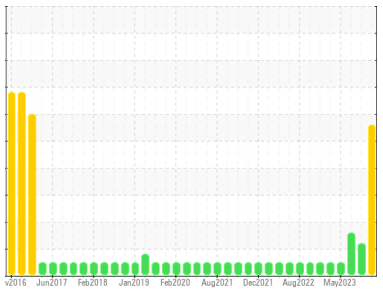
OIL ANALYSIS REPORT

Sample Rating Trend



COOL CHEMICALS

Area
(YA135985)
Machine Id
3711C
Component
Natural Gas Engine
Fluid
PETRO CANADA DURON GEO LD 15W40 (32 GAL)

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
The copper level is abnormal. Piston, ring and cylinder wear is indicated. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core).

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		**GFL0111036**	GFL0098513	GFL0087784
Sample Date		Client Info		**08 May 2024**	15 Jan 2024	06 Aug 2023
Machine Age	hrs	Client Info		**17417**	16733	0
Oil Age	hrs	Client Info		**684**	1630	0
Oil Changed		Client Info		**N/A**	Changed	N/A
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.1	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	▲ **61**	35	▲ 40
Chromium	ppm	ASTM D5185m	>4	▲ **10**	6	▲ 6
Nickel	ppm	ASTM D5185m	>2	**2**	<1	1
Titanium	ppm	ASTM D5185m		**<1**	0	<1
Silver	ppm	ASTM D5185m	>3	**0**	0	<1
Aluminum	ppm	ASTM D5185m	>9	▲ **11**	3	4
Lead	ppm	ASTM D5185m	>30	**4**	3	12
Copper	ppm	ASTM D5185m	>35	▲ **230**	32	29
Tin	ppm	ASTM D5185m	>4	**<1**	<1	1
Vanadium	ppm	ASTM D5185m		**<1**	<1	0
Cadmium	ppm	ASTM D5185m		**<1**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	50	**5**	6	<1
Barium	ppm	ASTM D5185m	5	**<1**	0	0
Molybdenum	ppm	ASTM D5185m	50	**188**	80	68
Manganese	ppm	ASTM D5185m	0	**3**	1	2
Magnesium	ppm	ASTM D5185m	560	**689**	574	622
Calcium	ppm	ASTM D5185m	1510	**2169**	1735	1918
Phosphorus	ppm	ASTM D5185m	780	**928**	740	850
Zinc	ppm	ASTM D5185m	870	**1303**	1007	1093
Sulfur	ppm	ASTM D5185m	2040	**4012**	2496	2618

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>+100	**13**	8	9
Sodium	ppm	ASTM D5185m		▲ **2343**	▲ 482	31
Potassium	ppm	ASTM D5185m	>20	▲ **41**	10	4

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0**	0	0.1
Nitration	Abs/cm	*ASTM D7624	>20	**14.3**	12.5	12.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	**26.1**	24.4	27.1

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**19.6**	19.6	22.5
Base Number (BN)	mg KOH/g	ASTM D2896	10.2	**6.9**	5.1	3.7

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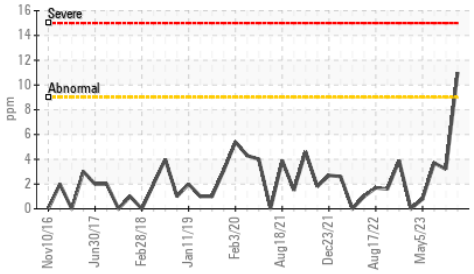
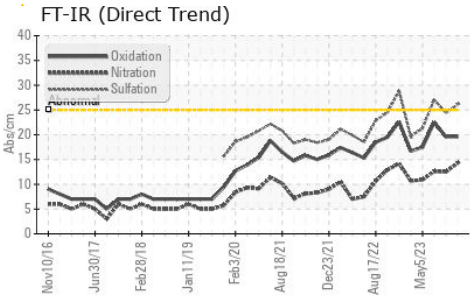
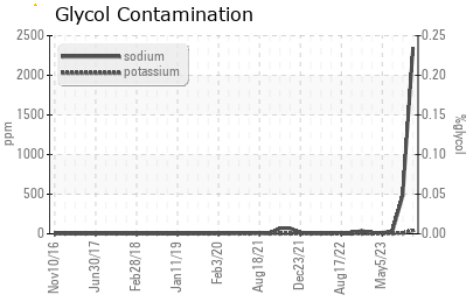
Aluminum (ppm)



