

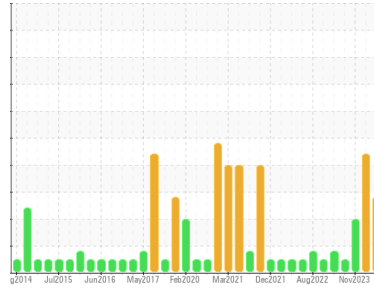


OIL ANALYSIS REPORT



Area
(YA139869)
 Machine Id
2551
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (8 GAL)

Sample Rating Trend



DEGRADATION



DIAGNOSIS

Recommendation

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

Wear

All component wear rates are normal.

Contamination

There is an abnormal amount of solids and carbon present in the oil. There is a moderate amount of fuel present in the oil.

Fluid Condition

The BN level is low.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		GFL0090046	GFL0089982	GFL0080603
Sample Date	Client Info		02 Apr 2024	23 Jan 2024	15 Nov 2023
Machine Age	mls	Client Info	946555	946555	946556
Oil Age	mls	Client Info	0	589392	0
Oil Changed	Client Info		Changed	Changed	Not Changed
Sample Status			ABNORMAL	SEVERE	ABNORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
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 >120	33	55	40
Chromium	ppm	ASTM D5185m >20	1	2	1
Nickel	ppm	ASTM D5185m >5	<1	0	0
Titanium	ppm	ASTM D5185m >2	<1	0	0
Silver	ppm	ASTM D5185m >2	0	0	0
Aluminum	ppm	ASTM D5185m >20	2	2	3
Lead	ppm	ASTM D5185m >40	<1	1	<1
Copper	ppm	ASTM D5185m >330	1	1	1
Tin	ppm	ASTM D5185m >15	<1	0	<1
Vanadium	ppm	ASTM D5185m	<1	0	<1
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 0	0	1	6
Barium	ppm	ASTM D5185m 0	0	0	0
Molybdenum	ppm	ASTM D5185m 60	58	56	56
Manganese	ppm	ASTM D5185m 0	<1	<1	<1
Magnesium	ppm	ASTM D5185m 1010	856	913	862
Calcium	ppm	ASTM D5185m 1070	993	1005	1089
Phosphorus	ppm	ASTM D5185m 1150	906	955	978
Zinc	ppm	ASTM D5185m 1270	1084	1158	1141
Sulfur	ppm	ASTM D5185m 2060	2707	2685	2733

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	4	4	7
Sodium	ppm	ASTM D5185m	2	5	6
Potassium	ppm	ASTM D5185m >20	4	32	29
Fuel	%	ASTM D3524 >3.0	▲ 5.3	▲ 5.4	<1.0

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >4	▲ 5.7	▲ 8	▲ 5.6
Nitration	Abs/cm	*ASTM D7624 >20	12.2	31.1	13.8
Sulfation	Abs/.1mm	*ASTM D7415 >30	29.6	46.9	30.8

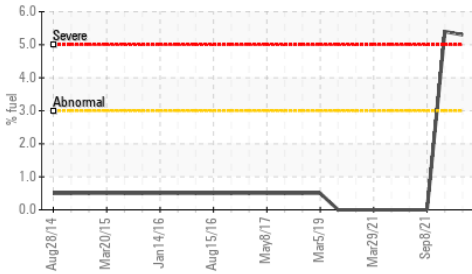
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	16.3	64.5	21.5
Base Number (BN)	mg KOH/g	ASTM D2896 9.8	▲ 0.0	▲ 0.0	▲ 0.0

