



OIL ANALYSIS REPORT

Sample Rating Trend

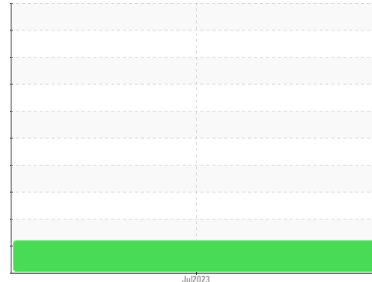
WEAR



Machine Id
413105

Component
Diesel Engine

Fluid
PETRO CANADA DURON HP 15W40 (--- GAL)



DIAGNOSIS

▲ Recommendation

We recommend that you drain the oil from the component if this has not already been done. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

▲ Wear

Iron ppm levels are abnormal. Cylinder, crank, or cam shaft wear is indicated.

Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. Light fuel dilution occurring. No other contaminants were detected in the oil.

▲ Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. Viscosity of sample indicates oil is within SAE 30 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	GFL0084292	---	---
Sample Date	Client Info	26 Jul 2023	---	---
Machine Age	hrs	Client Info	213908	---
Oil Age	hrs	Client Info	0	---
Oil Changed	Client Info	N/A	---	---
Sample Status		ABNORMAL	---	---

CONTAMINATION

method	limit/base	current	history1	history2
Glycol	WC Method	NEG	---	---

WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184*	>65	6	---
Iron	ppm	ASTM D5185(m)	>80	▲ 81
Chromium	ppm	ASTM D5185(m)	>5	3
Nickel	ppm	ASTM D5185(m)	>2	0
Titanium	ppm	ASTM D5185(m)		<1
Silver	ppm	ASTM D5185(m)	>3	0
Aluminum	ppm	ASTM D5185(m)	>30	13
Lead	ppm	ASTM D5185(m)	>30	<1
Copper	ppm	ASTM D5185(m)	>150	6
Tin	ppm	ASTM D5185(m)	>5	0
Antimony	ppm	ASTM D5185(m)		0
Vanadium	ppm	ASTM D5185(m)		0
Beryllium	ppm	ASTM D5185(m)		0
Cadmium	ppm	ASTM D5185(m)		0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	31
Barium	ppm	ASTM D5185(m)	0	5
Molybdenum	ppm	ASTM D5185(m)	60	43
Manganese	ppm	ASTM D5185(m)	0	3
Magnesium	ppm	ASTM D5185(m)	1010	557
Calcium	ppm	ASTM D5185(m)	1070	1575
Phosphorus	ppm	ASTM D5185(m)	1150	786
Zinc	ppm	ASTM D5185(m)	1270	868
Sulfur	ppm	ASTM D5185(m)	2060	1927
Lithium	ppm	ASTM D5185(m)		<1

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>20	15
Sodium	ppm	ASTM D5185(m)		4
Potassium	ppm	ASTM D5185(m)	>20	44
Fuel	%	ASTM D7593*	>5	1.4

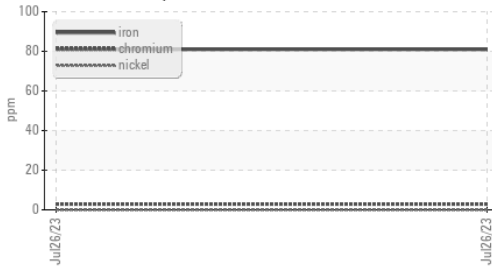
INFRA-RED

method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3	0.4
Nitration	Abs/cm	ASTM D7624*	>20	9.3
Sulfation	Abs./1mm	ASTM D7415*	>30	24.0



OIL ANALYSIS REPORT

▲ Ferrous Alloys



FLUID DEGRADATION

Method	Limit/Base	Current	History1	History2
Oxidation (Abs./1mm, ASTM D7414*)	>25	22.5	---	---
Base Number (BN) (mg KOH/g, ASTM D2896*)	9.8	7.55	---	---

VISUAL

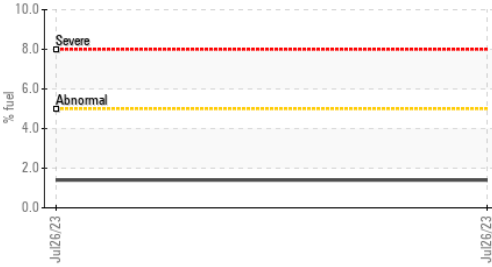
Method	Limit/Base	Current	History1	History2
Emulsified Water (scalar, Visual*)	>0.2	NEG	---	---
Free Water (scalar, Visual*)		NEG	---	---

FLUID PROPERTIES

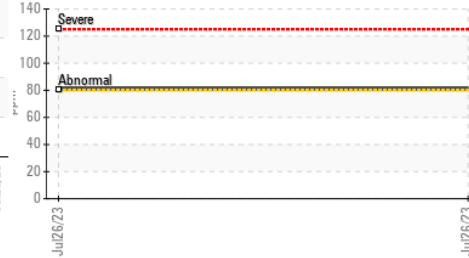
Method	Limit/Base	Current	History1	History2
Visc @ 100°C (cSt, ASTM D7279(m))	15.6	▲ 10.0	---	---

