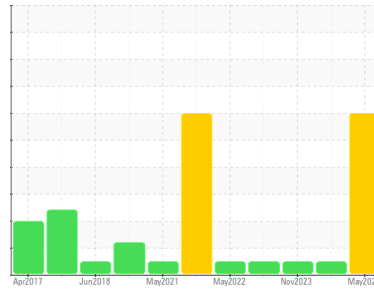




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id

4526

Component

Diesel Engine

Fluid

PETRO CANADA DURON SHP 10W30 (--- LTR)

DIAGNOSIS

▲ Recommendation

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

▲ Wear

Nickel ppm levels are severe. Exhaust valve wear is indicated.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		GFL0118958	GFL0101717	GFL0097628
Sample Date	Client Info		03 May 2024	27 Nov 2023	15 Nov 2023
Machine Age	hrs	Client Info	17454	17027	18531
Oil Age	hrs	Client Info	0	0	0
Oil Changed	Client Info		Changed	N/A	Changed
Sample Status			SEVERE	NORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>2.0	<1.0	<1.0	<1.0
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 D5185(m)	>100	24	2	4
Chromium	ppm	ASTM D5185(m)	>20	2	0	<1
Nickel	ppm	ASTM D5185(m)	>4	▲ 10	<1	3
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)	>3	0	<1	0
Aluminum	ppm	ASTM D5185(m)	>20	3	<1	2
Lead	ppm	ASTM D5185(m)	>40	4	0	0
Copper	ppm	ASTM D5185(m)	>330	2	<1	<1
Tin	ppm	ASTM D5185(m)	>15	<1	0	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	3	10
Barium	ppm	ASTM D5185(m)	0	0	<1	0
Molybdenum	ppm	ASTM D5185(m)	50	65	57	61
Manganese	ppm	ASTM D5185(m)	0	<1	0	0
Magnesium	ppm	ASTM D5185(m)	950	1054	928	947
Calcium	ppm	ASTM D5185(m)	1050	1167	996	1065
Phosphorus	ppm	ASTM D5185(m)	995	1084	962	1003
Zinc	ppm	ASTM D5185(m)	1180	1263	1135	1161
Sulfur	ppm	ASTM D5185(m)	2600	2584	2567	2611
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m)	>25	8	6	7
Sodium	ppm	ASTM D5185(m)		2	1	2
Potassium	ppm	ASTM D5185(m)	>20	2	0	0

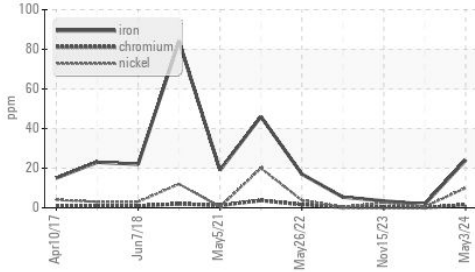
INFRA-RED

	method	limit/base	current	history1	history2	
Soot %	%	ASTM D7844*	>3	1.1	0	0.2
Nitration	Abs/cm	ASTM D7624*	>20	11.9	4.9	6.1
Sulfation	Abs./1mm	ASTM D7415*	>30	24.8	18.0	19.4

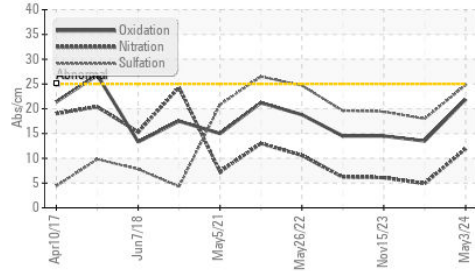


OIL ANALYSIS REPORT

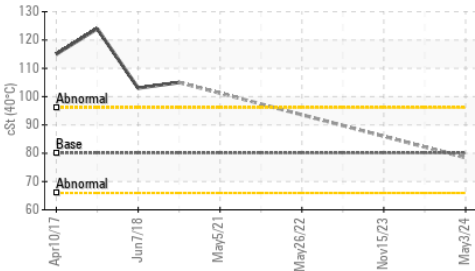
▲ Ferrous Alloys



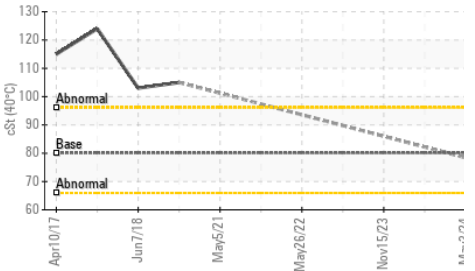
FT-IR (Direct Trend)



