

OIL ANALYSIS REPORT



Machine Id **8136** Component **Diesel Engine**

PETRO CANADA 10W30 (--- LTR)





DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time.

Wear

All component wear rates are normal.

Contamination

Light fuel dilution occurring. No other contaminants were detected in the oil.

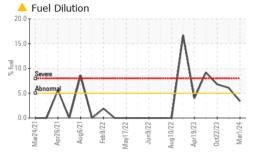
Fluid Condition

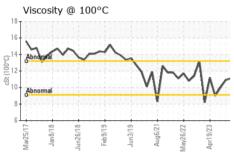
The condition of the oil is acceptable for the time in service.

	(2017 Jan2018 Jun2018 Feb.2019 Jun2018 Aug2022 May2022 May2022 Apr2023						
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2	
Sample Number		Client Info		GFL0112549	GFL0102650	GFL0093881	
Sample Date		Client Info		01 Mar 2024	25 Jan 2024	22 Oct 2023	
Machine Age	hrs	Client Info		17155	16852	0	
Oil Age	hrs	Client Info		0	0	0	
Oil Changed		Client Info		Changed	N/A	N/A	
Sample Status				MARGINAL	ABNORMAL	ABNORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2	
Water		WC Method	>0.2	NEG	NEG	NEG	
Glycol		WC Method		NEG	NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185(m)	>80	26	52	11	
Chromium	ppm	ASTM D5185(m)	>5	<1	2	<1	
Nickel	ppm	ASTM D5185(m)	>2	0	<1	0	
Titanium	ppm	ASTM D5185(m)		0	0	0	
Silver	ppm	ASTM D5185(m)	>3	0	0	<1	
Aluminum	ppm	ASTM D5185(m)	>30	1	2	1	
Lead	ppm	ASTM D5185(m)	>30	0	<1	<1	
Copper	ppm	ASTM D5185(m)	>150	<1	2	<1	
Tin	ppm	ASTM D5185(m)	>5	0	<1	0	
Antimony	ppm	ASTM D5185(m)		0	0	0	
Vanadium	ppm	ASTM D5185(m)		0	0	0	
Beryllium	ppm	ASTM D5185(m)		0	0	0	
Cadmium	ppm	ASTM D5185(m)		0	0	0	
ADDITIVES		method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185(m)		2	2	2	
		\ /			_	_	
Barium	ppm	ASTM D5185(m)		0	0	<1	
	ppm	. ,		0 56			
Molybdenum		ASTM D5185(m)			0	<1	
Molybdenum Manganese	ppm	ASTM D5185(m) ASTM D5185(m)		56	0 57	<1 55	
Molybdenum Manganese Magnesium	ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		56 0	0 57 0	<1 55 0	
Molybdenum Manganese Magnesium Calcium	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		56 0 925	0 57 0 889	<1 55 0 879	
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		56 0 925 994	0 57 0 889 1002	<1 55 0 879 951	
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		56 0 925 994 933	0 57 0 889 1002 935	<1 55 0 879 951 933	
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm	ASTM D5185(m)		56 0 925 994 933 1121	0 57 0 889 1002 935 1106	<1 55 0 879 951 933 1070	
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	limit/base	56 0 925 994 933 1121 2312	0 57 0 889 1002 935 1106 2355	<1 55 0 879 951 933 1070 2368	
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	limit/base >20	56 0 925 994 933 1121 2312	0 57 0 889 1002 935 1106 2355 <1	<1 55 0 879 951 933 1070 2368 <1	
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)		56 0 925 994 933 1121 2312 <1	0 57 0 889 1002 935 1106 2355 <1	<1 55 0 879 951 933 1070 2368 <1	
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)		56 0 925 994 933 1121 2312 <1 current	0 57 0 889 1002 935 1106 2355 <1 history1	<1 55 0 879 951 933 1070 2368 <1 history2	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	>20	56 0 925 994 933 1121 2312 <1 current 3 19	0 57 0 889 1002 935 1106 2355 <1 history1 7	<1 55 0 879 951 933 1070 2368 <1 history2 3 11	
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) MASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>20 >20	56 0 925 994 933 1121 2312 <1 current 3 19	0 57 0 889 1002 935 1106 2355 <1 history1 7 37 4	<1 55 0 879 951 933 1070 2368 <1 history2 3 11 <1	
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	>20 >20 >5	56 0 925 994 933 1121 2312 <1 current 3 19 2 ▲ 3.4	0 57 0 889 1002 935 1106 2355 <1 history1 7 37 4 ▲ 6.1	<1 55 0 879 951 933 1070 2368 <1 history2 3 11 <1 ▲ 6.8	
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7593*	>20 >20 >5 limit/base	56 0 925 994 933 1121 2312 <1 current 3 19 2 ▲ 3.4 current	0 57 0 889 1002 935 1106 2355 <1 history1 7 37 4 ▲ 6.1	<1 55 0 879 951 933 1070 2368 <1 history2 3 11 <1 △ 6.8 history2	



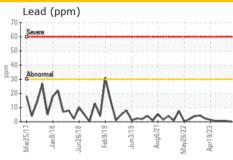
OIL ANALYSIS REPORT

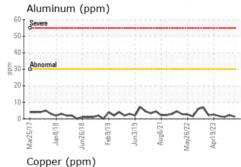


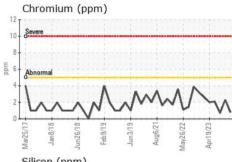


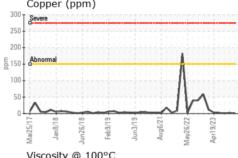
FLUID DEGRAI	NOITAC	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	17.3	24.1	15.8
VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)		11.1	10.9	10.0
GRAPHS						

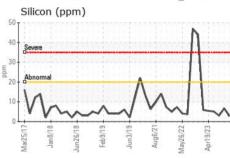
140 Seve	n (pp	m)			11711			
120 - Abn	ogmal		1	A				
60 - 1	1	1	M	1	1	1	5	٨
20	Ψ.	V /			V	V	1	'
Mar25/17	Jan8/18	Jun26/18	Feb9/19	Jun3/19	Aug6/21	May26/22	Apr19/23	

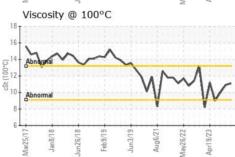


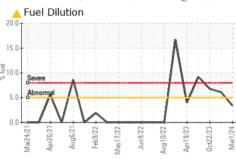














CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number : 02624850

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 554 - Edmonton SW

: GFL0112549

Received Unique Number : 5749969

: 27 Mar 2024 **Tested** : 28 Mar 2024 Diagnosed

: 28 Mar 2024 - Wes Davis

8409 -15th Street NW Edmonton, AB CA T6P 0B8 Contact: Tim Greig tgreig@gflenv.com T: (780)231-0521

Test Package: MOB 1 (Additional Tests: PercentFuel) To discuss this sample report, contact Customer Service at 1-800-268-2131.

Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.