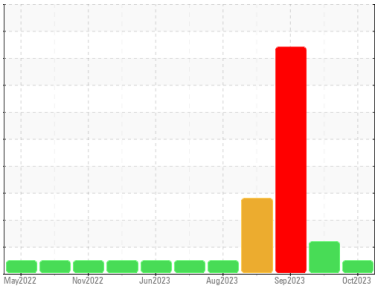
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Area
166
Machine Id
223031-10
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation
Resample at the next service interval to monitor.

Wear
Metal levels are typical for a new component breaking in.

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 suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0091225**	GFL0091220	GFL0087878
Sample Date		Client Info		**05 Oct 2023**	29 Sep 2023	20 Sep 2023
Machine Age	hrs	Client Info		**606**	26424	446816
Oil Age	hrs	Client Info		**600**	0	0
Oil Changed		Client Info		**Changed**	Not Changd	Changed
Sample Status				**NORMAL**	ABNORMAL	SEVERE

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>2.0	**<1.0**	<1.0	0.3

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	**6**	6	34
Chromium	ppm	ASTM D5185m	>20	**0**	0	<1
Nickel	ppm	ASTM D5185m	>4	**<1**	<1	1
Titanium	ppm	ASTM D5185m		**0**	0	<1
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	**0**	0	3
Lead	ppm	ASTM D5185m	>40	**<1**	<1	0
Copper	ppm	ASTM D5185m	>330	**<1**	<1	3
Tin	ppm	ASTM D5185m	>15	**0**	<1	0
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**3**	3	24
Barium	ppm	ASTM D5185m	0	**<1**	<1	0
Molybdenum	ppm	ASTM D5185m	60	**63**	64	64
Manganese	ppm	ASTM D5185m	0	**<1**	<1	<1
Magnesium	ppm	ASTM D5185m	1010	**911**	921	975
Calcium	ppm	ASTM D5185m	1070	**1022**	1026	1110
Phosphorus	ppm	ASTM D5185m	1150	**1037**	1049	1051
Zinc	ppm	ASTM D5185m	1270	**1222**	1249	1272
Sulfur	ppm	ASTM D5185m	2060	**3315**	3429	3529

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**3**	3	9
Sodium	ppm	ASTM D5185m		**14**	14	▲ 107
Potassium	ppm	ASTM D5185m	>20	**143**	▲ 143	▲ 1094
Glycol	%	*ASTM D2982		**0.0**	NEG	⬢ 0.12

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.1**	0.1	0.3
Nitration	Abs/cm	*ASTM D7624	>20	**4.4**	4.4	5.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	**17.1**	16.9	17.6

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**13.0**	12.9	13.3
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**8.8**	9.0	8.9

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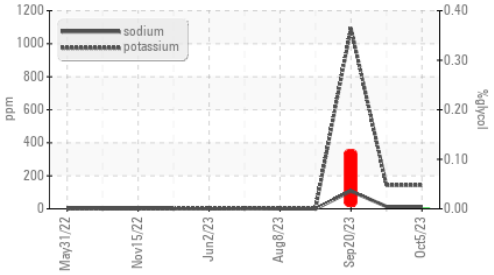
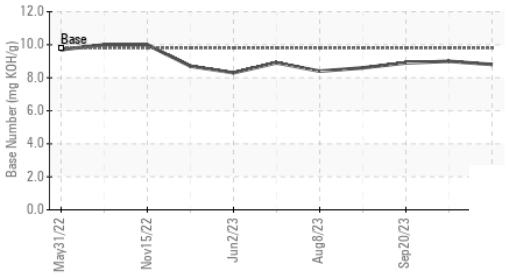
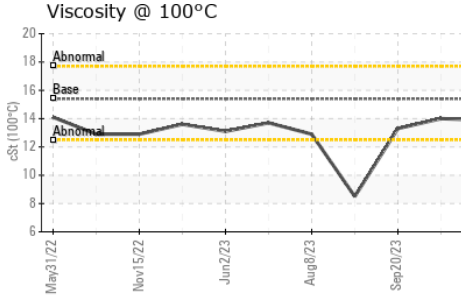
Glycol Contamination



Base Number



Viscosity @ 100°C

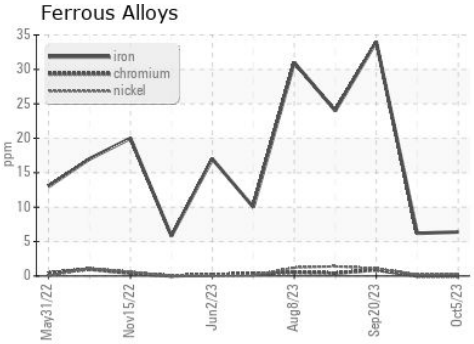


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

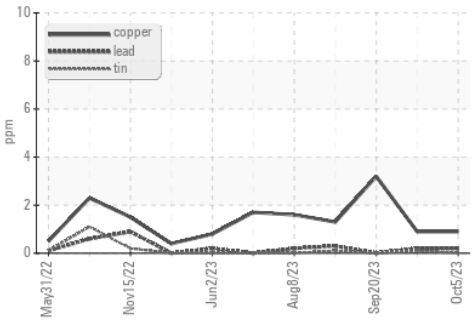
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	**13.9**	14.0	13.3

GRAPHS

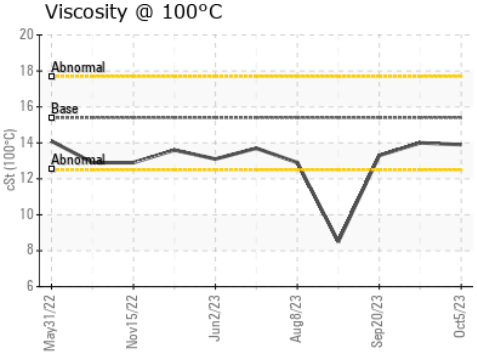
Ferrous Alloys



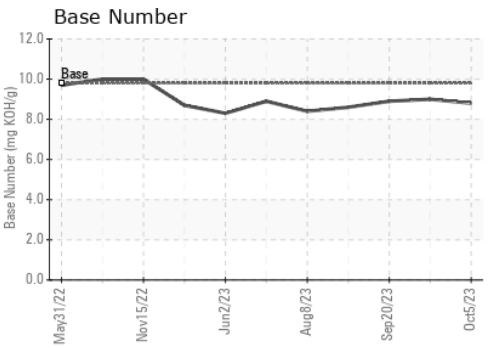
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0091225 **Received** : 10 Oct 2023
Lab Number : 05973870 **Diagnosed** : 11 Oct 2023
Unique Number : 10685820 **Diagnostician** : Wes Davis
Test Package : FLEET (Additional Tests: Glycol)

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)

GFL Environmental - 166 - Phenix City
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F:

Report Id: GFL166 [WUSCAR] 05973870 (Generated: 10/13/2023 10:54:11) Rev: 1

Submitted By: DARRIN WRIGHT