GRAPHS

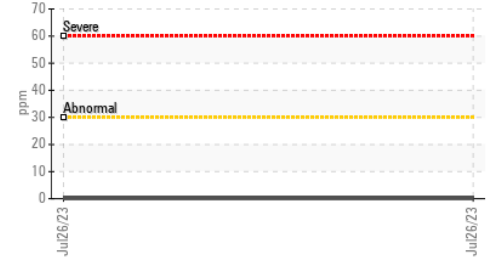
Fuel Dilution



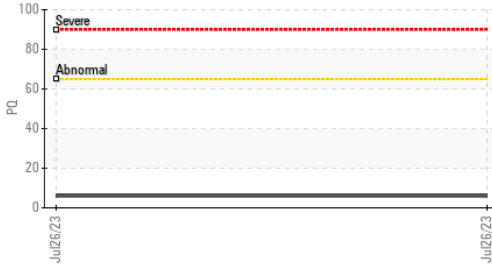
▲ Iron (ppm)



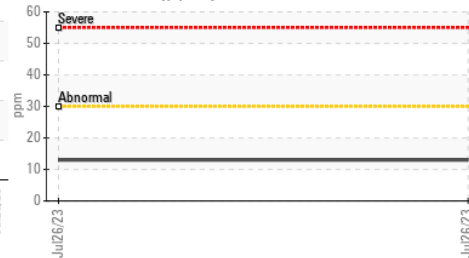
Lead (ppm)



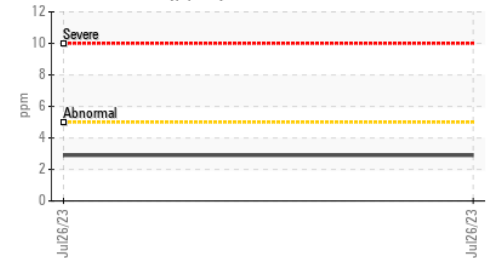
PQ



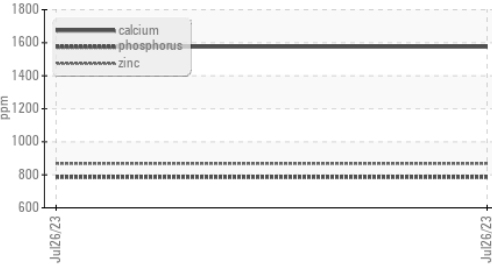
Aluminum (ppm)



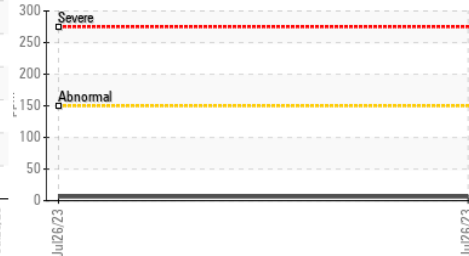
Chromium (ppm)



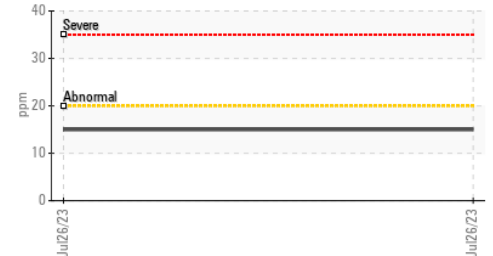
Additives



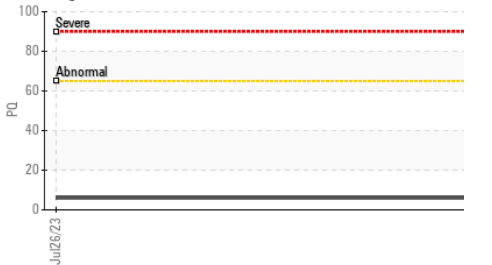
Copper (ppm)



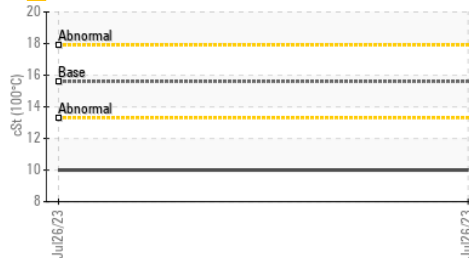
Silicon (ppm)



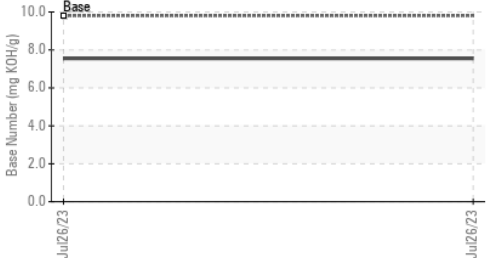
PQ



▲ Viscosity @ 100°C



Base Number



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 550 - Rocky View County
Sample No. : GFL0084292 **Received** : 02 Aug 2023
Lab Number : 02573643 **Diagnosed** : 03 Aug 2023
Unique Number : 5618694 **Diagnostician** : Kevin Marson
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel, PQ)

To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.

220 Carmek Blvd
 Rocky View County, AB
 CA T1X 1X1
 Contact: GFL Calgary
 calgarymaintenance@gflenv.com
 T:
 F: (403)369-6163