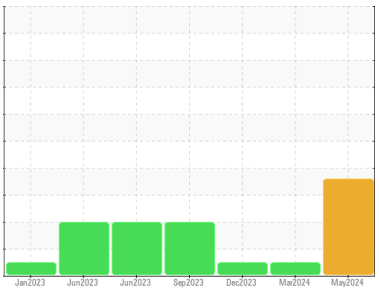
PROBLEM SUMMARY

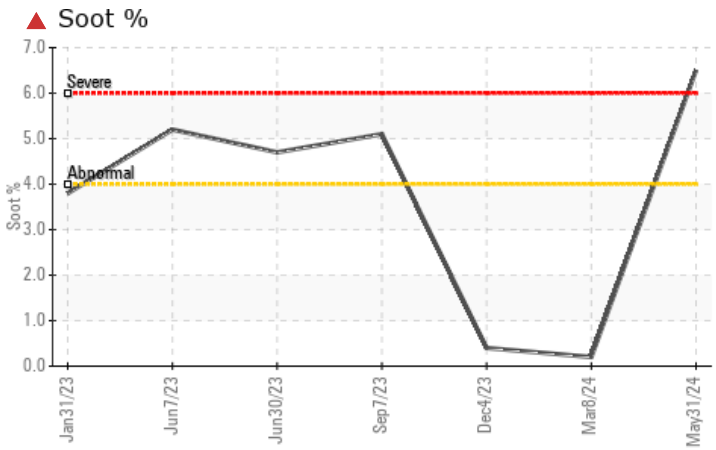
Sample Rating Trend

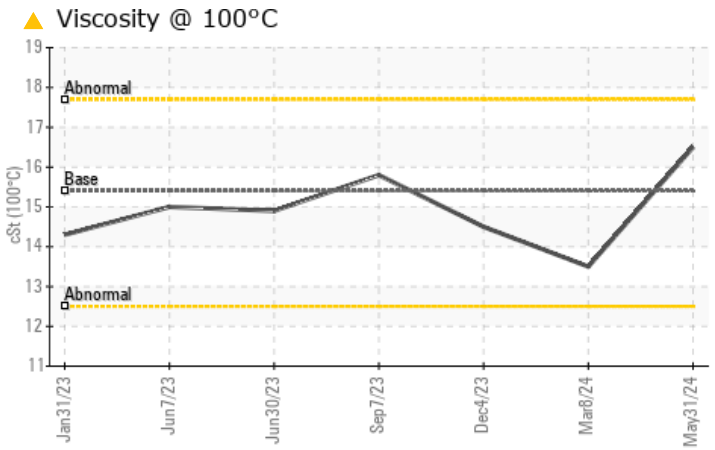


SOOT

Machine Id
727157
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY





RECOMMENDATION

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	NORMAL	NORMAL
Soot %	%	*ASTM D7844	>4	▲ **6.5**	0.2	0.4
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	▲ **0.0**	8.6	9.2
Visc @ 100°C	cSt	ASTM D445	15.4	▲ **16.5**	13.5	14.5

Customer Id: GFL408
Sample No.: GFL0086965
Lab Number: 06198817
Test Package: FLEET

To manage this report scan the QR code

To discuss the diagnosis or test data:
Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Combustion	---	---	?	We advise that you check for faulty combustion, plugged air filters, or aftercoolers.

HISTORICAL DIAGNOSIS

NORMAL

08 Mar 2024 Diag: Wes Davis
Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

NORMAL

04 Dec 2023 Diag: Wes Davis
Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

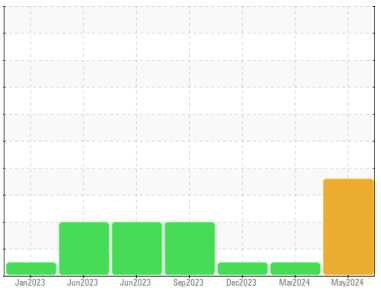
DEGRADATION

07 Sep 2023 Diag: Jonathan Hester
We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We recommend you service the filters on this component. Resample at the next service interval to monitor. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.All component wear rates are normal. There is an abnormal amount of solids and carbon present in the oil. The BN level is low.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



SOOT

Machine Id
727157
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

Wear
All component wear rates are normal.

Contamination
There is an abnormal amount of solids and carbon present in the oil.

Fluid Condition
The oil viscosity is higher than normal. The BN level is low.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0086965**	GFL0086978	GFL0086963
Sample Date		Client Info		**31 May 2024**	08 Mar 2024	04 Dec 2023
Machine Age	hrs	Client Info		**5760**	5000	4700
Oil Age	hrs	Client Info		**562**	602	502
Oil Changed		Client Info		**Not Changd**	Not Changd	N/A
Sample Status				**SEVERE**	NORMAL	NORMAL

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	>120	**32**	11	8
Chromium	ppm	ASTM D5185m	>20	**<1**	0	<1
Nickel	ppm	ASTM D5185m	>5	**0**	0	0
Titanium	ppm	ASTM D5185m	>2	**0**	0	0
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	**1**	<1	<1
Lead	ppm	ASTM D5185m	>40	**7**	2	0
Copper	ppm	ASTM D5185m	>330	**2**	<1	<1
Tin	ppm	ASTM D5185m	>15	**0**	0	0
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**	4	5
Barium	ppm	ASTM D5185m	0	**0**	0	0
Molybdenum	ppm	ASTM D5185m	60	**59**	59	56
Manganese	ppm	ASTM D5185m	0	**<1**	0	0
Magnesium	ppm	ASTM D5185m	1010	**922**	1008	952
Calcium	ppm	ASTM D5185m	1070	**1119**	1140	848
Phosphorus	ppm	ASTM D5185m	1150	**991**	1040	853
Zinc	ppm	ASTM D5185m	1270	**1180**	1269	1072
Sulfur	ppm	ASTM D5185m	2060	**3223**	3708	2924