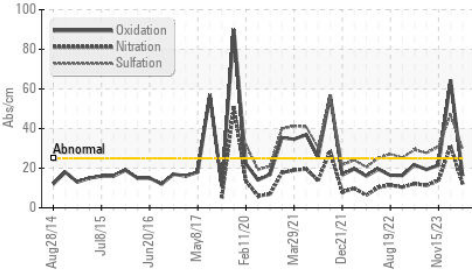


OIL ANALYSIS REPORT

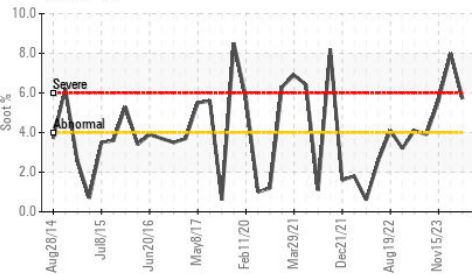
Fuel Dilution



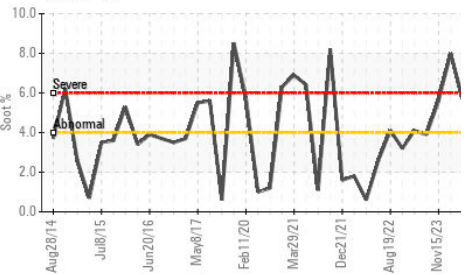
FT-IR (Direct Trend)



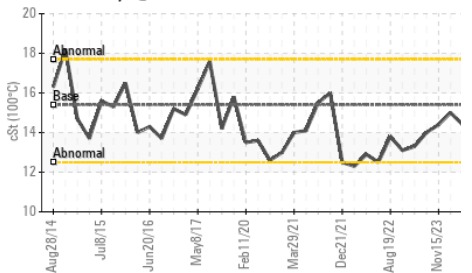
Soot %



Soot %



Viscosity @ 100°C

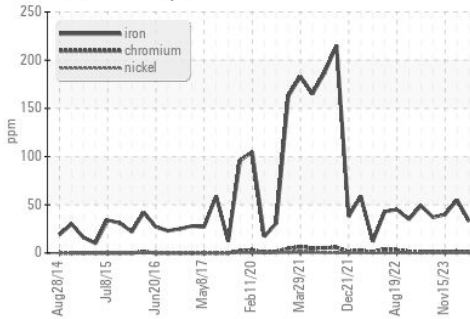


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

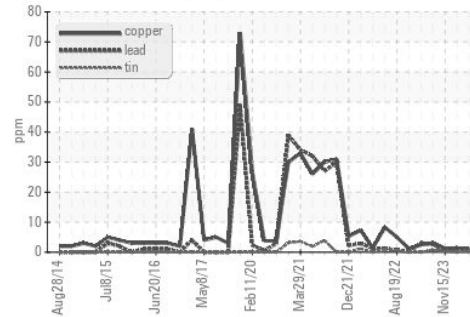
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.4	15.0

GRAPHS

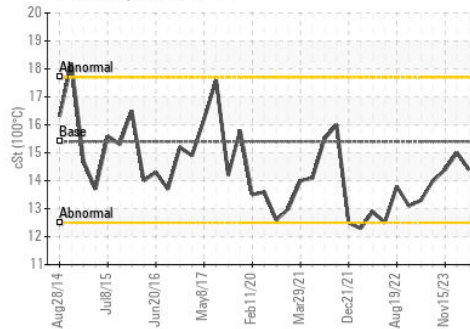
Ferrous Alloys



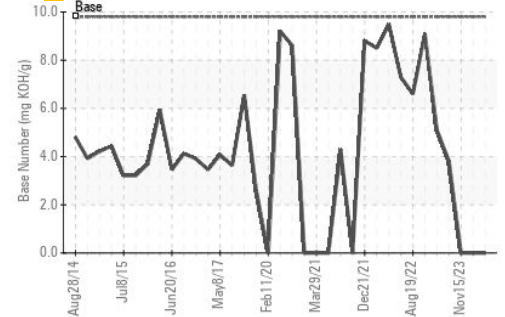
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

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

Sample No. : GFL0090046

Lab Number : 06138250

Unique Number : 10963058

Test Package : FLEET (Additional Tests: PercentFuel)

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)

Received : 04 Apr 2024

Tested : 08 Apr 2024

Diagnosed : 08 Apr 2024 - Sean Felton

GFL Environmental - 018 - Fayetteville

4621 Marracco Drive

Hope Mills, NC

US 28348

Contact: Robert Carter

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