

OIL ANALYSIS REPORT

Sample Rating Trend

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NORMAL

Area (64834P) 3772 Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (10 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.

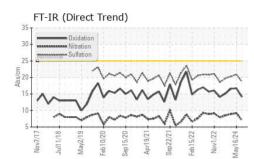
Fluid Condition

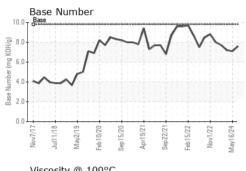
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

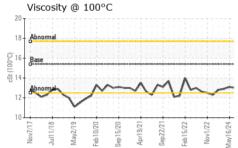
			11 11 11			
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0113901	GFL0113938	GFL0093756
Sample Date		Client Info		31 May 2024	16 May 2024	02 Nov 2023
Machine Age	hrs	Client Info		14005	13907	12900
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Not Changd	Changed
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	>165	14	14	15
Chromium	ppm	ASTM D5185m	>5	1	2	1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	<1	1	2
Lead	ppm	ASTM D5185m	>150	1	2	5
Copper	ppm	ASTM D5185m	>90	<1	1	2
Tin	ppm	ASTM D5185m	>5	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0	6	3
	ppin			-		
Barium	ppm		0	0	0	5
Barium Molybdenum			0 60			5 59
	ppm	ASTM D5185m	60	0	0	
Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	60	0 56	0 56	59
Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	60 0	0 56 <1	0 56 0	59 <1
Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010	0 56 <1 867	0 56 0 869	59 <1 878
Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070	0 56 <1 867 1101	0 56 0 869 1067	59 <1 878 1058
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150	0 56 <1 867 1101 1012	0 56 0 869 1067 972	59 <1 878 1058 1071
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	60 0 1010 1070 1150 1270	0 56 <1 867 1101 1012 1199	0 56 0 869 1067 972 1216	59 <1 878 1058 1071 1207
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	60 0 1010 1070 1150 1270 2060	0 56 <1 867 1101 1012 1199 3335	0 56 0 869 1067 972 1216 3231	59 <1 878 1058 1071 1207 3126
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	60 0 1010 1070 1150 1270 2060 Limit/base	0 56 <1 867 1101 1012 1199 3335 current	0 56 0 869 1067 972 1216 3231 history1	59 <1 878 1058 1071 1207 3126 history2
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	60 0 1010 1070 1150 1270 2060 Limit/base >35	0 56 <1 867 1101 1012 1199 3335 current 0	0 56 0 869 1067 972 1216 3231 history1 6	59 <1 878 1058 1071 1207 3126 history2 10
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	60 0 1010 1070 1150 1270 2060 Limit/base >35	0 56 <1 867 1101 1012 1199 3335 current 0 3	0 56 0 869 1067 972 1216 3231 history1 6 3	59 <1 878 1058 1071 1207 3126 history2 10 2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >35 >20	0 56 <1 867 1101 1012 1199 3335 current 0 3 0	0 56 0 869 1067 972 1216 3231 history1 6 3 2	59 <1 878 1058 1071 1207 3126 history2 10 2 2
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	60 0 1010 1070 1150 1270 2060 imit/base >35 >20	0 56 <1 867 1101 1012 1199 3335 current 0 3 3 0	0 56 0 869 1067 972 1216 3231 history1 6 3 2 2 history1	59 <1 878 1058 1071 1207 3126 history2 10 2 2 history2
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	60 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base >7.5 >20	0 56 <1 867 1101 1012 1199 3335 current 0 3 0 current 0.3	0 56 0 869 1067 972 1216 3231 history1 6 3 2 2 history1 0.7	59 <1 878 1058 1071 1207 3126 history2 10 2 2 2 history2 0.4
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	60 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base >7.5 >20	0 56 <1 867 1101 1012 1199 3335 <u>current</u> 0 3 0 0 <u>current</u> 0.3 7.0	0 56 0 869 1067 972 1216 3231 history1 6 3 2 history1 0.7 9.2	59 <1 878 1058 1071 1207 3126 history2 10 2 2 history2 0.4 8.9
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	60 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base >7.5 >20 >30	0 56 <1 867 1101 1012 1199 3335 <u>current</u> 0 3 0 <u>current</u> 0.3 7.0 18.7	0 56 0 869 1067 972 1216 3231 history1 6 3 2 <u>history1</u> 0.7 9.2 20.9	59 <1 878 1058 1071 1207 3126 history2 10 2 2 history2 0.4 8.9 20.3
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	60 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base >7.5 >20 >30	0 56 <1 867 1101 1012 1199 3335 current 0 3 0 current 0.3 7.0 18.7 current	0 56 0 869 1067 972 1216 3231 history1 6 3 2 history1 0.7 9.2 20.9 history1	59 <1 878 1058 1071 1207 3126 history2 10 2 2 history2 0.4 8.9 20.3 history2



OIL ANALYSIS REPORT





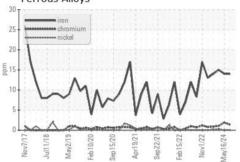


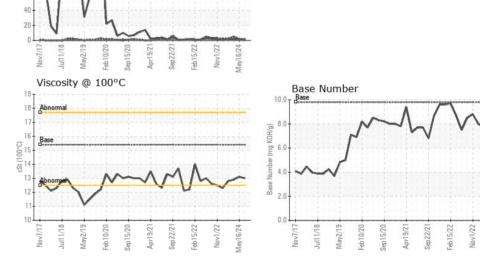
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	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	13.0	13.1	12.9
GRAPHS						

Ferrous Alloys

Non-ferrous Metals

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Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 029 - Wytheville Sample No. : GFL0113901 Received : 04 Jun 2024 2390 North 4th Street Lab Number : 06198875 Tested : 05 Jun 2024 Wytheville, VA Unique Number : 11060998 Diagnosed : 05 Jun 2024 - Wes Davis US 24382 Test Package : FLEET Contact: CHARLES CORVIN Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. charles.corvin@gflenv.com;canastasio@wearcheckusa.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (276)223-4476 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (276)223-1283

Report Id: GFL029 [WUSCAR] 06198875 (Generated: 06/05/2024 05:52:12) Rev: 1

Submitted By: CHARLES CORVIN

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