



WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL



Machine Id
420093 - SW4021
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

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.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		GFL0123544	GFL0112041	GFL0105497
Sample Date		Client Info		12 Jun 2024	29 Mar 2024	08 Jan 2024
Machine Age	mls	Client Info		148809	140322	130745
Oil Age	mls	Client Info		148809	140322	130745
Filter Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>120	18	3	3
Chromium	ppm	ASTM D5185m	>20	0	0	0
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	3	2	1
Copper	ppm	ASTM D5185m	>330	2	<1	<1
Tin	ppm	ASTM D5185m	>15	0	0	0
Vanadium	ppm	ASTM D5185m		0	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

Elemental level of silicon (Si) above normal.

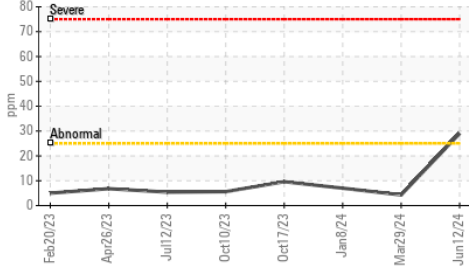
Silicon	ppm	ASTM D5185m	>25	▲ 29	4	7
Potassium	ppm	ASTM D5185m	>20	<1	<1	2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>4	0.2	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	7.6	8.3	7.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	16.9	19.1	18.9
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

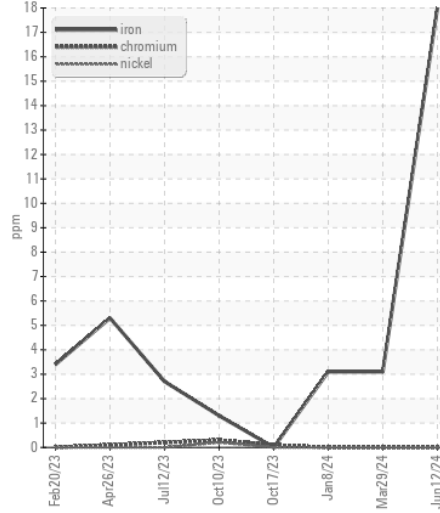
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		2	2	1
Boron	ppm	ASTM D5185m	0	0	0	0
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	50	58	51
Manganese	ppm	ASTM D5185m	0	<1	0	<1
Magnesium	ppm	ASTM D5185m	1010	10	8	0
Calcium	ppm	ASTM D5185m	1070	2762	2740	2615
Phosphorus	ppm	ASTM D5185m	1150	1147	1156	1138
Zinc	ppm	ASTM D5185m	1270	1400	1427	1303
Sulfur	ppm	ASTM D5185m	2060	3963	3969	3256
Oxidation	Abs/.1mm	*ASTM D7414	>25	10.1	11.8	10.9
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.3	6.5	6.3
Visc @ 100°C	cSt	ASTM D445	15.4	13.7	12.7	13.1

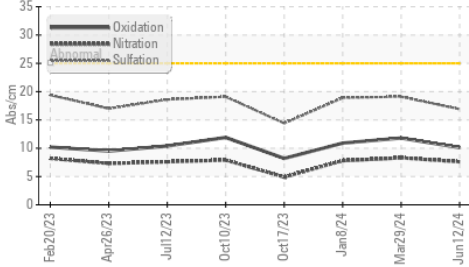
▲ Silicon (ppm)



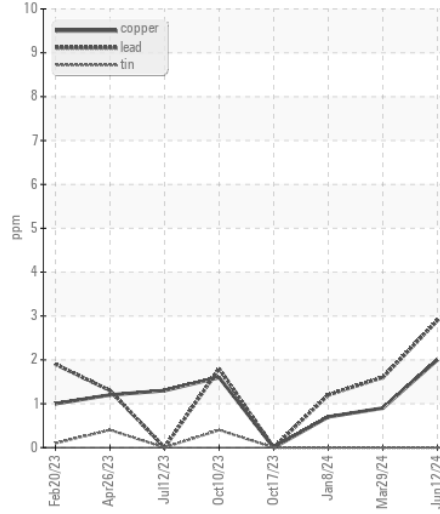
Ferrous Alloys



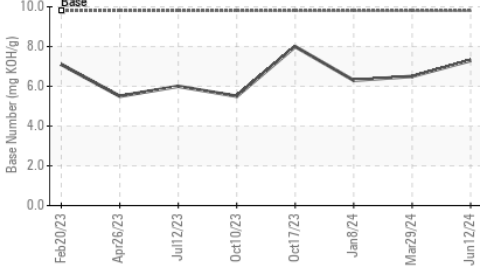
FT-IR (Direct Trend)



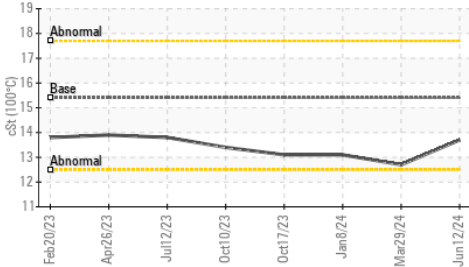
Non-ferrous Metals



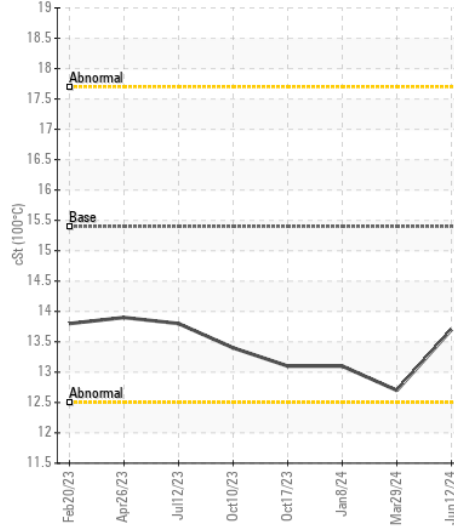
Base Number



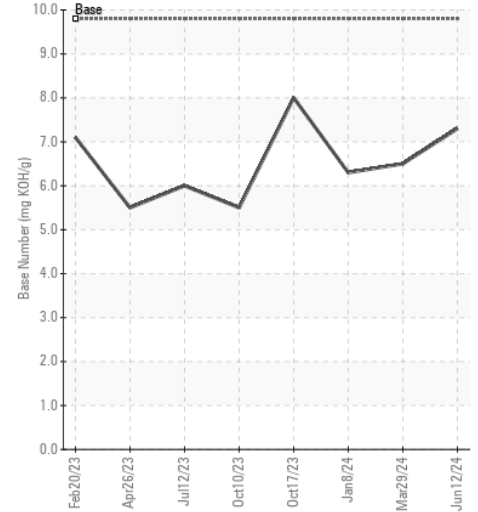
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : GFL0123544
 Lab Number : 06213215
 Unique Number : 11086079
 Test Package : FLEET

Received : 18 Jun 2024
 Tested : 19 Jun 2024
 Diagnosed : 20 Jun 2024 - Don Baldrige

GFL Environmental - 983 - Sugar Land Hauling
 16011 West Belfort Street
 Sugar Land, TX
 US 77498
 Contact: Adrian Martinez
 adrianmartinez@gflenv.com

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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F: