



WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL



Machine Id
427148
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

RECOMMENDATION

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. 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. (Customer Sample Comment: Services completed)

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		GFL0116291	GFL0116267	GFL0094851
Sample Date		Client Info		17 May 2024	14 Mar 2024	06 Nov 2023
Machine Age	hrs	Client Info		17925	17739	17412
Oil Age	hrs	Client Info		515	329	288
Filter Age	hrs	Client Info		515	329	288
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Filter Changed		Client Info		Changed	Not Changd	Not Changd
Sample Status				ABNORMAL	NORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>120	30	17	31
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	1	<1	2
Lead	ppm	ASTM D5185m	>40	4	1	3
Copper	ppm	ASTM D5185m	>330	2	2	<1
Tin	ppm	ASTM D5185m	>15	<1	0	0
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

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

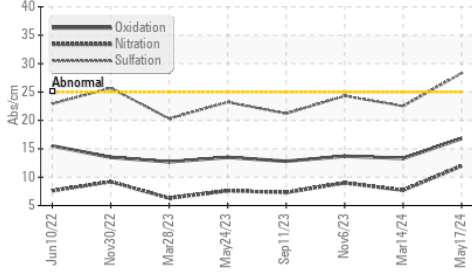
Silicon	ppm	ASTM D5185m	>25	3	2	3
Potassium	ppm	ASTM D5185m	>20	0	<1	3
Fuel	%	ASTM D3524	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>4	▲ 5.8	3	▲ 4
Nitration	Abs/cm	*ASTM D7624	>20	12.0	7.7	9.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	28.3	22.5	24.3
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

FLUID CONDITION

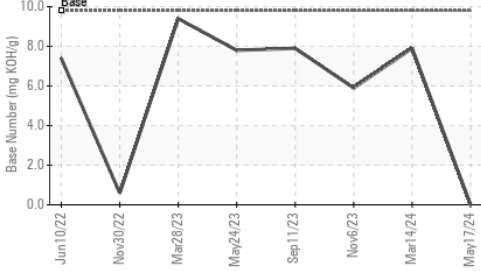
The oil viscosity is higher than normal. The BN level is low.

Sodium	ppm	ASTM D5185m		<1	1	0
Boron	ppm	ASTM D5185m	0	8	4	2
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	60	60	60
Manganese	ppm	ASTM D5185m	0	<1	<1	0
Magnesium	ppm	ASTM D5185m	1010	938	936	871
Calcium	ppm	ASTM D5185m	1070	1083	1074	1021
Phosphorus	ppm	ASTM D5185m	1150	1036	998	876
Zinc	ppm	ASTM D5185m	1270	1209	1200	1143
Sulfur	ppm	ASTM D5185m	2060	3300	3552	2775
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.8	13.3	13.7
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	▲ 0.0	7.9	5.9
Visc @ 100°C	cSt	ASTM D445	15.4	▲ 18.3	14.6	14.7

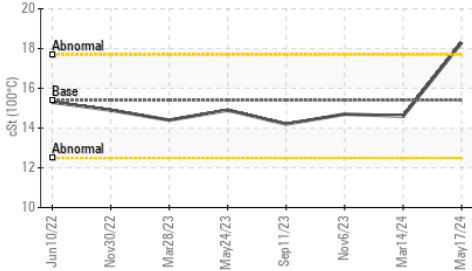
▲ FT-IR (Direct Trend)



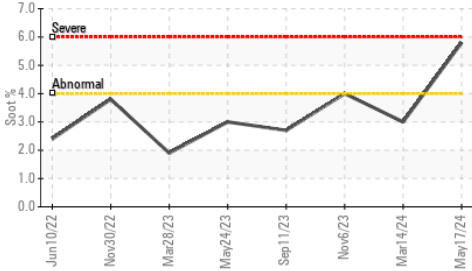
▲ Base Number



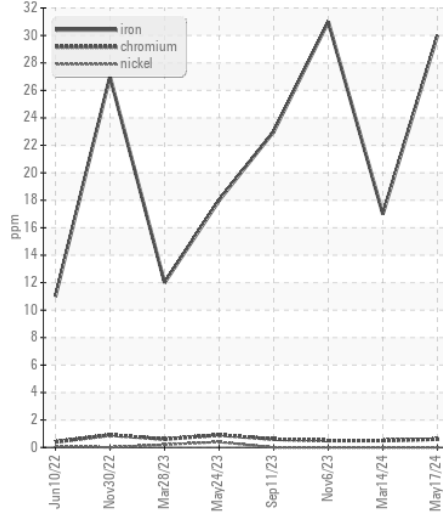
▲ Viscosity @ 100°C



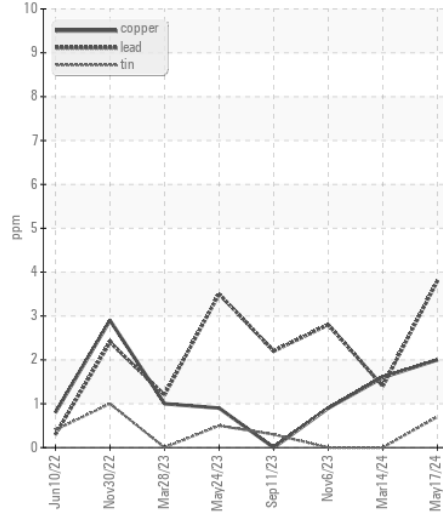
▲ Soot %



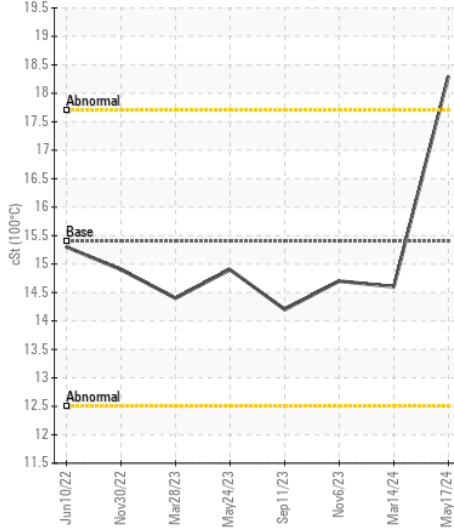
Ferrous Alloys



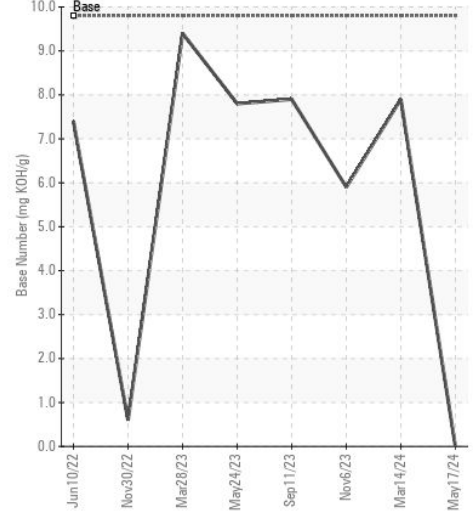
Non-ferrous Metals



▲ Viscosity @ 100°C



▲ Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0116291 **Received** : 21 May 2024
Lab Number : 06187143 **Tested** : 24 May 2024
Unique Number : 11043895 **Diagnosed** : 24 May 2024 - Jonathan Hester
Test Package : FLEET (Additional Tests: FuelDilution)

GFL Environmental - 455 - Flint
 2051 W. Bristol Rd
 Flint Township, MI
 US 48507
 Contact: MARK WOMBLE
 mwomble@gflenv.com
 T: (586)825-9514
 F:

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)