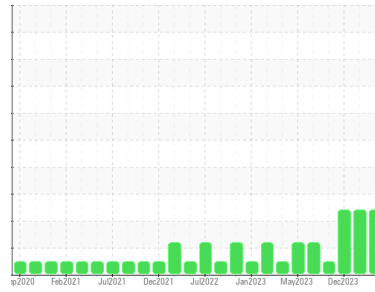




OIL ANALYSIS REPORT

Sample Rating Trend



GLYCOL



Machine Id
829013-1086

Component
Diesel Engine

Fluid
PETRO CANADA DURON SHP 15W40 (--- LTR)

DIAGNOSIS

Recommendation

We advise that you check for the source of the coolant leak. Check for low coolant level. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

Sodium and/or potassium levels are high.

Fluid Condition

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		GFL0070944	GFL0100158	GFL0100170
Sample Date	Client Info		04 Apr 2024	03 Jan 2024	07 Dec 2023
Machine Age	hrs	Client Info	10619	10226	10104
Oil Age	hrs	Client Info	162	578	156
Oil Changed	Client Info		Not Changed	Changed	Not Changed
Sample Status			ABNORMAL	ABNORMAL	ABNORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>3.0	<1.0	<1.0	<1.0
Water	WC Method	>0.2	NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >120	23	12	9
Chromium	ppm	ASTM D5185m >20	1	<1	<1
Nickel	ppm	ASTM D5185m >5	<1	<1	0
Titanium	ppm	ASTM D5185m >2	<1	<1	0
Silver	ppm	ASTM D5185m >2	<1	0	0
Aluminum	ppm	ASTM D5185m >20	3	2	2
Lead	ppm	ASTM D5185m >40	<1	<1	0
Copper	ppm	ASTM D5185m >330	20	5	5
Tin	ppm	ASTM D5185m >15	<1	1	0
Vanadium	ppm	ASTM D5185m	<1	<1	0
Cadmium	ppm	ASTM D5185m	<1	<1	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 0	3	5	6
Barium	ppm	ASTM D5185m 0	0	0	0
Molybdenum	ppm	ASTM D5185m 60	77	80	72
Manganese	ppm	ASTM D5185m 0	1	<1	<1
Magnesium	ppm	ASTM D5185m 1010	976	961	903
Calcium	ppm	ASTM D5185m 1070	1091	1092	1016
Phosphorus	ppm	ASTM D5185m 1150	981	988	951
Zinc	ppm	ASTM D5185m 1270	1222	1287	1238
Sulfur	ppm	ASTM D5185m 2060	2856	3100	2968

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	10	10	10
Sodium	ppm	ASTM D5185m	▲ 164	▲ 295	▲ 267
Potassium	ppm	ASTM D5185m >20	▲ 51	▲ 67	▲ 56
Glycol	%	*ASTM D2982	NEG	NEG	NEG

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >4	0.5	0.6	0.5
Nitration	Abs/cm	*ASTM D7624 >20	10.2	10.7	10.4
Sulfation	Abs.1mm	*ASTM D7415 >30	20.0	22.3	21.7

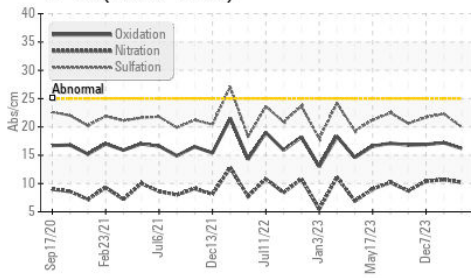
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs.1mm	*ASTM D7414 >25	16.2	17.2	16.9
Base Number (BN)	mg KOH/g	ASTM D2896 9.8	7.2	5.6	6.1