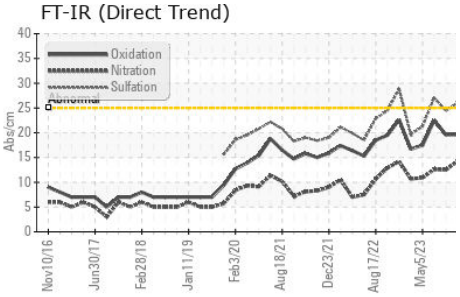
FT-IR (Direct Trend)



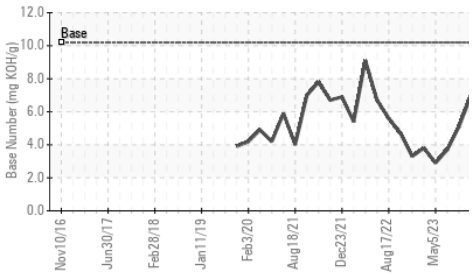
Glycol Contamination



FT-IR (Direct Trend)



Base Number

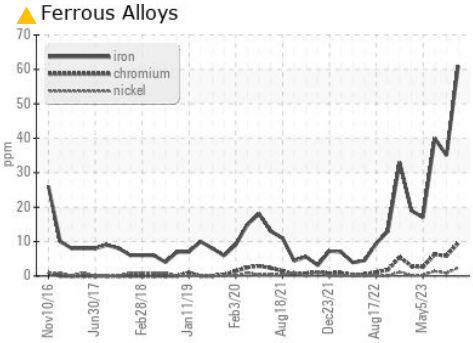


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

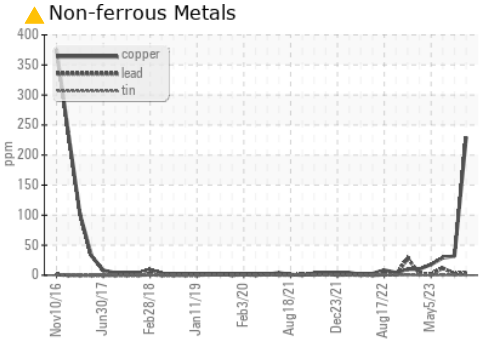
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.1	**14.8**	14.5	14.0

GRAPHS

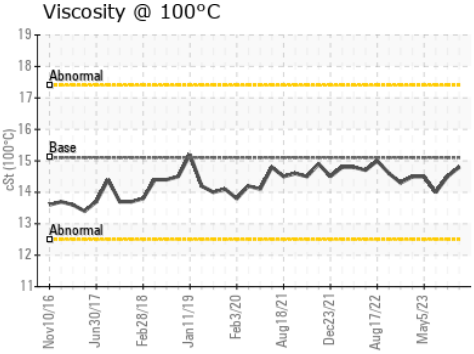
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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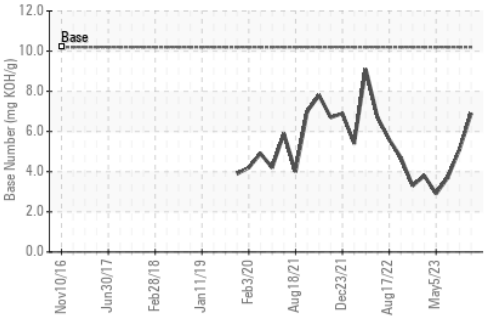

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0111036
Lab Number : 06174932
Unique Number : 11020985
Test Package : FLEET (Additional Tests: Glycol)

Received : 09 May 2024
Tested : 16 May 2024
Diagnosed : 16 May 2024 - Jonathan Hester

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)

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Report Id: GFL006 [WUSCAR] 06174932 (Generated: 05/16/2024 16:17:24) Rev: 1

Submitted By: Eric Wood