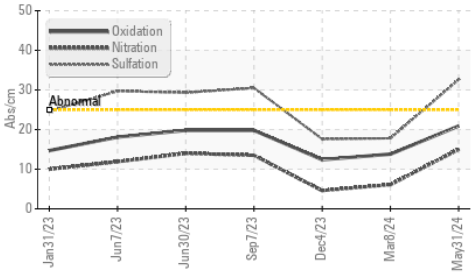
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**0**	2	5
Sodium	ppm	ASTM D5185m		**1**	<1	<1
Potassium	ppm	ASTM D5185m	>20	**<1**	<1	0
Fuel	%	ASTM D3524	>3.0	**<1.0**	<1.0	<1.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>4	▲ **6.5**	0.2	0.4
Nitration	Abs/cm	*ASTM D7624	>20	**15.0**	6.1	4.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	**32.6**	17.8	17.6

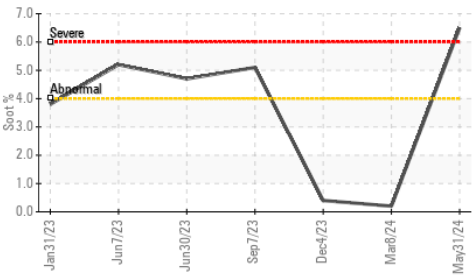
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**20.9**	13.8	12.4
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	▲ **0.0**	8.6	9.2

OIL ANALYSIS REPORT

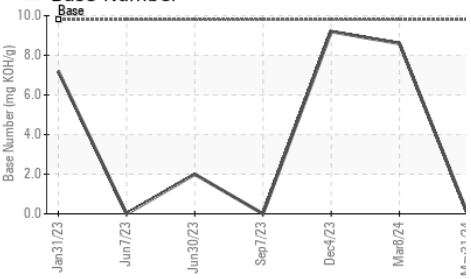
FT-IR (Direct Trend)



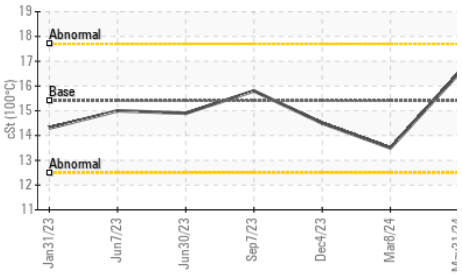
Soot %



Base Number



Viscosity @ 100°C

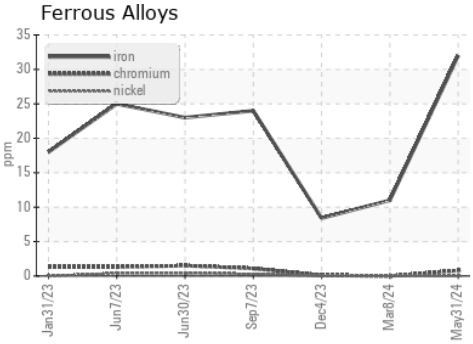


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

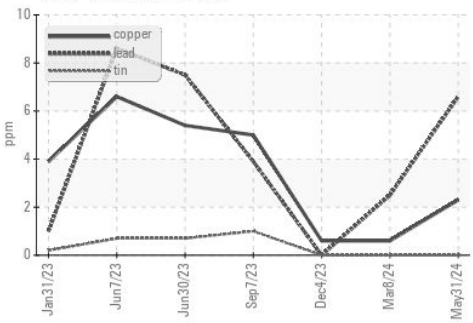
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	▲ **16.5**	13.5	14.5

GRAPHS

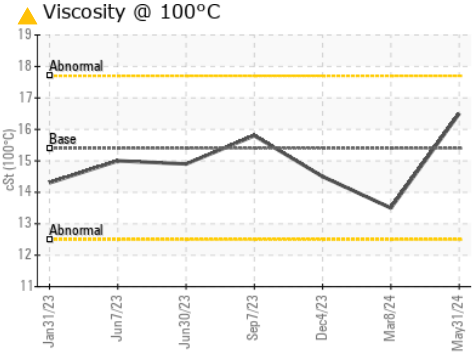
Ferrous Alloys



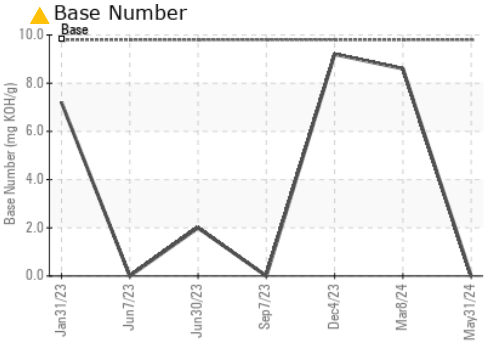
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0086965
Lab Number : 06198817
Unique Number : 11060940
Test Package : FLEET (Additional Tests: FuelDilution)

Received : 04 Jun 2024
Tested : 05 Jun 2024
Diagnosed : 05 Jun 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)

GFL Environmental - 408 - Brown City
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BROWN CITY, MI
US 48416
Contact: WILLIAM DEOLA
bdeola@gflenv.com
T: (810)238-2836
F:

Report Id: GFL408 [WUSCAR] 06198817 (Generated: 06/06/2024 07:35:33) Rev: 1

Submitted By: WILLIAM DEOLA