

OIL ANALYSIS REPORT

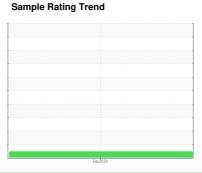
NORMAL



Machine Id 414074 Component

1 Diesel Engine

PETRO CANADA 15W40 (--- GAL)





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Metal levels are typical for a components first oil change.

Contamination

There is no indication of any contamination in the

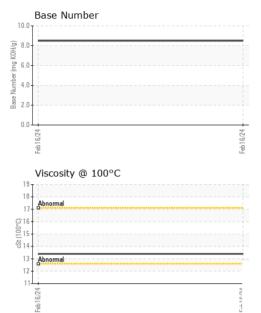
Fluid Condition

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 limit/base current history1 history2	40 (GAL)				Feb 2024		
Sample Date	SAMPLE INFOF	RMATION	method	limit/base	current	history1	history2
Sample Date Client Info 16 Feb 2024	Sample Number		Client Info		GFL0112799		
Oil Age hrs Client Info 762 Oil Changed Client Info Not Changd Sample Status NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <1.0 Water WC Method >0.2 NEG Glycol WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 7 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 7 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 Iron ppm ASTM D5185m			Client Info		16 Feb 2024		
Oil Changed Sample Status Client Info Not Changd NORMAL CONTAMINATION method Imit/base current history1 history2 Fuel WC Method >3.0 <1.0 Water WC Method >0.2 NEG Glycol WC Method NEG WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >120 7 WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >120 7 WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >20 1 Silver ppm ASTM D5185m >20 0 Lead	•	hrs	Client Info		762		
CONTAMINATION	Oil Age	hrs	Client Info		762		
Fuel	Oil Changed		Client Info		Not Changd		
Fuel WC Method S3.0 C1.0 C1	Sample Status				NORMAL		
Water WC Method >0.2 NEG Glycol WC Method Imitibase current history1 history2 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 7 Chromium ppm ASTM D5185m >20 <1	CONTAMINAT	ΓΙΟΝ	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0		
WEAR METALS	Water		WC Method	>0.2	NEG		
Iron	Glycol		WC Method		NEG		
Chromium	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >5 0 Titanium ppm ASTM D5185m >2 0 Silver ppm ASTM D5185m >2 <1	Iron	ppm	ASTM D5185m	>120	7		
Titanium	Chromium	ppm	ASTM D5185m	>20	<1		
Silver ppm ASTM D5185m >2 <1 Aluminum ppm ASTM D5185m >20 4 Lead ppm ASTM D5185m >40 0 Copper ppm ASTM D5185m >15 0 Tin ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 Boron ppm ASTM D5185m 0 Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m c1 Manganesium ppm ASTM D5185m a75 Calcium ppm ASTM D5185m 1000	Nickel	ppm	ASTM D5185m	>5	0		
Aluminum	Titanium	ppm	ASTM D5185m	>2	0		
Lead ppm ASTM D5185m >40 0 Copper ppm ASTM D5185m >330 43 Tin ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m 60 Magnesium ppm ASTM D5185m <1	Silver	ppm	ASTM D5185m	>2	<1		
Copper ppm ASTM D5185m >330 43 Tin ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 Barium ppm ASTM D5185m 60 Molybdenum ppm ASTM D5185m 60 Manganese ppm ASTM D5185m 41 Magnesium ppm ASTM D5185m 875 Calcium ppm ASTM D5185m 922 Phosphorus ppm ASTM D5185m 922 Sulfur ppm ASTM D5185m 2733	Aluminum	ppm	ASTM D5185m	>20	4		
Tin	Lead	ppm	ASTM D5185m	>40	0		
Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 Boron ppm ASTM D5185m 12 Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m 60 Manganese ppm ASTM D5185m 875 Magnesium ppm ASTM D5185m 1000 Calcium ppm ASTM D5185m 1159 Phosphorus ppm ASTM D5185m 922 Sulfur ppm ASTM D5185m 2733 Sulfur ppm ASTM D5185m >25 12 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >20 0	Copper	ppm	ASTM D5185m	>330	43		
Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 12 Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m 60 Manganese ppm ASTM D5185m 21 Magnesium ppm ASTM D5185m 875 Calcium ppm ASTM D5185m 922 Phosphorus ppm ASTM D5185m 922 Zinc ppm ASTM D5185m 2733 Sulfur ppm ASTM D5185m 2733 CONTAMINANTS method limit/base current history1 history2 Sodium ppm ASTM D5185m >20 0	Tin	ppm	ASTM D5185m	>15	0		
ADDITIVES	Vanadium	ppm	ASTM D5185m		0		
Boron	Cadmium	ppm	ASTM D5185m		0		
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 Manganese ppm ASTM D5185m <1 Magnesium ppm ASTM D5185m 875 Calcium ppm ASTM D5185m 1000 Phosphorus ppm ASTM D5185m 922 Zinc ppm ASTM D5185m 922 Sulfur ppm ASTM D5185m 2733 Sulfur ppm ASTM D5185m 225 12 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m >20 0 Soot % *ASTM D7844 >4	Boron	ppm	ASTM D5185m		12		
Manganese ppm ASTM D5185m <1 Magnesium ppm ASTM D5185m 875 Calcium ppm ASTM D5185m 1000 Phosphorus ppm ASTM D5185m 922 Zinc ppm ASTM D5185m 1159 Sulfur ppm ASTM D5185m 2733 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m >20 0 Potassium ppm ASTM D5185m >20 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Nitration	Barium	ppm	ASTM D5185m		0		
Magnesium ppm ASTM D5185m 875 Calcium ppm ASTM D5185m 1000 Phosphorus ppm ASTM D5185m 922 Zinc ppm ASTM D5185m 1159 Sulfur ppm ASTM D5185m 2733 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m >20 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 6.4 Nitration Abs/.1mm *ASTM D7415 >30 19.4 FLUID DEGRA	Molybdenum	ppm	ASTM D5185m		60		
Calcium ppm ASTM D5185m 1000 Phosphorus ppm ASTM D5185m 922 Zinc ppm ASTM D5185m 1159 Sulfur ppm ASTM D5185m 2733 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m >20 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Nitration Abs/cm *ASTM D7415 >30 19.4 FLUID DEGRADATION *ASTM D7414 >25 15.2	Manganese	ppm	ASTM D5185m		<1		
Phosphorus ppm ASTM D5185m 922 Zinc ppm ASTM D5185m 1159 Sulfur ppm ASTM D5185m 2733 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m >20 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Nitration Abs/cm *ASTM D7624 >20 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 FLUID DEGRADATION method limit/base current history1 history2	Magnesium	ppm	ASTM D5185m		875		
Zinc ppm ASTM D5185m 1159 Sulfur ppm ASTM D5185m 2733 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m >0 Potassium ppm ASTM D5185m >20 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Nitration Abs/cm *ASTM D7624 >20 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.2 <	Calcium	ppm	ASTM D5185m		1000		
Sulfur ppm ASTM D5185m 2733 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m >20 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Nitration Abs/.mm *ASTM D7624 >20 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.2	Phosphorus	ppm	ASTM D5185m		922		
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m >20 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Nitration Abs/cm *ASTM D7624 >20 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.2	Zinc	ppm	ASTM D5185m		1159		
Silicon ppm ASTM D5185m >25 12 Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m >20 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Nitration Abs/cm *ASTM D7624 >20 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.2			ASTM D5185m		2733		
Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m >20 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Nitration Abs/cm *ASTM D7624 >20 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.2	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Nitration Abs/cm *ASTM D7624 >20 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.2	Silicon	ppm	ASTM D5185m	>25	12		
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Nitration Abs/cm *ASTM D7624 >20 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.2	Sodium	ppm	ASTM D5185m		0		
Soot % % *ASTM D7844 >4 0.2 Nitration Abs/cm *ASTM D7624 >20 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.2	Potassium	ppm	ASTM D5185m	>20	0		
Nitration Abs/cm *ASTM D7624 >20 6.4 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 19.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.2	Soot %	%	*ASTM D7844	>4	0.2		
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.2	Nitration	Abs/cm	*ASTM D7624	>20	6.4		
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.4		
	FLUID DEGRA	.DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	15.2		
	Base Number (BN)	mg KOH/g			8.5		



