



Machine Id
422013
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		GFL0107733	GFL0096529	GFL0096526
Sample Date		Client Info		31 Jan 2024	07 Nov 2023	30 Oct 2023
Machine Age	hrs	Client Info		29198	28750	28694
Oil Age	hrs	Client Info		600	600	600
Filter Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Not Changed	Changed
Filter Changed		Client Info		Changed	Not Changed	Changed
Sample Status				SEVERE	NORMAL	SEVERE

WEAR

An increase in the iron level is noted.

Iron	ppm	ASTM D5185m	>120	▲ 100	2	10
Chromium	ppm	ASTM D5185m	>20	5	<1	<1
Nickel	ppm	ASTM D5185m	>5	2	0	1
Titanium	ppm	ASTM D5185m	>2	2	0	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	▲ 18	2	▲ 23
Lead	ppm	ASTM D5185m	>40	<1	<1	0
Copper	ppm	ASTM D5185m	>330	6	<1	2
Tin	ppm	ASTM D5185m	>15	1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

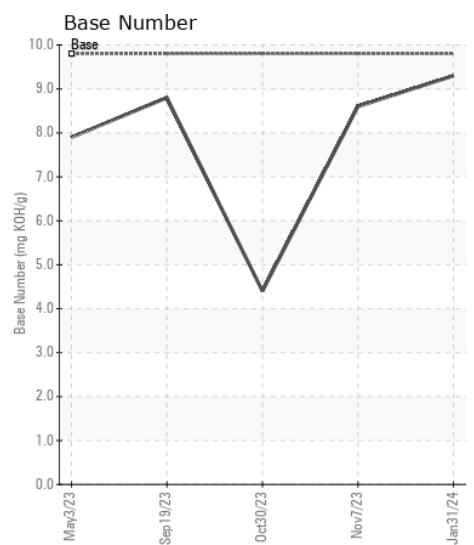
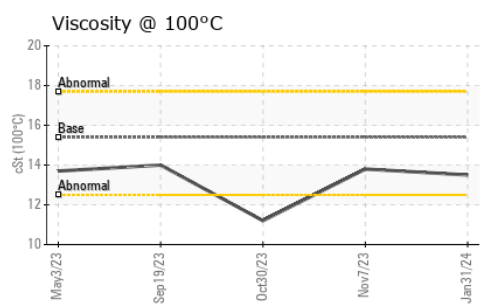
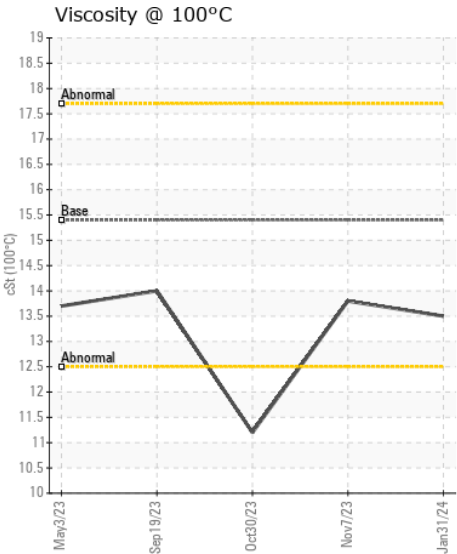
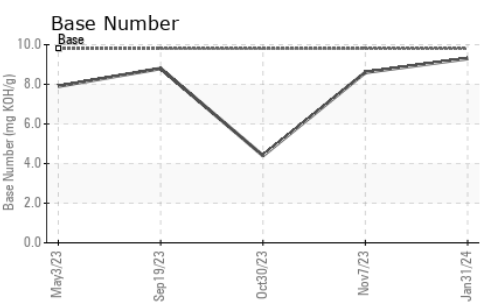
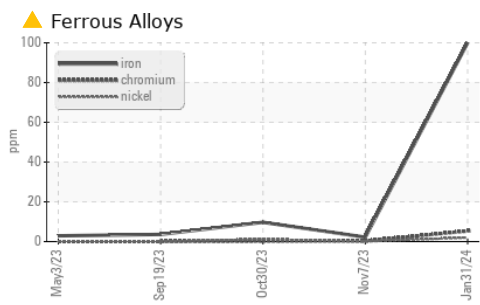
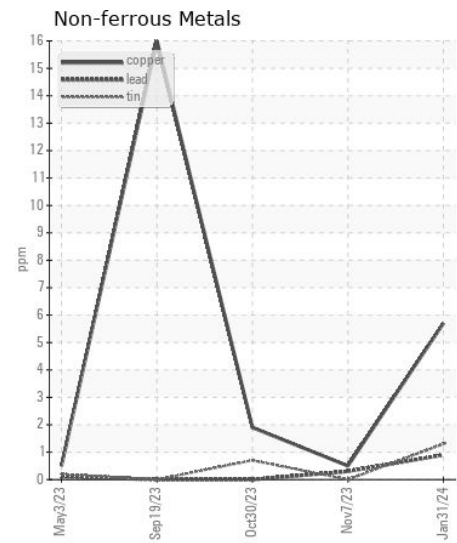
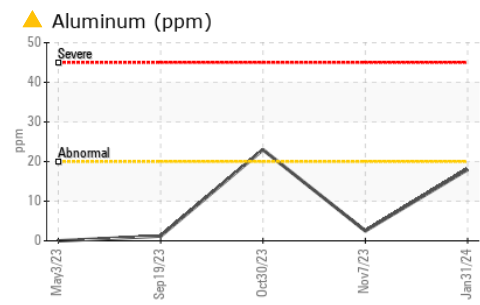
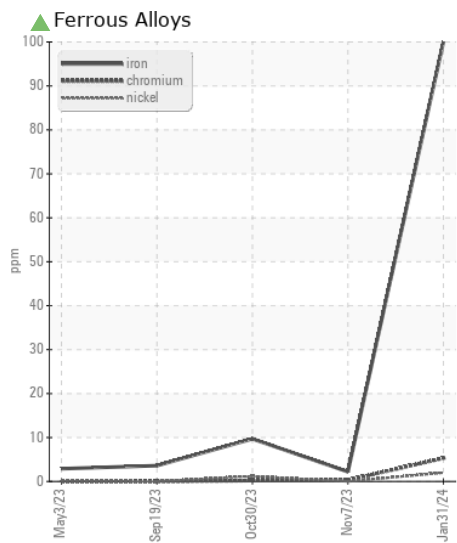
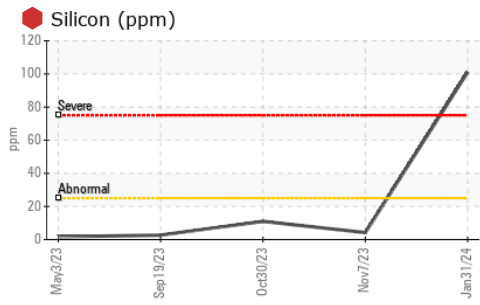
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Silicon	ppm	ASTM D5185m	>25	◆ 101	4	11
Potassium	ppm	ASTM D5185m	>20	8	2	3
