



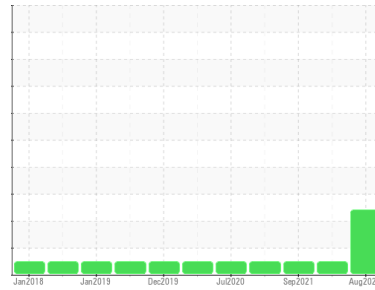
OIL ANALYSIS REPORT

Sample Rating Trend

DEGRADATION



Machine Id
801053
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (19 LTR)



DIAGNOSIS

Recommendation

We advise that you check for faulty combustion and a possible overheat condition. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

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

Contamination

There is an abnormal level of sulfation indicated.

Fluid Condition

A small degree of oil oxidation was indicated. 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	GFL0091029	GFL0059501	GFL0034429
Sample Date	Client Info	01 Aug 2023	15 Sep 2022	22 Sep 2021
Machine Age	hrs	94157	94157	2519
Oil Age	hrs	2519	0	0
Oil Changed	Client Info	Changed	N/A	Changed
Sample Status		ABNORMAL	NORMAL	NORMAL

CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >5	<1.0	<1.0	<1.0
Glycol	WC Method	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2		
PQ	ASTM D8184*	>65	0	---	---	
Iron	ppm	ASTM D5185(m)	>80	▲ 77	16	37
Chromium	ppm	ASTM D5185(m)	>5	3	<1	1
Nickel	ppm	ASTM D5185(m)	>2	<1	0	<1
Titanium	ppm	ASTM D5185(m)		<1	<1	0
Silver	ppm	ASTM D5185(m)	>3	0	0	<1
Aluminum	ppm	ASTM D5185(m)	>30	5	5	4
Lead	ppm	ASTM D5185(m)	>30	0	0	2
Copper	ppm	ASTM D5185(m)	>150	2	1	2
Tin	ppm	ASTM D5185(m)	>5	0	0	<1
Antimony	ppm	ASTM D5185(m)		0	<1	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		0	0	0

ADDITIVES

method	limit/base	current	history1	history2		
Boron	ppm	ASTM D5185(m)	0	6	18	11
Barium	ppm	ASTM D5185(m)	0	0	0	0
Molybdenum	ppm	ASTM D5185(m)	60	56	69	68
Manganese	ppm	ASTM D5185(m)	0	<1	<1	<1
Magnesium	ppm	ASTM D5185(m)	1010	878	915	937
Calcium	ppm	ASTM D5185(m)	1070	959	1147	1139
Phosphorus	ppm	ASTM D5185(m)	1150	947	989	1009
Zinc	ppm	ASTM D5185(m)	1270	1091	1110	1154
Sulfur	ppm	ASTM D5185(m)	2060	2089	2430	2391
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS

method	limit/base	current	history1	history2		
Silicon	ppm	ASTM D5185(m)	>20	8	5	4
Sodium	ppm	ASTM D5185(m)		10	8	12
Potassium	ppm	ASTM D5185(m)	>20	4	6	3

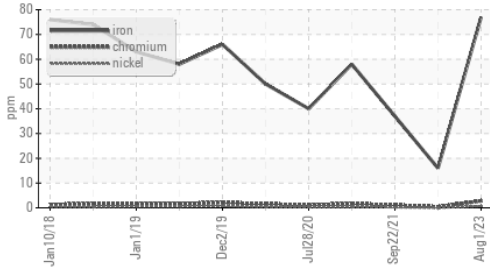
INFRA-RED

method	limit/base	current	history1	history2		
Soot %	%	ASTM D7844*	>3	1.3	0.3	0.8
Nitration	Abs/cm	ASTM D7624*	>20	17.4	9.6	10.5
Sulfation	Abs.1mm	ASTM D7415*	>30	▲ 32.0	21.7	22.8



OIL ANALYSIS REPORT

▲ Ferrous Alloys



FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs./1mm ASTM D7414*	>25 ▲ 32.6	18.0	18.4

VISUAL

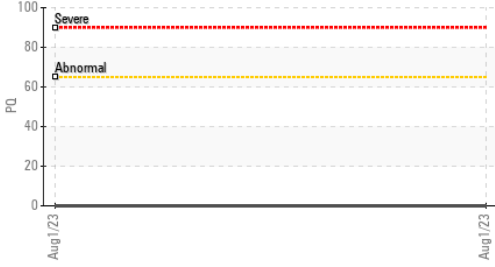
method	limit/base	current	history1	history2
Emulsified Water	scalar Visual*	>0.2 NEG	NEG	NEG
Free Water	scalar Visual*	NEG	NEG	NEG

