

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

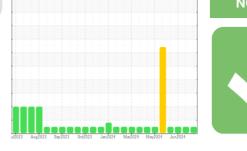


Machine Id 414059

Fluid

Diesel Engine PETRO CANADA DURON SHP 15W40 (12 GAL)

SAMPLE INFORMATION method





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

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.

Sample Number		Client Info		GFL0125887	GFL0125864	GFL0125870
Sample Date		Client Info		08 Jul 2024	25 Jun 2024	20 Jun 2024
Machine Age	hrs	Client Info		2533	2443	2409
Oil Age	hrs	Client Info		150	600	400
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
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	7	7
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	<1	<1
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	2	2	4
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	2	11	11
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
		and the second			In the target of	history2
ADDITIVES		method	limit/base	current	history1	nistoryz
Boron	ppm	ASTM D5185m	0	3	15	19
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	3	15	19
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	3 0	15 0	19 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	3 0 59	15 0 58	19 0 58
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	3 0 59 0	15 0 58 <1	19 0 58 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	3 0 59 0 918	15 0 58 <1 1004	19 0 58 <1 973 1254 1113
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	3 0 59 0 918 1111	15 0 58 <1 1004 1357	19 0 58 <1 973 1254
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	3 0 59 0 918 1111 1045	15 0 58 <1 1004 1357 1117	19 0 58 <1 973 1254 1113
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	3 0 59 0 918 1111 1045 1210	15 0 58 <1 1004 1357 1117 1342	19 0 58 <1 973 1254 1113 1345
Boron Barium 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	3 0 59 0 918 1111 1045 1210 2905	15 0 58 <1 1004 1357 1117 1342 3941	19 0 58 <1 973 1254 1113 1345 3558
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	0 0 60 1010 1070 1150 1270 2060	3 0 59 0 918 1111 1045 1210 2905 current	15 0 58 <1 1004 1357 1117 1342 3941 history1	19 0 58 <1 973 1254 1113 1345 3558 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	3 0 59 0 918 1111 1045 1210 2905 current 3	15 0 58 <1 1004 1357 1117 1342 3941 history1 4	19 0 58 <1 973 1254 1113 1345 3558 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	3 0 59 0 918 1111 1045 1210 2905 current 3 1	15 0 58 <1 1004 1357 1117 1342 3941 history1 4 3	19 0 58 <1 973 1254 1113 1345 3558 history2 5 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20	3 0 59 0 918 1111 1045 1210 2905 current 3 1 4	15 0 58 <1 1004 1357 1117 1342 3941 history1 4 3 3 3	19 0 58 <1 973 1254 1113 1345 3558 history2 5 6 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 20	3 0 59 0 918 1111 1045 1210 2905 current 3 1 4 current	15 0 58 <1 1004 1357 1117 1342 3941 history1 4 3 3 3 <i>history</i> 1	19 0 58 <1 973 1254 1113 1345 3558 history2 5 6 7 7 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >25 >20 Imit/base	3 0 59 0 918 1111 1045 1210 2905 current 3 1 4 current 0.1	15 0 58 <1 1004 1357 1117 1342 3941 history1 4 3 3 3 history1 0.2	19 0 58 <1 973 1254 1113 1345 3558 history2 5 6 7 7 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >20	3 0 59 0 918 1111 1045 1210 2905 current 3 1 4 current 0.1 5.3	15 0 58 <1 1004 1357 1117 1342 3941 history1 4 3 3 3 history1 0.2 6.9	19 0 58 <1 973 1254 1113 1345 3558 history2 5 6 7 7 history2 0.2 6.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >4 >20	3 0 59 0 918 1111 1045 1210 2905 <u>current</u> 3 1 4 <u>current</u> 0.1 5.3 17.5	15 0 58 <1 1004 1357 1117 1342 3941 history1 4 3 3 history1 0.2 6.9 19.3	19 0 58 <1 973 1254 1113 1345 3558 history2 5 6 7 history2 0.2 6.8 19.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >20 20 30 imit/base	3 0 59 0 918 1111 1045 1210 2905 current 3 1 4 current 0.1 5.3 17.5 current	15 0 58 <1 1004 1357 1117 1342 3941 history1 4 3 3 history1 0.2 6.9 19.3 history1	19 0 58 <1 973 1254 1113 1345 3558 history2 5 6 7 history2 0.2 6.8 19.2 history2



10.0 Base

5.0

0.0

20

18

Bas

Abno

Aug11/23

Sep 14/23

lan9/74

Mar11/24 May13/24

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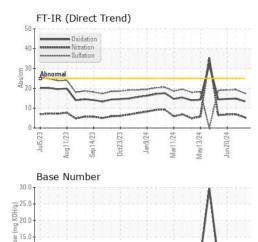
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Jul5/23

\ug11/23 Sep 14/23

Viscosity @ 100°C

OIL ANALYSIS REPORT

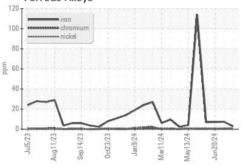


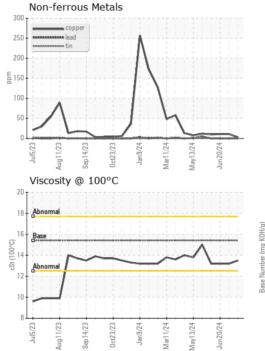
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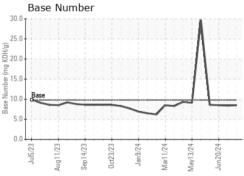
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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*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	13.5	13.2	13.2
GRAPHS						

Ferrous Alloys







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 166 - Phenix City Sample No. : GFL0125887 Received : 12 Jul 2024 18 Old Brickyard Rd Lab Number : 06234529 Tested : 12 Jul 2024 Phenix City, AL Unique Number : 11123363 Diagnosed : 12 Jul 2024 - Wes Davis US 36869 Test Package : FLEET Contact: DEAN PEACE JR Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. dean.peace@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Submitted By: DEAN PEACE JR Page 2 of 2