Fuel		WC Method	>3.0	<1.0	1.5	◆ 6.7
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>4	0.1	0.1	0.4
Nitration	Abs/cm	*ASTM D7624	>20	6.2	5.2	10.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.0	17.9	21.8
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 BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m		4	0	3
Boron	ppm	ASTM D5185m	0	2	<1	5
Barium	ppm	ASTM D5185m	0	0	6	0
Molybdenum	ppm	ASTM D5185m	60	63	59	54
Manganese	ppm	ASTM D5185m	0	2	0	<1
Magnesium	ppm	ASTM D5185m	1010	1024	866	859
Calcium	ppm	ASTM D5185m	1070	1161	1062	972
Phosphorus	ppm	ASTM D5185m	1150	998	1003	905
Zinc	ppm	ASTM D5185m	1270	1289	1141	1142
Sulfur	ppm	ASTM D5185m	2060	3019	3529	2631
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.1	13.7	18.0
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	9.3	8.6	4.4
Visc @ 100°C	cSt	ASTM D445	15.4	13.5	13.8	▲ 11.2



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0107733
Lab Number : 06085274
Unique Number : 10872719
Test Package : FLEET
Received : 09 Feb 2024
Tested : 12 Feb 2024
Diagnosed : 12 Feb 2024 - Don Baldrige

GFL Environmental - 465 - Pontiac
 888 Baldwin
 Pontiac, MI
 US 48340
 Contact: Ricky Matthews
 rickymathews@gflenv.com
 T: (586)825-9514
 F:

Certificate L2367
 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)