

OIL ANALYSIS REPORT

Sample Rating Trend









Machine Id 4511M Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

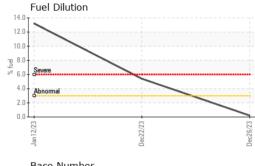
Fluid Condition

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

14 5111 15 1740 (-	,	Sep2021	Deczozi Warzozz	Oct2022 Jan2023 Dec2023	Dec2023	
SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0105679	GFL0105840	GFL0064040
Sample Date		Client Info		26 Dec 2023	22 Dec 2023	12 Jan 2023
Machine Age	hrs	Client Info		2855	23667	1739
Oil Age	hrs	Client Info		23280	23280	0
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				NORMAL	SEVERE	SEVERE
CONTAMINAT	ΓΙΟΝ	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	0.10	NEG
WEAR METAL	_S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	6	40	38
Chromium	ppm	ASTM D5185m	>20	0	3	2
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	4	5
Lead	ppm	ASTM D5185m	>40	0	1	0
Copper	ppm	ASTM D5185m	>330	<1	2	<1
Tin	ppm	ASTM D5185m	>15	<1	0	<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	<1	15	2
Barium	mag	ASTM D5185m	0	0	0	0
	ppm		60	0 55	100	0 52
Molybdenum	ppm	ASTM D5185m	60	55	100	52
Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m		55 0	100	
Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010	55 0 949	100 0 831	52 <1 779
Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070	55 0 949 1105	100 0 831 992	52 <1 779 910
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150	55 0 949 1105 1056	100 0 831 992 822	52 <1 779 910 815
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070	55 0 949 1105	100 0 831 992	52 <1 779 910
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270	55 0 949 1105 1056 1227	100 0 831 992 822 1097	52 <1 779 910 815 967
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060	55 0 949 1105 1056 1227 3088	100 0 831 992 822 1097 2921	52 <1 779 910 815 967 2778
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060	55 0 949 1105 1056 1227 3088	100 0 831 992 822 1097 2921 history1	52 <1 779 910 815 967 2778 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m	60 0 1010 1070 1150 1270 2060	55 0 949 1105 1056 1227 3088 current	100 0 831 992 822 1097 2921 history1	52 <1 779 910 815 967 2778 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25	55 0 949 1105 1056 1227 3088 current 3	100 0 831 992 822 1097 2921 history1 23 ▲ 1240	52 <1 779 910 815 967 2778 history2 11
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25	55 0 949 1105 1056 1227 3088 current 3 1	100 0 831 992 822 1097 2921 history1 23 ▲ 1240 ▲ 13	52 <1 779 910 815 967 2778 history2 11 7 0
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0	55 0 949 1105 1056 1227 3088 current 3 1 0 0.2	100 0 831 992 822 1097 2921 history1 23 1240 13 5.4	52 <1 779 910 815 967 2778 history2 11 7 0 13.2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >6	55 0 949 1105 1056 1227 3088 current 3 1 0 0.2 current	100 0 831 992 822 1097 2921 history1 23 ▲ 1240 ▲ 13 ▲ 5.4 history1	52 <1 779 910 815 967 2778 history2 11 7 0 13.2 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >6	55 0 949 1105 1056 1227 3088 current 3 1 0 0.2	100 0 831 992 822 1097 2921 history1 23 ▲ 1240 ▲ 13 ▲ 5.4 history1 1.9	52 <1 779 910 815 967 2778 history2 11 7 0 13.2 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7624	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >6 >20	55 0 949 1105 1056 1227 3088 current 3 1 0 0.2 current 0.2 5.6	100 0 831 992 822 1097 2921 history1 23 △ 1240 △ 13 △ 5.4 history1 1.9 14.1	52 <1 779 910 815 967 2778 history2 11 7 0 13.2 history2 1.2 14.4
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7624	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >6 >20 >30	55 0 949 1105 1056 1227 3088 current 3 1 0 0.2 current 0.2 5.6 18.2	100 0 831 992 822 1097 2921 history1 23 △ 1240 △ 13 △ 5.4 history1 1.9 14.1 24.2	52 <1 779 910 815 967 2778 history2 11 7 0 13.2 history2 1.2 14.4 24.4
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRA	ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >6 >20 >30 limit/base	55 0 949 1105 1056 1227 3088 current 3 1 0 0.2 current 0.2 5.6 18.2 current	100 0 831 992 822 1097 2921 history1 23 ▲ 1240 ▲ 13 ▲ 5.4 history1 1.9 14.1 24.2 history1	52 <1 779 910 815 967 2778 history2 11 7 0 13.2 history2 1.2 14.4 24.4 history2



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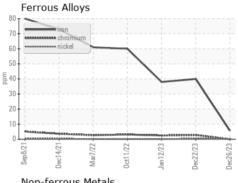


VISUAL		method			history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
ELLID DRODE	DTIES	method	limit/hase	current	history1	hietory2

14.4

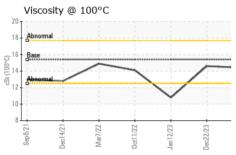
Base N	umber				
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4.0 -					
Sep8/21	Dec14/21 -	Mar7/22 -	0ct11/22	Jan 12/23 -	Dec22/23 -



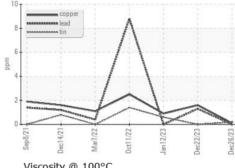


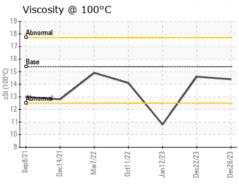
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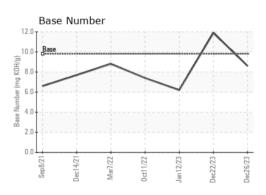
ASTM D445 15.4















Laboratory Sample No. Lab Number **Unique Number**

: 06046710 : 10807318

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0105679 Recieved : 28 Dec 2023

Diagnosed : 29 Dec 2023 Diagnostician : Wes Davis

Test Package : FLEET (Additional Tests: PercentFuel) 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)

GFL Environmental - 415 - Michigan East

6200 Elmridge Sterling Heights, MI US 48313 Contact: Frank Wolak fwolak@gflenv.com T: (586)825-9514

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Report Id: GFL415 [WUSCAR] 06046710 (Generated: 12/29/2023 15:27:14) Rev: 1

Submitted By: Frank Wolak