

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id 2412 MACK GU713 Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (48 QTS)

2016 Action Junior Decision Actions Manifestor Federal Manifestor

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0103208	GFL0103262	GFL0089291
Sample Date		Client Info		20 Dec 2023	06 Dec 2023	08 Sep 2023
Machine Age	hrs	Client Info		29076	28970	28473
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	SEVERE	SEVERE
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	3	8	8
Chromium	ppm	ASTM D5185m		ر 1	<1	0
Nickel	ppm	ASTM D5185m	>5	<1	0	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver		ASTM D5185m	>2	0	0	0
Aluminum	ppm ppm	ASTM D5185m		2	1	0
Lead			>40	0	0	<1
Copper	ppm	ASTM D5185m		1	<1	1
Tin	ppm		>330	، <1	0	<1
Vanadium	ppm		>15		0	<1
	ppm	ASTM D5185m		<1		
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm		0	2	1	0
Barium	ppm	ASTM D5185m	0	0	3	0
Molybdenum	ppm	ASTM D5185m	60	50	50	
Manaanaca				59	58	57
Manganese	ppm	ASTM D5185m		0	0	<1
Manganese Magnesium						
•	ppm	ASTM D5185m	0	0	0	<1
Magnesium	ppm ppm	ASTM D5185m ASTM D5185m	0 1010	0 989	0 826	<1 928
Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070	0 989 1082	0 826 979	<1 928 1102
Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150	0 989 1082 1118	0 826 979 926	<1 928 1102 951
Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270	0 989 1082 1118 1310	0 826 979 926 1098	<1 928 1102 951 1210
Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base	0 989 1082 1118 1310 3448	0 826 979 926 1098 2961	<1 928 1102 951 1210 3510
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base	0 989 1082 1118 1310 3448 current	0 826 979 926 1098 2961 history1	<1 928 1102 951 1210 3510 history2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25	0 989 1082 1118 1310 3448 current 5	0 826 979 926 1098 2961 history1 4	<1 928 1102 951 1210 3510 history2 4
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 <i>limit/base</i> >25	0 989 1082 1118 1310 3448 current 5 2	0 826 979 926 1098 2961 history1 4 <1	<1 928 1102 951 1210 3510 history2 4 3
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 <i>limit/base</i> >25	0 989 1082 1118 1310 3448 <u>current</u> 5 2 2 2	0 826 979 926 1098 2961 history1 4 <1 2	<1 928 1102 951 1210 3510 history2 4 3 2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 limit/base >25 >20 >20	0 989 1082 1118 1310 3448 <u>current</u> 5 2 2 2 2 2 2.0	0 826 979 926 1098 2961 history1 4 <1 2 2 5.2	<1 928 1102 951 1210 3510 history2 4 3 2 2 7.9
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 >3.0 <i>limit/base</i>	0 989 1082 1118 1310 3448 current 5 2 2 2 2 2 2.0 current	0 826 979 926 1098 2961 history1 4 <1 2 2 € 5.2 history1	<1 928 1102 951 1210 3510 history2 4 3 2 7.9 history2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m	0 1010 1070 1150 1270 2060 <i>limit/base</i> >20 >3.0 <i>limit/base</i> >4	0 989 1082 1118 1310 3448 <u>current</u> 5 2 2 2 2.0 2.0 <u>current</u> 0.2	0 826 979 926 1098 2961 history1 4 <1 2 € 5.2 history1 0.8	<1 928 1102 951 1210 3510 history2 4 3 2 • 7.9 history2 0.7
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 *ASTM D7824 *ASTM D7824	0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 >3.0 <i>limit/base</i> >3.0	0 989 1082 1118 1310 3448 <u>current</u> 5 2 2 2 2 2.0 <u>current</u> 0.2 6.1	0 826 979 926 1098 2961 history1 4 <1 2 € 5.2 history1 0.8 10.0	<1 928 1102 951 1210 3510 history2 4 3 2 7.9 history2 0.7 9.7
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 *ASTM D7824 *ASTM D7824	0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >4 >20 >3.0	0 989 1082 1118 1310 3448 <u>current</u> 5 2 2 2 2.0 <u>current</u> 0.2 6.1 17.7	0 826 979 926 1098 2961 history1 4 <1 2 € 5.2 history1 0.8 10.0 19.5	<1 928 1102 951 1210 3510 history2 4 3 2 7.9 history2 0.7 9.7 19.8
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm ppm % % Abs/cm Abs/cm Abs/1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 *ASTM D7844 *ASTM D7624 *ASTM D7624	0 1010 1070 1150 1270 2060 /////////////////////////////////	0 989 1082 1118 1310 3448 <u>current</u> 5 2 2 2 2.0 <u>current</u> 0.2 6.1 17.7 <u>current</u>	0 826 979 926 1098 2961 history1 4 <1 2 5.2 bistory1 0.8 10.0 19.5 history1	<1 928 1102 951 1210 3510 history2 4 3 2 7.9 history2 0.7 9.7 19.8 history2

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

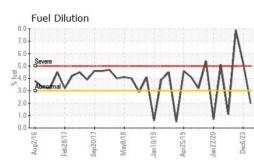
Light fuel dilution occurring. No other contaminants were detected in the oil.

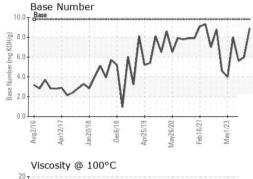
Fluid Condition

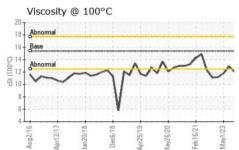
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



OIL ANALYSIS REPORT





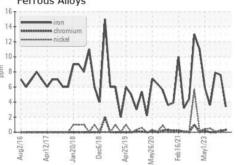


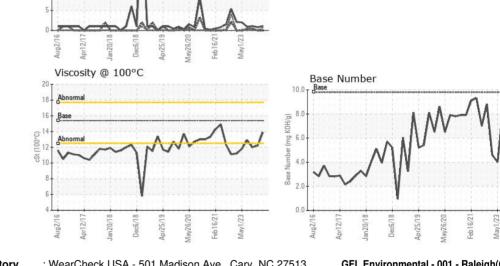
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	1 2.2	12.0
GRAPHS						

Ferrous Alloys

Non-ferrous Metals

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GFL Environmental - 001 - Raleigh(CNG) Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : GFL0103208 Recieved : 21 Dec 2023 3741 Conquest Drive Lab Number : 06041801 Diagnosed : 26 Dec 2023 Garner, NC : 10802409 Unique Number Diagnostician : Wes Davis US 27529 Test Package : FLEET (Additional Tests: PercentFuel) Contact: Craig Johnson Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. craig.johnson@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (919)662-7100 F: (919)662-7130

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Submitted By: Craig Johnson

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