



WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

Machine Id
2449 MACK GRANITE
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (48 QTS)

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.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		GFL0117508	GFL0117490	GFL0094655
Sample Date		Client Info		29 May 2024	03 May 2024	12 Mar 2024
Machine Age	hrs	Client Info		44080	43868	43459
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	SEVERE

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>120	71	48	97
Chromium	ppm	ASTM D5185m	>20	<1	1	2
Nickel	ppm	ASTM D5185m	>5	0	0	<1
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	2	3	3
Lead	ppm	ASTM D5185m	>40	3	3	7
Copper	ppm	ASTM D5185m	>330	48	43	113
Tin	ppm	ASTM D5185m	>15	2	2	3
Vanadium	ppm	ASTM D5185m		0	0	<1
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.

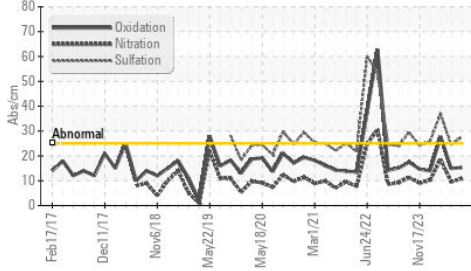
Silicon	ppm	ASTM D5185m	>25	5	6	4
Potassium	ppm	ASTM D5185m	>20	<1	▲ 134	3
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>4	▲ 4.7	3.1	▲ 7.2
Nitration	Abs/cm	*ASTM D7624	>20	10.8	9.5	18.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	27.4	24.6	36.9
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

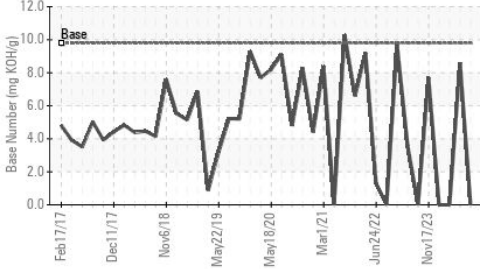
The BN level is low.

Sodium	ppm	ASTM D5185m		2	▲ 82	4
Boron	ppm	ASTM D5185m	0	2	3	2
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	59	64	55
Manganese	ppm	ASTM D5185m	0	1	1	2
Magnesium	ppm	ASTM D5185m	1010	938	897	952
Calcium	ppm	ASTM D5185m	1070	1041	1159	1107
Phosphorus	ppm	ASTM D5185m	1150	1056	1032	953
Zinc	ppm	ASTM D5185m	1270	1240	1213	1224
Sulfur	ppm	ASTM D5185m	2060	3236	3275	3052
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.3	14.9	27.7
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	▲ 0.0	8.6	▲ 0.0
Visc @ 100°C	cSt	ASTM D445	15.4	15.5	15.0	16.5

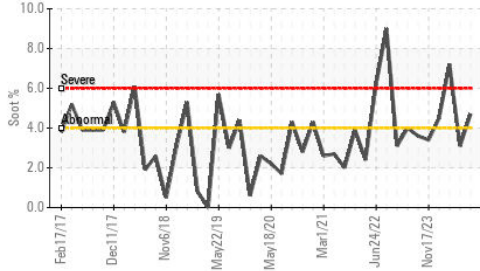
▲ FT-IR (Direct Trend)



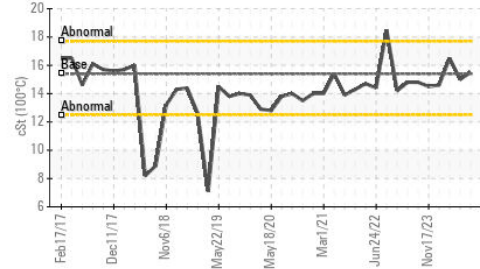
▲ Base Number



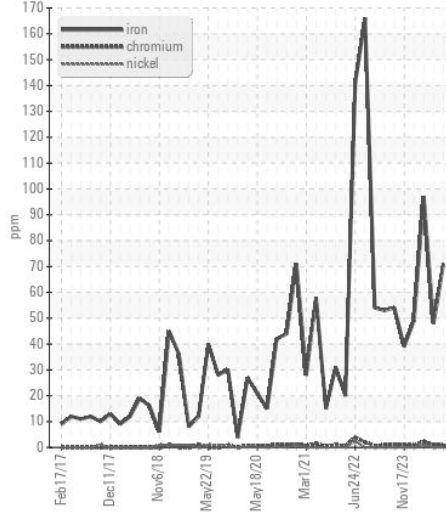
▲ Soot %



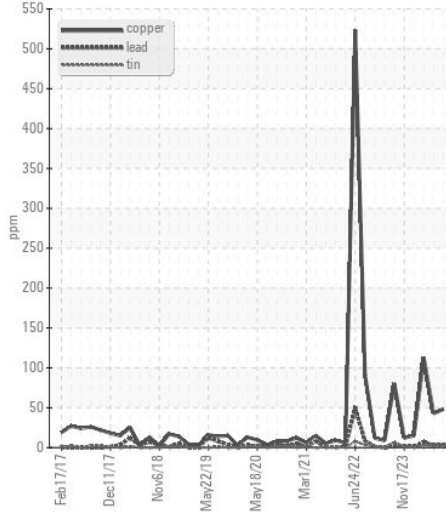
Viscosity @ 100°C



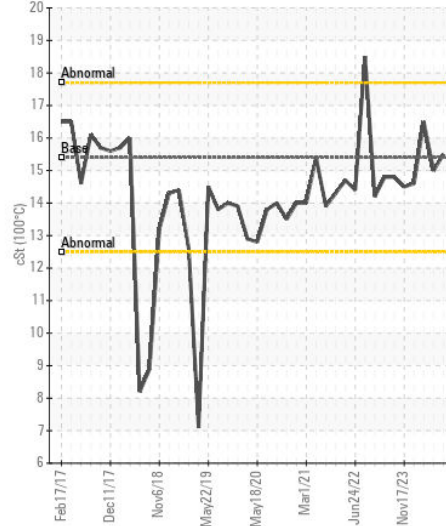
Ferrous Alloys



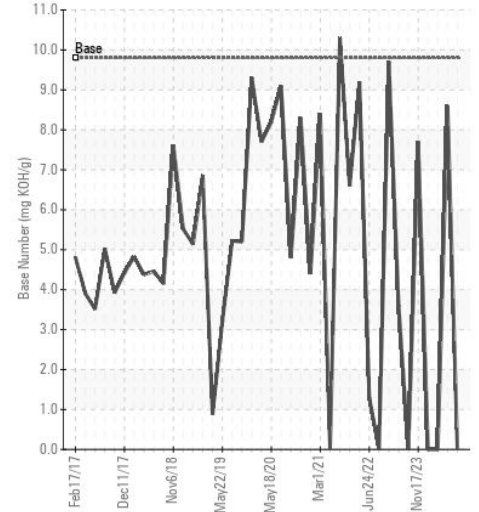
Non-ferrous Metals



Viscosity @ 100°C



▲ Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : GFL0117508
 Lab Number : 06196241
 Unique Number : 11058364
 Test Package : FLEET

Received : 31 May 2024
 Tested : 03 Jun 2024
 Diagnosed : 03 Jun 2024 - Don Baldrige

GFL Environmental - 001 - Raleigh(CNG)

3741 Conquest Drive
 Garner, NC
 US 27529

Contact: Craig Johnson
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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)