FLUID PROPERTIES

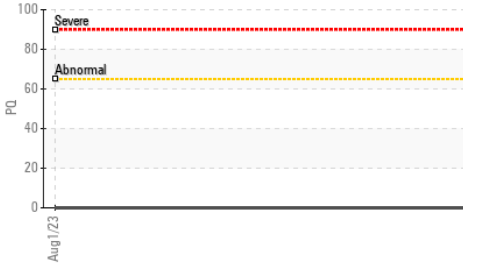
method	limit/base	current	history1	history2
Visc @ 100°C	cSt ASTM D7279(m)	15.4 13.9	14.2	13.5

GRAPHS

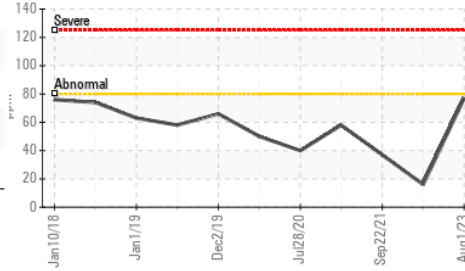
PQ



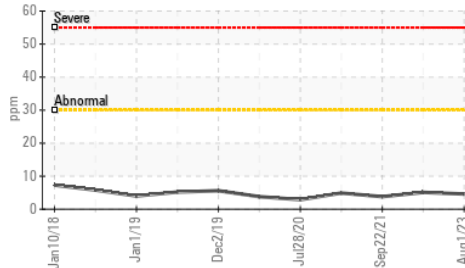
PQ



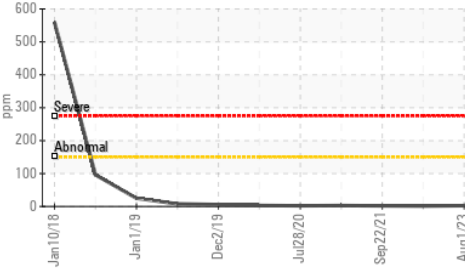
▲ Iron (ppm)



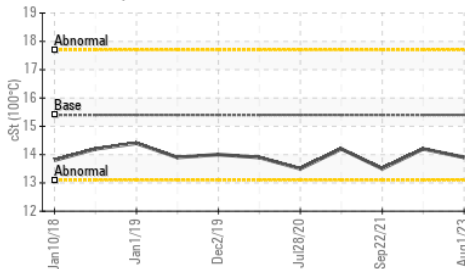
Aluminum (ppm)



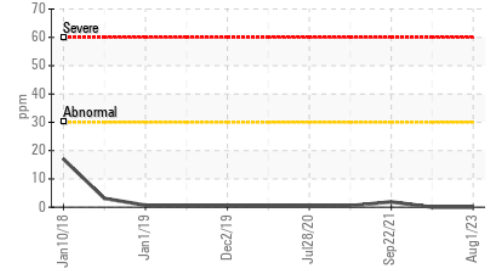
Copper (ppm)



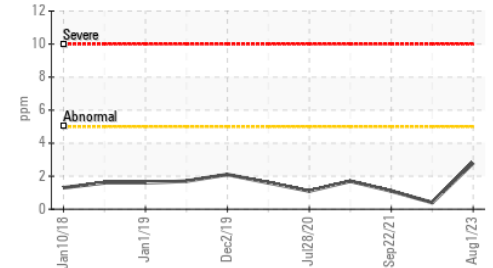
Viscosity @ 100°C



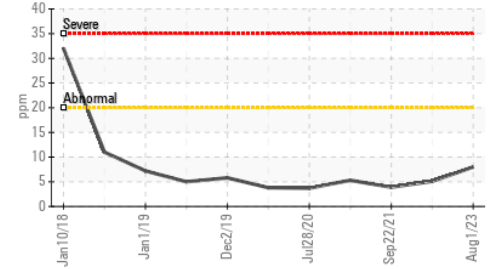
Lead (ppm)



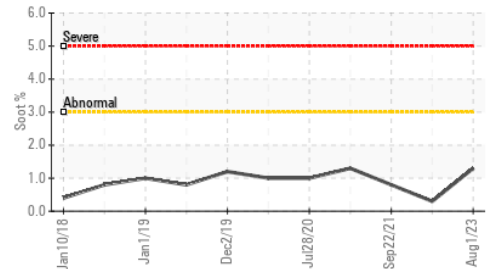
Chromium (ppm)



Silicon (ppm)



Soot %



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : GFL0091029 **Received** : 16 Aug 2023
Lab Number : 02576144 **Diagnosed** : 17 Aug 2023
Unique Number : 5629204 **Diagnostician** : Kevin Marson
Test Package : MOB 1 (Additional Tests: PQ)

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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.