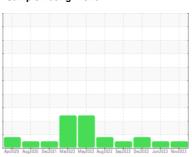


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id **920086-205326**

Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

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

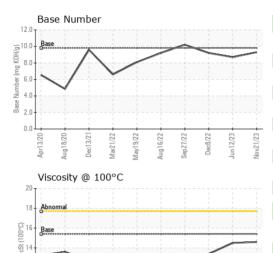
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method imitibase current history1 history2	GAL)		Apr2020 Aug2	020 Dec2021 Mar2022 May2	022 Aug2022 Sep2022 Dec2022 Juni	2023 Nov2023	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age mls Client Info 158974 0 8407 Oil Age mls Client Info 158974 0 0 Oil Changed Sample Status Client Info Changed Changed Changed Changed Changed Changed Changed NORMAL NORMAL ABNORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG WEAR METALS method Imitibase current history2 Iron ppm ASTM D5185m >100 <1 17 ▲ 207 Chromium ppm ASTM D5185m >100 <1 17 ▲ 207 Chromium ppm ASTM D5185m >20 0 <1 13 Nickel ppm ASTM D5185m >20 0 <1 5 Aluminum ppm ASTM D5185m >20 0	Sample Number		Client Info		GFL0100505	GFL0083477	GFL0065194
Oil Age mls Client Info 158974 0 0 Coll Changed Changed <th>Sample Date</th> <th></th> <th>Client Info</th> <th></th> <th>21 Nov 2023</th> <th>12 Jun 2023</th> <th>08 Dec 2022</th>	Sample Date		Client Info		21 Nov 2023	12 Jun 2023	08 Dec 2022
Oil Changed Sample Status Client Info MORMAL Changed NORMAL Changed NORMAL Changed ABNORMAL Change ABNORMAL Change ABNORMAL Change ABNORMAL Change ABNORMAL Change ABNORMAL Change ABNORMAL Change ABNORMAL Change ABNORMAL Change ABNORMAL </th <th>Machine Age</th> <th>mls</th> <th>Client Info</th> <th></th> <th>158974</th> <th>0</th> <th>8407</th>	Machine Age	mls	Client Info		158974	0	8407
Sample Status	Oil Age	mls	Client Info		158974	0	0
CONTAMINATION	Oil Changed		Client Info		Changed	Changed	Changed
Fuel WC Method >5 <1.0	Sample Status				NORMAL	NORMAL	ABNORMAL
Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 <1 17 ▲ 207 Chromium ppm ASTM D5185m >20 0 <1 13 Nickel ppm ASTM D5185m >4 0 0 <1 Silver ppm ASTM D5185m >4 0 0 <1 Silver ppm ASTM D5185m >20 0 <1 5 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >15 0 0 <1 Vanadium ppm ASTM D5185m >10 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Barium <th>CONTAMINAT</th> <th>ION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	CONTAMINAT	ION	method	limit/base	current	history1	history2
Silycol	Fuel		WC Method	>5	<1.0	<1.0	<1.0
Iron	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 0 <1 13 Nickel ppm ASTM D5185m >4 0 0 0 Titanium ppm ASTM D5185m >3 0 0 <1 Silver ppm ASTM D5185m >20 0 <1 5 Aluminum ppm ASTM D5185m >20 0 <1 5 Lead ppm ASTM D5185m >20 0 <1 1 Copper ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >15 0 0 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 2 1 6 Barium ppm ASTM D5185m 0 2 1 6 Barium ppm ASTM D5185m 0 0 0 0 <td>WEAR METAL</td> <td>.S</td> <td>method</td> <td>limit/base</td> <th>current</th> <td>history1</td> <td>history2</td>	WEAR METAL	.S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	<1	17	<u>^</u> 207
Titanium	Chromium	ppm	ASTM D5185m	>20	0	<1	13
Silver	Nickel	ppm	ASTM D5185m	>4	0	0	0
Aluminum	Titanium	ppm	ASTM D5185m		0	0	<1
Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 0 <1 1 Tin ppm ASTM D5185m >15 0 0 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 1 6 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 <1 3 451 Calcium ppm ASTM D5185m 1070 1057 1133 1151 1150 964 1081 977 Zinc<	Silver	ppm	ASTM D5185m	>3	0	0	<1
Copper ppm ASTM D5185m >330 0 <1 1 Tin ppm ASTM D5185m >15 0 0 <1	Aluminum	ppm	ASTM D5185m	>20	0	<1	5
