

OIL ANALYSIS REPORT

Sample Rating Trend



Area (YA139898) 10833 Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (46 GAL)

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 INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0116015	GFL0089975	GFL0099811
Sample Date		Client Info		18 Jun 2024	04 Jan 2024	22 Nov 2023
Machine Age	hrs	Client Info		16901	16901	16452
Oil Age	hrs	Client Info		0	449	9541
Oil Changed		Client Info		Not Changd	Changed	N/A
Sample Status				NORMAL	NORMAL	ABNORMAL
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	>75	29	5	25
Chromium	ppm	ASTM D5185m	>5	<1	<1	1
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m	>2	<1	0	<1
Silver	ppm	ASTM D5185m	>2	<1	0	<1
Aluminum	ppm	ASTM D5185m	>15	3	1	4
Lead	ppm	ASTM D5185m	>25	0	<1	0
Copper	ppm	ASTM D5185m	>100	3	1	16
Tin	ppm	ASTM D5185m	>4	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
				•	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base		-	history2 8
	ppm ppm			current	history1	
Boron		ASTM D5185m	0	current 81	history1 8	8
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	current 81 0	history1 8 0	8 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 81 0 8	history1 8 0 57	8 0 67
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 81 0 8 <1	history1 8 0 57 0	8 0 67 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 81 0 8 <1 138	history1 8 0 57 0 892	8 0 67 0 798
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 81 0 8 <1 138 2274	history1 8 0 57 0 892 1109	8 0 67 0 798 1269
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	Current 81 0 8 <1 138 2274 1044	history1 8 0 57 0 892 1109 1074	8 0 67 0 798 1269 1027
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	Current 81 0 8 <1 138 2274 1044 1297	history1 8 0 57 0 892 1109 1074 1195	8 0 67 0 798 1269 1027 1266
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 0 1010 1070 1150 1270 2060	Current 81 0 8 <1 138 2274 1044 1297 4021	history1 8 0 57 0 892 1109 1074 1195 3132	8 0 67 0 798 1269 1027 1266 3289
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 0 1010 1070 1150 1270 2060	Current 81 0 8 <1 138 2274 1044 1297 4021 Current	history1 8 0 57 0 892 1109 1074 1195 3132 history1	8 0 67 0 798 1269 1027 1266 3289 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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current 81 0 8 <1 138 2274 1044 1297 4021 current 15	history1 8 0 57 0 892 1109 1074 1195 3132 history1 3	8 0 67 0 798 1269 1027 1266 3289 history2 6
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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >25	current 81 0 8 <1 138 2274 1044 1297 4021 current 15 5	history1 8 0 57 0 892 1109 1074 1195 3132 history1 3 3 3	8 0 67 0 798 1269 1027 1266 3289 history2 6 14
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 2060 225 >25 >20 <u>limit/base</u> >20	Current 81 0 8 <1 138 2274 1044 1297 4021 Current 15 5 31	history1 8 0 57 0 892 1109 1074 1195 3132 history1 3 16 history1 0.2	8 0 67 0 798 1269 1027 1266 3289 history2 6 14 14 148
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 <u>limit/base</u> >20	Current 81 0 8 <1 138 2274 1044 1297 4021 Current 15 5 31 Current	history1 8 0 57 0 892 1109 1074 1195 3132 history1 3 16 history1	 8 0 67 0 798 1269 1027 1266 3289 history2 6 14 ▲ 148 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 TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	current 81 0 8 <1 138 2274 1044 1297 4021 current 15 5 31 current 0.6	history1 8 0 57 0 892 1109 1074 1195 3132 history1 3 16 history1 0.2	8 0 67 0 798 1269 1027 1266 3289 history2 6 14 14 148 148 bistory2 0.4
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	current 81 0 8 <1 138 2274 1044 1297 4021 current 15 5 31 current 0.6 10.0	history1 8 0 57 0 892 1109 1074 1195 3132 history1 3 16 history1 0.2 6.6	 8 0 67 0 798 1269 1027 1266 3289 history2 6 14 148 history2 0.4 8.5
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <u>imit/base</u> >6 >20 20	Current 81 0 8 <1 138 2274 1044 1297 4021 current 15 5 31 current 0.6 10.0 24.4	history1 8 0 57 0 892 1109 1074 1195 3132 history1 3 16 history1 0.2 6.6 18.6	 8 0 67 0 798 1269 1027 1266 3289 history2 6 14 148 history2 0.4 8.5 19.7

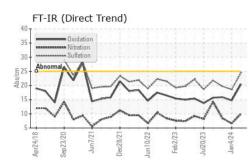


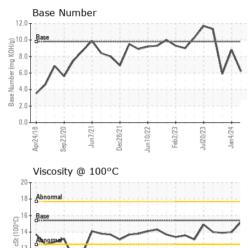
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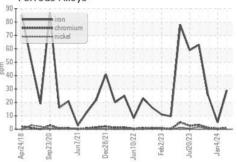
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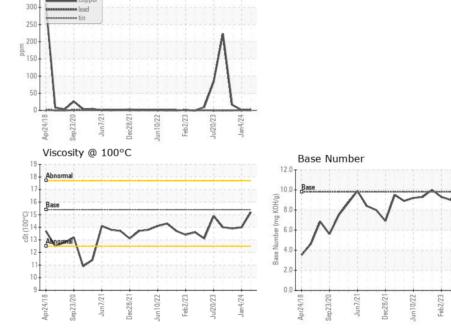
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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*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	15.2	14.0	13.9
GRAPHS						

Ferrous Alloys

Non-ferrous Metals





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 018 - Fayetteville Sample No. : GFL0116015 Received : 19 Jun 2024 4621 Marracco Drive Lab Number : 06214474 Tested : 20 Jun 2024 Hope Mills, NC Unique Number : 11087338 Diagnosed : 21 Jun 2024 - Don Baldridge US 28348 Test Package : FLEET Contact: Robert Carter Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. robert.carter@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (910)596-1170 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Submitted By: CHRIS HALL

Jan4/24

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