Viscosity @ 40°C



Viscosity @ 40°C



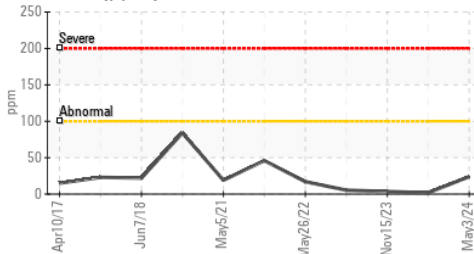
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs./1mm	ASTM D7414*	>25	21.9	13.5	14.5

VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG

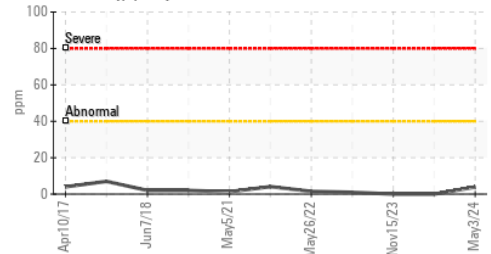
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	80.1	78.4	---	---
Visc @ 100°C	cSt	ASTM D7279(m)	12.00	11.7	11.3	11.2
Viscosity Index (VI)	Scale	ASTM D2270*	144	142	---	---

GRAPHS

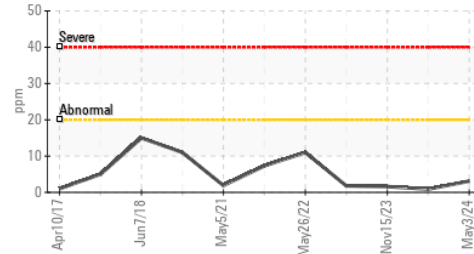
Iron (ppm)



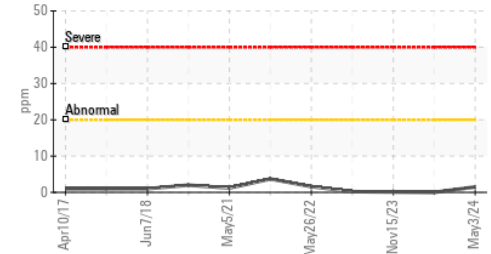
Lead (ppm)



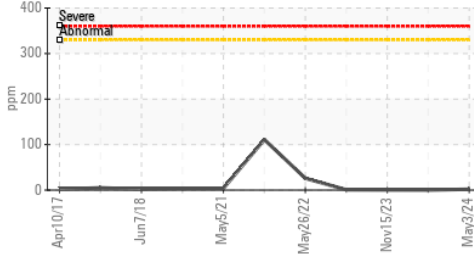
Aluminum (ppm)



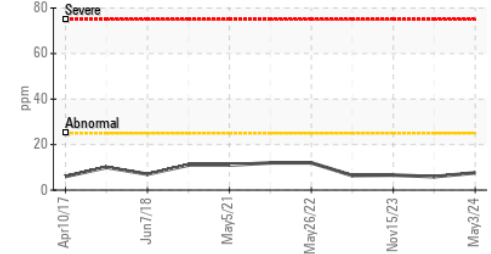
Chromium (ppm)



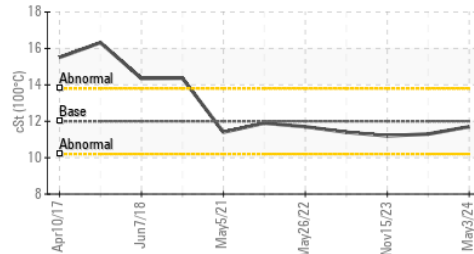
Copper (ppm)



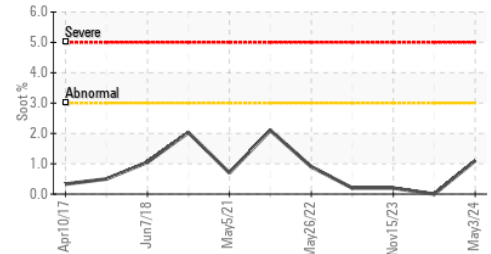
Silicon (ppm)



Viscosity @ 100°C



Soot %



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : GFL0118958
Lab Number : 02634038
Unique Number : 5775191
Test Package : MOB 1 (Additional Tests: KV40, VI)
Received : 08 May 2024
Tested : 08 May 2024
Diagnosed : 08 May 2024 - Kevin Marson

GFL Environmental - 554 - Edmonton SW
 8409 -15th Street NW
 Edmonton, AB
 CA T6P 0B8
 Contact: Tim Greig
 tgreig@gflenv.com
 T: (780)231-0521
 F:

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.