Tin ppm ASTM D5185m >15 0 0 <1 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 2 1 6 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 56 63 60 Manganese ppm ASTM D5185m 1010 923 1028 851 Calcium ppm ASTM D5185m 1070 1057 1133 1151 Phosphorus ppm ASTM D5185m 1270 1200 1370 1156 Sulfur ppm ASTM D5185m 2060 3269 3808 3368 CONTAMINANTS method limit/base current history1 <td>Lead</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>40</td> <th>0</th> <td>0</td> <td>0</td>	Lead	ppm	ASTM D5185m	>40	0	0	0
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 2 1 6 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 <1 3 Magnesium ppm ASTM D5185m 1010 923 1028 851 Calcium ppm ASTM D5185m 1070 1057 1133 1151 Phosphorus ppm ASTM D5185m 1270 1200 1370 1156 Sulfur ppm ASTM D5185m 2060 3269 3808 3368 CONTAMINANTS method limit/base current history1 <th< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>>330</td><th>0</th><td><1</td><td>1</td></th<>	Copper	ppm	ASTM D5185m	>330	0	<1	1
Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 1 6 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 <1	Tin	ppm	ASTM D5185m	>15	0	0	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 0 2 1 6 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 56 63 60 Manganese ppm ASTM D5185m 0 0 <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 56 63 60 Manganese ppm ASTM D5185m 0 0 <1 3 Magnesium ppm ASTM D5185m 1010 923 1028 851 Calcium ppm ASTM D5185m 1070 1057 1133 1151 Phosphorus ppm ASTM D5185m 1150 964 1081 977 Zinc ppm ASTM D5185m 1270 1200 1370 1156 Sulfur ppm ASTM D5185m 2060 3269 3808 3368 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 23 Sodium ppm ASTM D5185m >20 0 2 2 INFRA-RED method limit/base </th <th>ADDITIVES</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 56 63 60 Manganese ppm ASTM D5185m 0 0 <1	Boron	ppm					
Manganese ppm ASTM D5185m 0 0 <1 3 Magnesium ppm ASTM D5185m 1010 923 1028 851 Calcium ppm ASTM D5185m 1070 1057 1133 1151 Phosphorus ppm ASTM D5185m 1150 964 1081 977 Zinc ppm ASTM D5185m 1270 1200 1370 1156 Sulfur ppm ASTM D5185m 2060 3269 3808 3368 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 23 Sodium ppm ASTM D5185m >20 0 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 1 1.3 Nitration Abs/cm *ASTM D7845	Barium	ppm	ASTM D5185m		-		ū
Magnesium ppm ASTM D5185m 1010 923 1028 851 Calcium ppm ASTM D5185m 1070 1057 1133 1151 Phosphorus ppm ASTM D5185m 1150 964 1081 977 Zinc ppm ASTM D5185m 1270 1200 1370 1156 Sulfur ppm ASTM D5185m 2060 3269 3808 3368 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 23 Sodium ppm ASTM D5185m >20 0 2 2 Potassium ppm ASTM D5185m >20 0 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 5.0 9.1 13.1 Sulfation Abs/.1mm *AST	-	ppm					
Calcium ppm ASTM D5185m 1070 1057 1133 1151 Phosphorus ppm ASTM D5185m 1150 964 1081 977 Zinc ppm ASTM D5185m 1270 1200 1370 1156 Sulfur ppm ASTM D5185m 2060 3269 3808 3368 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 23 Sodium ppm ASTM D5185m >20 0 2 2 Potassium ppm ASTM D5185m >20 0 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 5.0 9.1 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 21.1 25.3 FLUID DEGRADATION limi	-	ppm	ASTM D5185m		-		
Phosphorus ppm ASTM D5185m 1150 964 1081 977 Zinc ppm ASTM D5185m 1270 1200 1370 1156 Sulfur ppm ASTM D5185m 2060 3269 3808 3368 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 23 Sodium ppm ASTM D5185m >20 0 2 2 Potassium ppm ASTM D5185m >20 0 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 5.0 9.1 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 21.1 25.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm <	Magnesium	ppm	ASTM D5185m				
