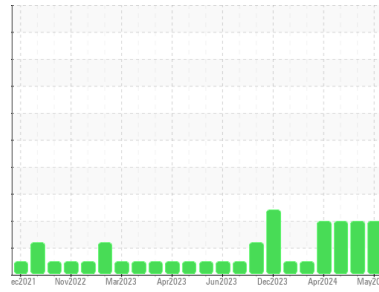




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id
424057-19
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (12 GAL)

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

Valve wear is indicated.

Contamination

There is a moderate amount of fuel present in the oil.

Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		GFL0118693	GFL0118650	GFL0118637
Sample Date	Client Info		29 May 2024	14 May 2024	16 Apr 2024
Machine Age	hrs	Client Info	22328	22234	22040
Oil Age	hrs	Client Info	600	400	400
Oil Changed	Client Info		Changed	Not Changd	Not Changd
Sample Status			ABNORMAL	ABNORMAL	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	13	24	13
Chromium	ppm	ASTM D5185m >20	<1	3	<1
Nickel	ppm	ASTM D5185m >5	▲ 8	▲ 13	▲ 5
Titanium	ppm	ASTM D5185m >2	0	3	0
Silver	ppm	ASTM D5185m >2	0	3	0
Aluminum	ppm	ASTM D5185m >20	4	9	4
Lead	ppm	ASTM D5185m >40	0	3	0
Copper	ppm	ASTM D5185m >330	2	6	3
Tin	ppm	ASTM D5185m >15	0	3	<1
Vanadium	ppm	ASTM D5185m	0	2	0
Cadmium	ppm	ASTM D5185m	0	2	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 0	0	2	0
Barium	ppm	ASTM D5185m 0	0	1	0
Molybdenum	ppm	ASTM D5185m 60	56	77	59
Manganese	ppm	ASTM D5185m 0	<1	3	<1
Magnesium	ppm	ASTM D5185m 1010	902	1183	955
Calcium	ppm	ASTM D5185m 1070	1067	1327	1075
Phosphorus	ppm	ASTM D5185m 1150	972	1206	995
Zinc	ppm	ASTM D5185m 1270	1167	1501	1234
Sulfur	ppm	ASTM D5185m 2060	2710	3437	2965

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	6	14	7
Sodium	ppm	ASTM D5185m	8	10	4
Potassium	ppm	ASTM D5185m >20	<1	6	0
Fuel	%	ASTM D3524 >3.0	▲ 5.6	▲ 4.8	▲ 4.8

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >4	0.4	0.3	0.2
Nitration	Abs/cm	*ASTM D7624 >20	8.0	8.9	8.3
Sulfation	Abs/.1mm	*ASTM D7415 >30	20.3	21.0	20.4

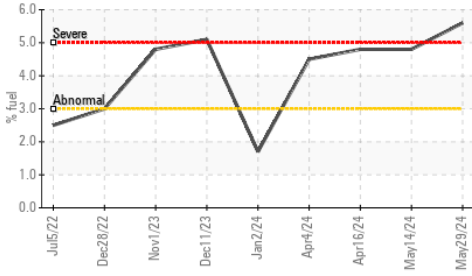
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	16.9	18.6	17.3
Base Number (BN)	mg KOH/g	ASTM D2896 9.8	6.6	5.0	6.2

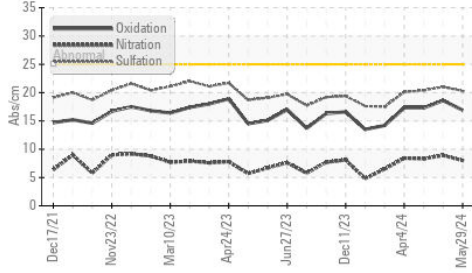


OIL ANALYSIS REPORT

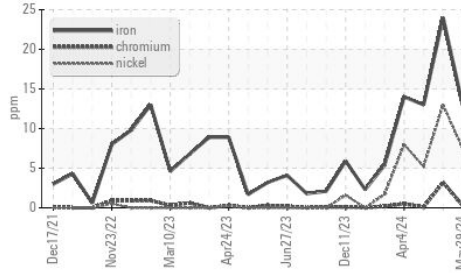
Fuel Dilution



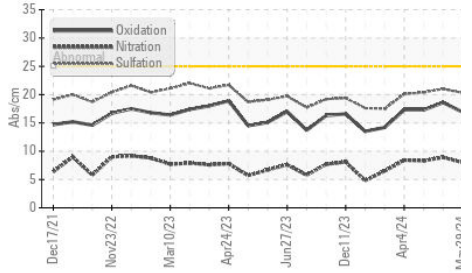
FT-IR (Direct Trend)



