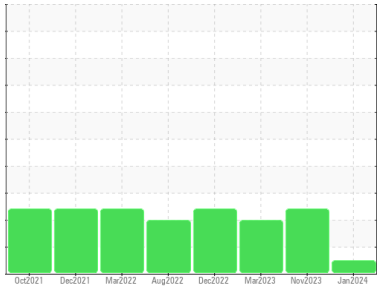
OIL ANALYSIS REPORT

Machine Id
4580M
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

Sample Rating Trend



NORMAL

DIAGNOSIS

Recommendation
Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear
Valve wear is indicated. All other component wear rates are normal.

Contamination
Tests indicate that there is no fuel present in the oil. 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		**GFL0108834**	GFL0101500	GFL0073881
Sample Date		Client Info		**09 Jan 2024**	30 Nov 2023	27 Mar 2023
Machine Age	hrs	Client Info		**15179**	14887	12807
Oil Age	hrs	Client Info		**600**	12807	12008
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**NORMAL**	SEVERE	SEVERE

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	>90	**21**	38	56
Chromium	ppm	ASTM D5185m	>20	**<1**	2	4
Nickel	ppm	ASTM D5185m	>2	**6**	1	0
Titanium	ppm	ASTM D5185m	>2	**0**	0	0
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	**1**	2	4
Lead	ppm	ASTM D5185m	>40	**2**	<1	<1
Copper	ppm	ASTM D5185m	>330	**3**	2	4
Tin	ppm	ASTM D5185m	>15	**<1**	<1	<1
Vanadium	ppm	ASTM D5185m		**0**	0	<1
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**0**	<1	<1
Barium	ppm	ASTM D5185m	0	**0**	2	0
Molybdenum	ppm	ASTM D5185m	60	**56**	47	48
Manganese	ppm	ASTM D5185m	0	**0**	0	1
Magnesium	ppm	ASTM D5185m	1010	**936**	695	745
Calcium	ppm	ASTM D5185m	1070	**1033**	838	852
Phosphorus	ppm	ASTM D5185m	1150	**899**	751	771
Zinc	ppm	ASTM D5185m	1270	**1265**	965	996
Sulfur	ppm	ASTM D5185m	2060	**2273**	3429	2170

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**2**	10	8
Sodium	ppm	ASTM D5185m		**4**	7	8
Potassium	ppm	ASTM D5185m	>20	**<1**	2	0
Fuel	%	ASTM D3524	>3.0	**0.0**	⬢ 15.5	⬢ 13.9

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>6	**1.2**	0.6	1.3
Nitration	Abs/cm	*ASTM D7624	>20	**9.5**	12.2	16.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	**21.9**	21.7	27.4

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**17.8**	21.6	30.2
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**6.1**	6.3	5.1

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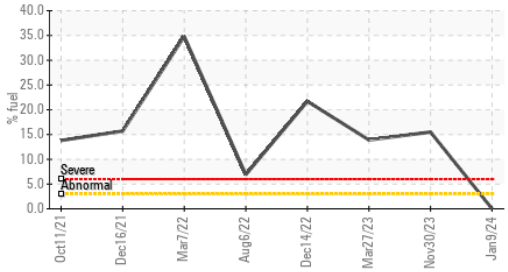
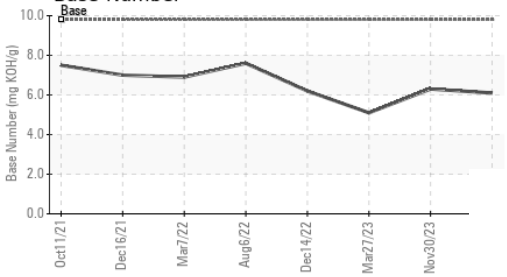
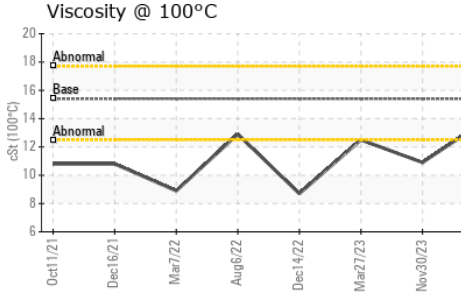
Fuel Dilution



Base Number



Viscosity @ 100°C

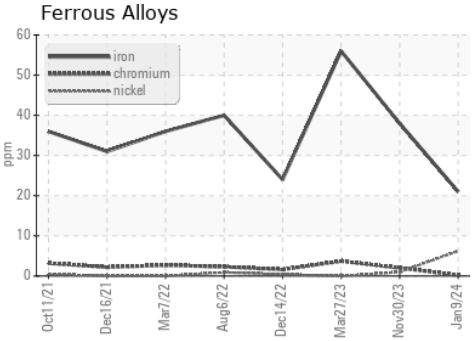


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

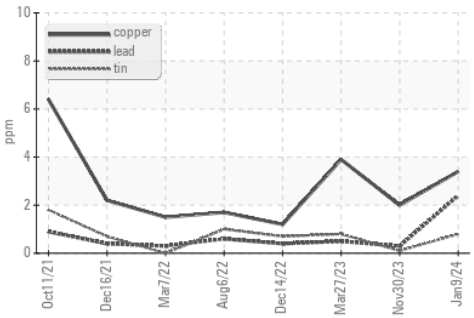
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	**13.8**	▲ 10.9	12.5

GRAPHS

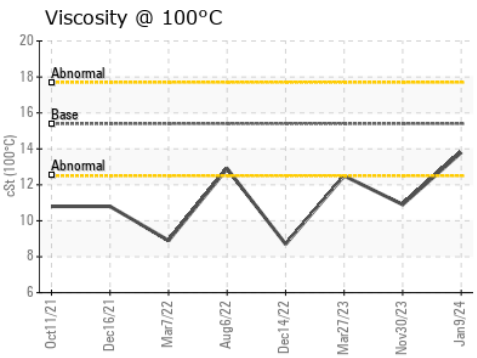
Ferrous Alloys



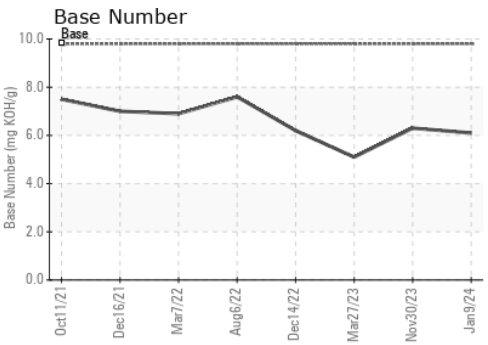
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0108834 **Recieved** : 11 Jan 2024
Lab Number : 06057702 **Diagnosed** : 14 Jan 2024
Unique Number : 10823651 **Diagnostician** : Don Baldridge
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)

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Report Id: GFL415 [WUSCAR] 06057702 (Generated: 01/14/2024 11:55:37) Rev: 1

Submitted By: Frank Wolak