10860064 Test Package : FLEET

: GFL0100268 : 06077973

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved Diagnosed Diagnostician : Don Baldridge

: 02 Feb 2024 : 05 Feb 2024 GFL Environmental - 166 - Phenix City

18 Old Brickyard Rd Phenix City, AL US 36869

Contact: DEAN PEACE JR dean.peace@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)

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