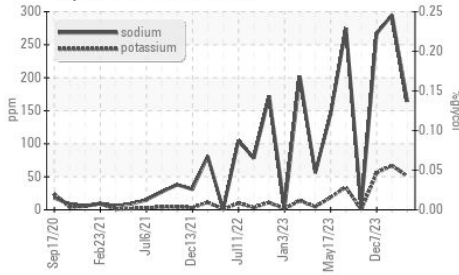


OIL ANALYSIS REPORT

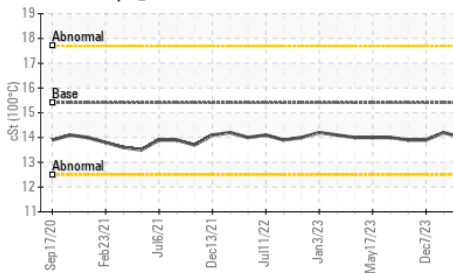
FT-IR (Direct Trend)



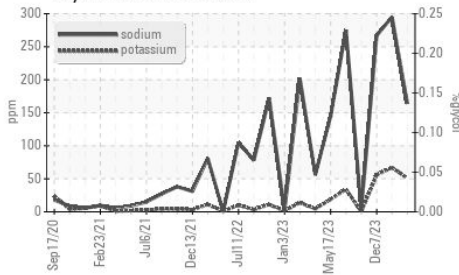
Glycol Contamination



Viscosity @ 100°C



Glycol Contamination



Viscosity @ 100°C

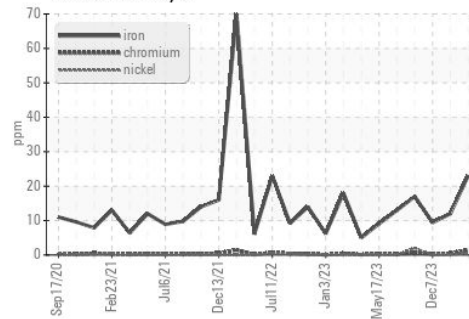


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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

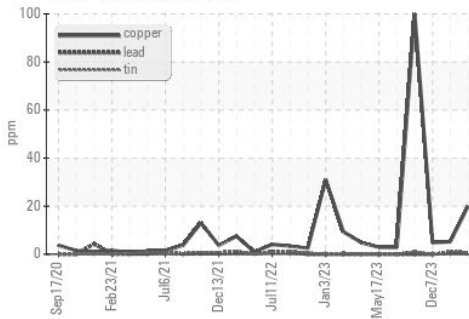
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	14.2

GRAPHS

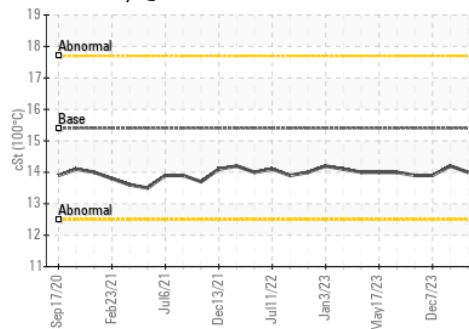
Ferrous Alloys



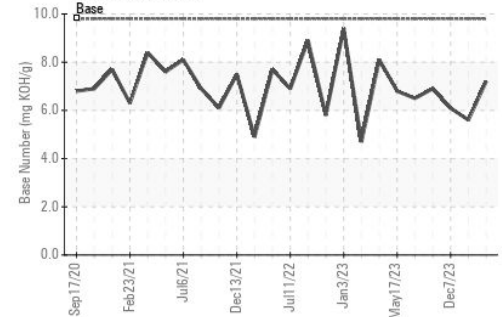
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

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

Sample No. : GFL0070944

Lab Number : 06140880

Unique Number : 10965688

Test Package : FLEET (Additional Tests: Glycol)

Received : 08 Apr 2024

Tested : 10 Apr 2024

Diagnosed : 10 Apr 2024 - Sean Felton

GFL Environmental - 657 - Charlottesville Hauling

5498 Richmond Road

Troy, VA

US 22974

Contact: Brian Ulickas

bulickas@gflenv.com

T:

F:

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)