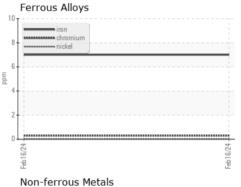
OIL ANALYSIS REPORT



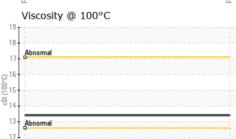
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE		
Yellow Metal	scalar	*Visual	NONE	NONE		
Precipitate	scalar	*Visual	NONE	NONE		
Silt	scalar	*Visual	NONE	NONE		
Debris	scalar	*Visual	NONE	NONE		
Sand/Dirt	scalar	*Visual	NONE	NONE		
Appearance	scalar	*Visual	NORML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

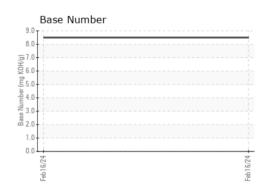
I LOID I HOI	LITTLO			
Visc @ 100°C	cSt	ASTM D445	13.4	

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number : 06100855

: GFL0112799

Unique Number : 10899085 Test Package : FLEET

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

: 26 Feb 2024 : 27 Feb 2024 Diagnosed

: 27 Feb 2024 - Wes Davis

GFL Environmental - 654 - Richmond Hauling

11800 Lewis Road Chester, VA US 23831 Contact: Jimmy Mayes

jmayes@gflenv.com T:

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)

F: