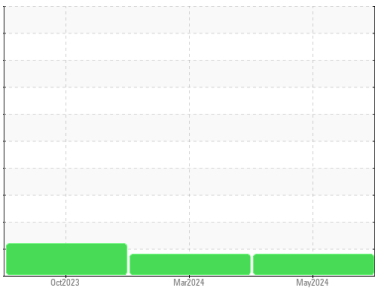
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
413012
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation
No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear
The copper level is abnormal. All other component wear rates are normal.

Contamination
There is no indication of any contamination in the oil.

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		**GFL0106032**	GFL0106195	GFL0078635
Sample Date		Client Info		**21 May 2024**	20 Mar 2024	04 Oct 2023
Machine Age	hrs	Client Info		**2109**	1691	577
Oil Age	hrs	Client Info		**600**	0	0
Oil Changed		Client Info		**Changed**	Not Changd	Changed
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	**<1.0**	<1.0	0.4
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	>200	**16**	7	44
Chromium	ppm	ASTM D5185m	>20	**1**	<1	<1
Nickel	ppm	ASTM D5185m	>10	**3**	2	6
Titanium	ppm	ASTM D5185m		**<1**	<1	<1
Silver	ppm	ASTM D5185m	>2	**2**	<1	1
Aluminum	ppm	ASTM D5185m	>30	**3**	3	5
Lead	ppm	ASTM D5185m	>40	**2**	1	1
Copper	ppm	ASTM D5185m	>20	▲ **36**	▲ 33	▲ 339
Tin	ppm	ASTM D5185m	>20	**2**	1	5
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	**6**	16	148
Barium	ppm	ASTM D5185m	0	**<1**	1	0
Molybdenum	ppm	ASTM D5185m	60	**66**	69	117
Manganese	ppm	ASTM D5185m	0	**1**	<1	4
Magnesium	ppm	ASTM D5185m	1010	**895**	891	701
Calcium	ppm	ASTM D5185m	1070	**1190**	1276	1321
Phosphorus	ppm	ASTM D5185m	1150	**1029**	1096	687
Zinc	ppm	ASTM D5185m	1270	**1247**	1284	829
Sulfur	ppm	ASTM D5185m	2060	**3024**	3551	2393

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	**5**	4	40
Sodium	ppm	ASTM D5185m		**2**	0	0
Potassium	ppm	ASTM D5185m	>20	**6**	4	31

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.4**	0.2	0.3
Nitration	Abs/cm	*ASTM D7624	>20	**8.6**	6.4	9.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	**20.1**	18.3	22.5

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**15.8**	14.3	21.1
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**7.2**	8.3	7.3

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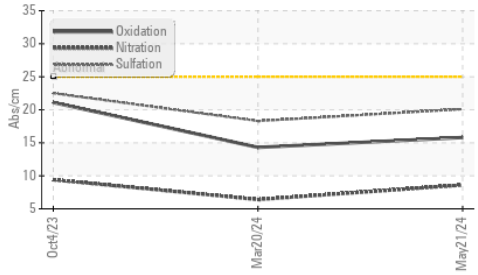
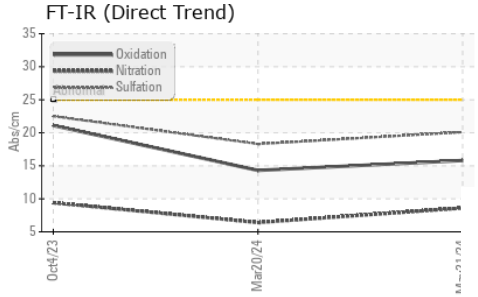
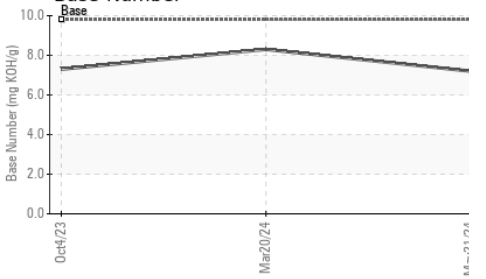
FT-IR (Direct Trend)



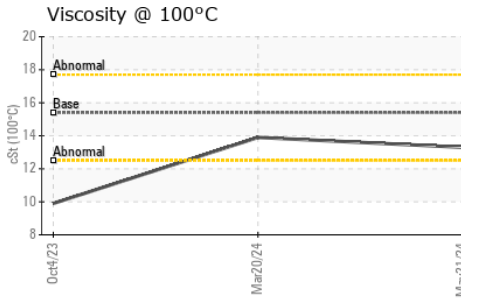
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

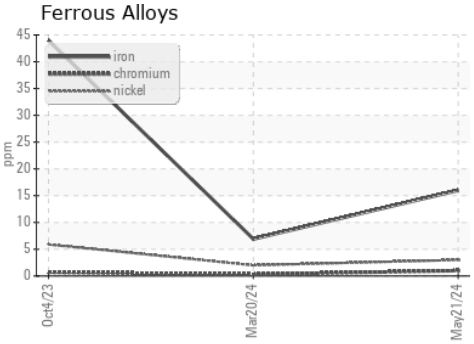


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

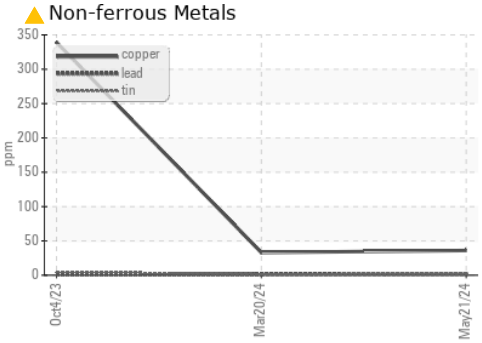
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	**13.3**	13.9	9.9

GRAPHS

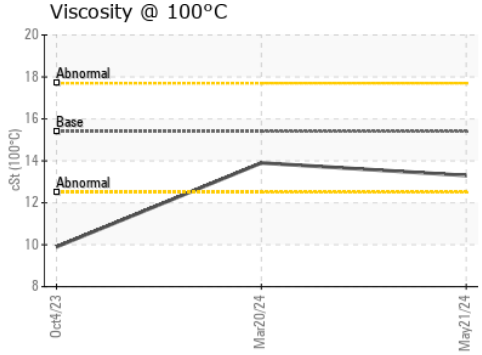
Ferrous Alloys



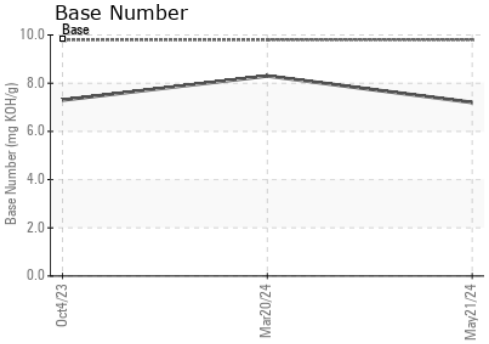
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0106032
Lab Number : 06191941
Unique Number : 11048693
Test Package : FLEET

Received : 28 May 2024
Tested : 29 May 2024
Diagnosed : 30 May 2024 - Don Baldridge

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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