Zinc ppm ASTM D5185m 1270 1200 1370 1156 Sulfur ppm ASTM D5185m 2060 3269 3808 3368 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 23 Sodium ppm ASTM D5185m >20 0 2 2 Potassium ppm ASTM D5185m >20 0 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 5.0 9.1 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 21.1 25.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.4 16.8 22.2		ppm					
Sulfur ppm ASTM D5185m 2060 3269 3808 3368 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 23 Sodium ppm ASTM D5185m >20 0 2 2 Potassium ppm ASTM D5185m >20 0 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 1 1.3 Nitration Abs/cm *ASTM D7624 >20 5.0 9.1 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 21.1 25.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.4 16.8 22.2							
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 23 Sodium ppm ASTM D5185m <1							
Silicon ppm ASTM D5185m >25 4 3 23 Sodium ppm ASTM D5185m <1 4 0 Potassium ppm ASTM D5185m >20 0 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 1 1.3 Nitration Abs/cm *ASTM D7624 >20 5.0 9.1 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 21.1 25.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.4 16.8 22.2			ASTM D5185m	2060	3269	3808	3368
Sodium ppm ASTM D5185m <1		ITS	method	limit/base	current	history1	
Potassium ppm ASTM D5185m >20 0 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 1 1.3 Nitration Abs/cm *ASTM D7624 >20 5.0 9.1 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 21.1 25.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.4 16.8 22.2				>25			
INFRA-RED		ppm					
Soot % % *ASTM D7844 >3 0.2 1 1.3 Nitration Abs/cm *ASTM D7624 >20 5.0 9.1 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 21.1 25.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.4 16.8 22.2	Potassium	ppm	ASTM D5185m	>20	0	2	2
Nitration Abs/cm *ASTM D7624 >20 5.0 9.1 13.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 21.1 25.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.4 16.8 22.2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 17.7 21.1 25.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.4 16.8 22.2	Soot %		*ASTM D7844	>3	0.2		1.3
FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2513.416.822.2	Nitration	Abs/cm	*ASTM D7624	>20	5.0		13.1
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	17.7	21.1	25.3
	FLUID DEGRAI	OITAC	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 9.3 8.7 9.2	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.4	16.8	22.2
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	9.3	8.7	9.2



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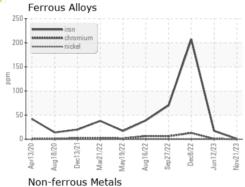
OIL ANALYSIS REPORT

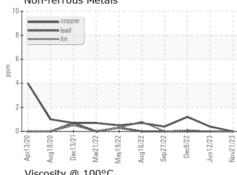


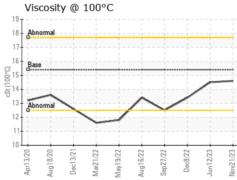
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

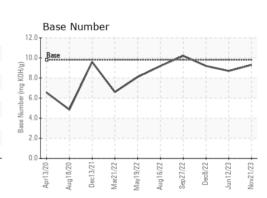
FLUID PROPE	RHES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.6	14.5	13.4

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10780010 Test Package : FLEET

To discuss this sample report, contact Customer Service at 1-800-237-1369.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0100505 : 06030219

Received : 11 Dec 2023 Diagnosed : 12 Dec 2023 Diagnostician : Wes Davis

GFL Environmental - 865 - East Mount Hauling 7213 East Mount Houston Road

Houston, TX US 77050

Contact: Jose Gonzalez jgonzalez2@gflenv.com T:

* - 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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