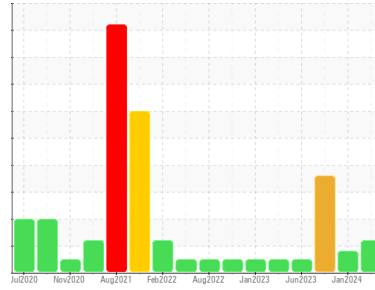




OIL ANALYSIS REPORT

Sample Rating Trend



GLYCOL



Machine Id
729009-5043

Component
Diesel Engine

Fluid
PETRO CANADA DURON SHP 15W40 (20 QTS)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Sodium and/or potassium levels are high. Test for glycol is negative.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	GFL0114587	GFL0090907	GFL0090917
Sample Date	Client Info	29 May 2024	02 Jan 2024	11 Oct 2023
Machine Age	hrs	13889	13299	12816
Oil Age	hrs	590	483	651
Oil Changed	Client Info	Changed	Changed	Changed
Sample Status		ABNORMAL	MARGINAL	SEVERE

CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >5	<1.0	▲ 2.0	▲ 9.4
Water	WC Method >0.2	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >110	62	42	56
Chromium	ppm ASTM D5185m >4	<1	<1	2
Nickel	ppm ASTM D5185m >2	0	<1	<1
Titanium	ppm ASTM D5185m	0	<1	<1
Silver	ppm ASTM D5185m >2	0	0	0
Aluminum	ppm ASTM D5185m >25	8	4	4
Lead	ppm ASTM D5185m >45	0	0	0
Copper	ppm ASTM D5185m >85	1	2	3
Tin	ppm ASTM D5185m >4	0	<1	<1
Vanadium	ppm ASTM D5185m	0	0	<1
Cadmium	ppm ASTM D5185m	0	0	<1

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	6	6	5
Barium	ppm ASTM D5185m 0	0	10	3
Molybdenum	ppm ASTM D5185m 60	60	63	61
Manganese	ppm ASTM D5185m 0	<1	<1	1
Magnesium	ppm ASTM D5185m 1010	862	880	845
Calcium	ppm ASTM D5185m 1070	1015	1106	1003
Phosphorus	ppm ASTM D5185m 1150	901	1064	899
Zinc	ppm ASTM D5185m 1270	1145	1179	1100
Sulfur	ppm ASTM D5185m 2060	2769	3257	2319

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >30	9	10	23
Sodium	ppm ASTM D5185m	11	8	15
Potassium	ppm ASTM D5185m >20	▲ 47	19	▲ 42
Glycol	% *ASTM D2982	NEG	NEG	NEG

INFRA-RED

method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >3	0.8	1.1	1.3
Nitration	Abs/cm *ASTM D7624 >20	13.4	12.5	13.1
Sulfation	Abs/.1mm *ASTM D7415 >30	25.0	24.9	27.6

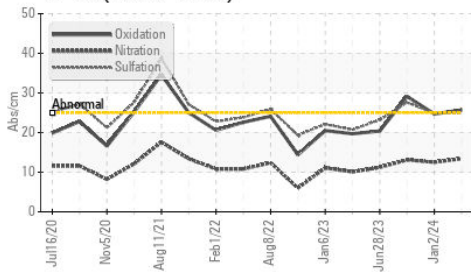
FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	25.7	24.7	29.1
Base Number (BN)	mg KOH/g ASTM D2896 9.8	6.1	6.7	4.5

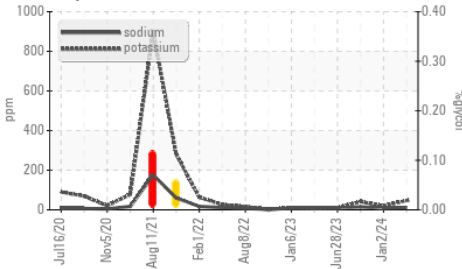


OIL ANALYSIS REPORT

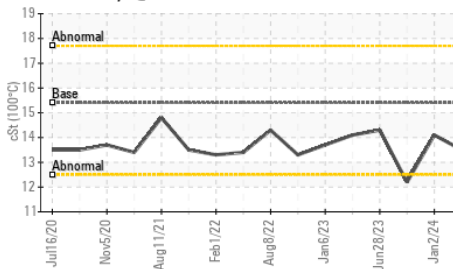
FT-IR (Direct Trend)



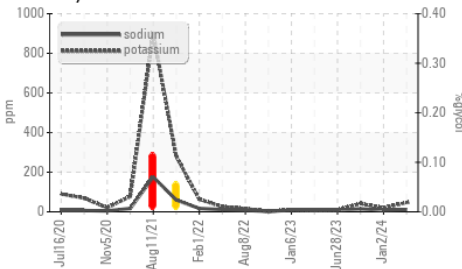
Glycol Contamination



Viscosity @ 100°C



Glycol Contamination

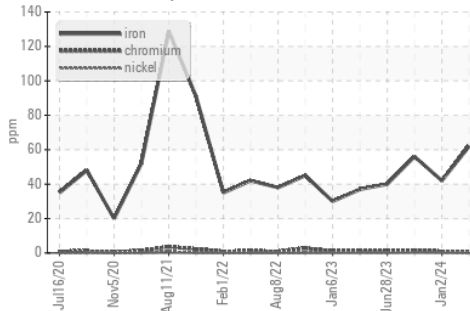


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

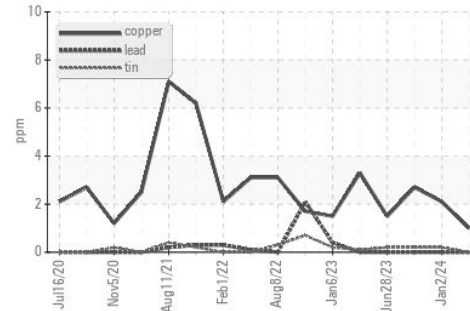
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.5	14.1 ▲ 12.2

GRAPHS

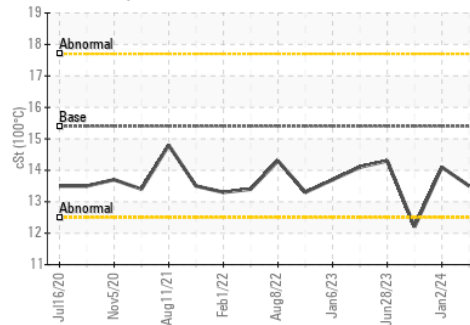
Ferrous Alloys



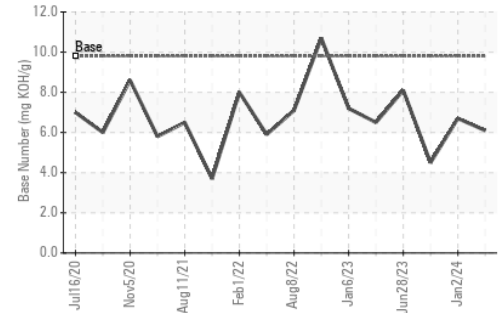
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

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

Sample No. : GFL0114587

Lab Number : 06198513

Unique Number : 11060636

Test Package : FLEET (Additional Tests: Glycol)

Received : 03 Jun 2024

Tested : 06 Jun 2024

Diagnosed : 06 Jun 2024 - Jonathan Hester

GFL Environmental - 656 - Culpeper Hauling

15490 Montanus Drive

Culpeper, VA

US 22701

Contact: Matt Hanna

mhanna@gflenv.com

T: (540)727-0887

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)