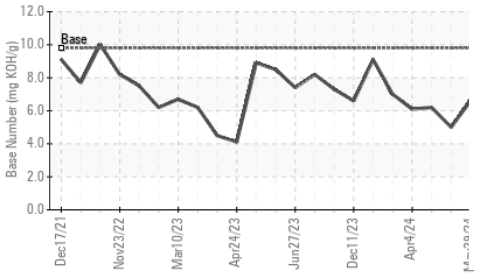
Ferrous Alloys



FT-IR (Direct Trend)



Base Number



VISUAL

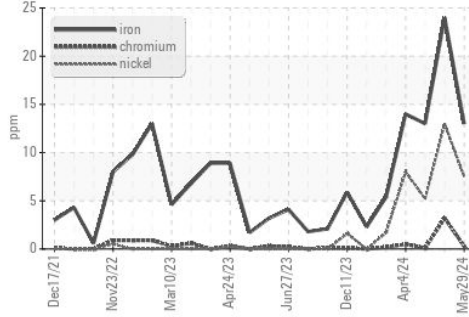
method	limit/base	current	history1	history2
White Metal	*Visual	NONE	NONE	NONE
Yellow Metal	*Visual	NONE	NONE	NONE
Precipitate	*Visual	NONE	NONE	NONE
Silt	*Visual	NONE	NONE	NONE
Debris	*Visual	NONE	NONE	NONE
Sand/Dirt	*Visual	NONE	NONE	NONE
Appearance	*Visual	NORML	NORML	NORML
Odor	*Visual	NORML	NORML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

FLUID PROPERTIES

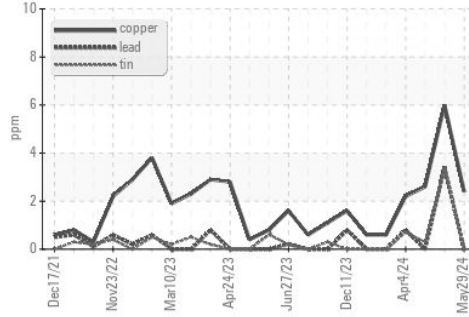
method	limit/base	current	history1	history2
Visc @ 100°C	cSt ASTM D445	15.4 ▲ 11.8	▲ 11.6	▲ 12.1

GRAPHS

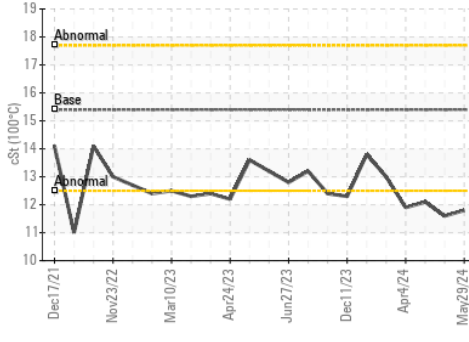
Ferrous Alloys



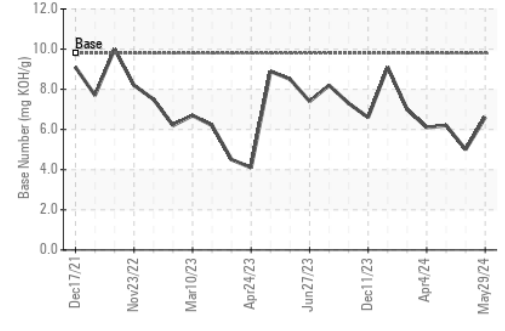
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

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

Sample No. : GFL0118693

Lab Number : 06197309

Unique Number : 11059432

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 : 03 Jun 2024

Tested : 05 Jun 2024

Diagnosed : 05 Jun 2024 - Jonathan Hester

GFL Environmental - 166 - Phenix City

18 Old Brickyard Rd

Phenix City, AL

US 36869

Contact: DARRIN WRIGHT

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T:

F: