



OIL ANALYSIS REPORT

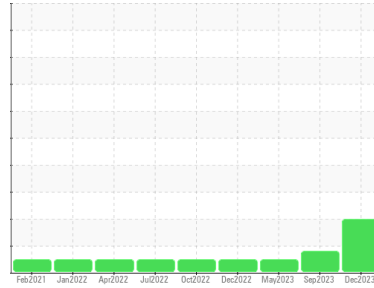
Sample Rating Trend

DEGRADATION

Machine Id
843M

Component
Diesel Engine

Fluid
PETRO CANADA DURON SHP 15W40 (8 GAL)



DIAGNOSIS

Recommendation

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We recommend you service the filters on this component. 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.

Wear

All component wear rates are normal.

Contamination

There is an abnormal amount of solids and carbon present in the oil.

Fluid Condition

The BN level is low.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	GFL0107061	GFL0027497	GFL0081267
Sample Date	Client Info	20 Dec 2023	19 Sep 2023	10 May 2023
Machine Age	hrs	8740	8090	7259
Oil Age	hrs	600	600	600
Oil Changed	Client Info	Not Changed	Not Changed	Not Changed
Sample Status		ABNORMAL	ABNORMAL	NORMAL

CONTAMINATION

method	limit/base	current	history1	history2
Water	WC Method >0.2	NEG	NEG	NEG
Glycol	WC Method	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m >100	69	58	21
Chromium	ppm	ASTM D5185m >20	1	<1	<1
Nickel	ppm	ASTM D5185m >4	<1	0	0
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m >3	0	0	0
Aluminum	ppm	ASTM D5185m >20	4	2	<1
Lead	ppm	ASTM D5185m >40	8	3	0
Copper	ppm	ASTM D5185m >330	6	4	1
Tin	ppm	ASTM D5185m >15	2	<1	<1
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m 0	0	0	2
Barium	ppm	ASTM D5185m 0	0	0	0
Molybdenum	ppm	ASTM D5185m 60	65	62	60
Manganese	ppm	ASTM D5185m 0	<1	<1	<1
Magnesium	ppm	ASTM D5185m 1010	982	981	966
Calcium	ppm	ASTM D5185m 1070	1131	1181	1117
Phosphorus	ppm	ASTM D5185m 1150	998	985	1024
Zinc	ppm	ASTM D5185m 1270	1296	1262	1276
Sulfur	ppm	ASTM D5185m 2060	3070	3268	3427

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >25	9	9	4
Sodium	ppm	ASTM D5185m	1	5	6
Potassium	ppm	ASTM D5185m >20	2	0	<1
Fuel	%	ASTM D3524 >5	<1.0	<1.0	<1.0

INFRA-RED

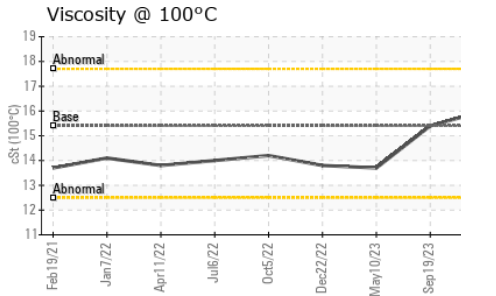
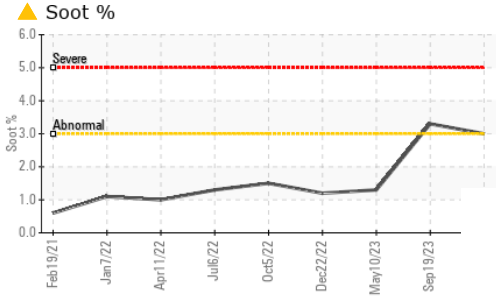
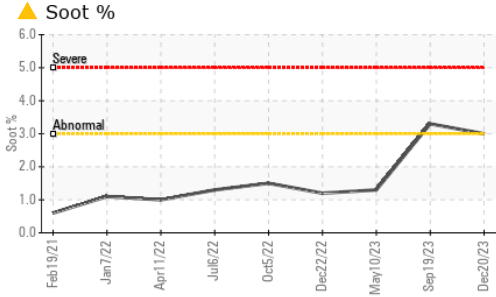
method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844 >3	▲ 3	▲ 3.3	1.3
Nitration	Abs/cm	*ASTM D7624 >20	11.8	18.9	12.5
Sulfation	Abs/.1mm	*ASTM D7415 >30	25.3	30.3	22.6

FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414 >25	18.5	27.1	19.0
Base Number (BN)	mg KOH/g	ASTM D2896 9.8	▲ 0.0	7.5	8.6



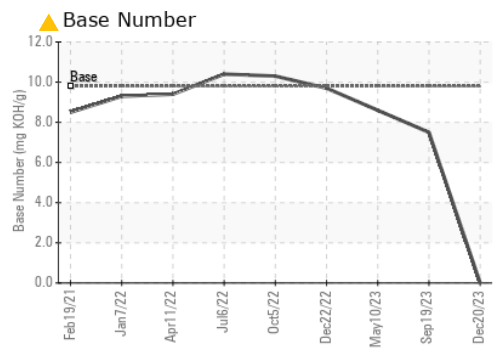
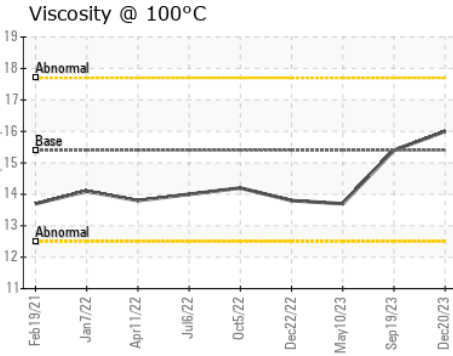
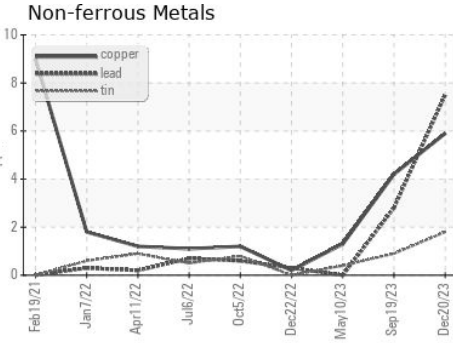
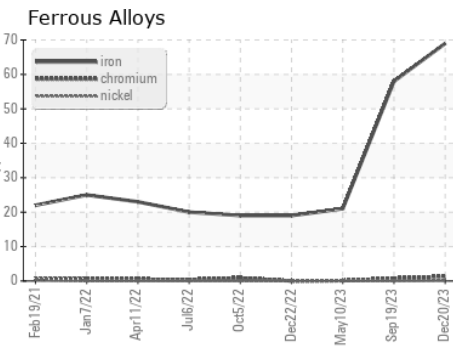
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VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	15.4	16.0	15.4	13.7

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0107061 **Received** : 27 Dec 2023
Lab Number : **06045877** **Diagnosed** : 28 Dec 2023
Unique Number : 10806485 **Diagnostician** : Jonathan Hester
Test Package : FLEET (Additional Tests: FuelDilution)

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)