

OIL ANALYSIS REPORT

NORMAL

Area (67445P) 3541 Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (56 QTS)

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.

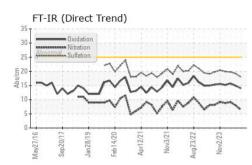
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0113931	GFL0113948	GFL0113915
Sample Date		Client Info		20 May 2024	26 Apr 2024	11 Apr 2024
Machine Age	hrs	Client Info		19853	64916	19604
Oil Age	hrs	Client Info		64916	64916	64916
Oil Changed		Client Info		Changed	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	>75	10	24	29
Chromium	ppm	ASTM D5185m	>5	1	2	2
Nickel	ppm	ASTM D5185m	>4	<1	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	0
Silver	ppm	ASTM D5185m	>2	<1	<1	0
Aluminum	ppm	ASTM D5185m	>15	2	4	5
Lead	ppm	ASTM D5185m	>25	<1	<1	0
Copper	ppm	ASTM D5185m	>100	<1	1	<1
Tin	ppm	ASTM D5185m	>4	<1	<1	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 2	history1 9	history2 6
Boron Barium	ppm ppm					
Boron		ASTM D5185m	0	2	9	6
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60 0	2 0	9 2	6 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 61	9 2 59 <1 856	6 0 62
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 61 0	9 2 59 <1 856 1040	6 0 62 <1 1018 1142
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	2 0 61 0 969 1078 1040	9 2 59 <1 856 1040 952	6 0 62 <1 1018 1142 1171
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	2 0 61 0 969 1078 1040 1302	9 2 59 <1 856 1040 952 1157	6 0 62 <1 1018 1142 1171 1390
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	0 0 60 0 1010 1070 1150	2 0 61 0 969 1078 1040	9 2 59 <1 856 1040 952	6 0 62 <1 1018 1142 1171
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	2 0 61 0 969 1078 1040 1302 3479 current	9 2 59 <1 856 1040 952 1157 2806 history1	6 0 62 <1 1018 1142 1171 1390 3695 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 0 60 0 1010 1070 1150 1270 2060	2 0 61 0 969 1078 1040 1302 3479 current 7	9 2 59 <1 856 1040 952 1157 2806 history1 8	6 0 62 <1 1018 1142 1171 1390 3695 history2 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm 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	2 0 61 0 969 1078 1040 1302 3479 current 7 4	9 2 59 <1 856 1040 952 1157 2806 history1 8 5	6 0 62 <1 1018 1142 1171 1390 3695 history2 9 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 0 60 1010 1070 1150 1270 2060	2 0 61 0 969 1078 1040 1302 3479 current 7	9 2 59 <1 856 1040 952 1157 2806 history1 8	6 0 62 <1 1018 1142 1171 1390 3695 history2 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 0 60 0 1010 1070 1150 1270 2060 limit/base	2 0 61 0 969 1078 1040 1302 3479 current 7 4 2 2	9 2 59 <1 856 1040 952 1157 2806 history1 8 5 2 2 history1	6 0 62 <1 1018 1142 1171 1390 3695 history2 9 6
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	2 0 61 0 969 1078 1040 1302 3479 <i>current</i> 7 4 2 <i>current</i> 0.3	9 2 59 <1 856 1040 952 1157 2806 history1 8 5 2 2 history1 0.5	6 0 62 <1 1018 1142 1171 1390 3695 history2 9 6 <1 ×1 history2 0.6
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1imit/base >20	2 0 61 0 969 1078 1040 1302 3479 <i>current</i> 7 4 2 <i>current</i> 0.3 6.4	9 2 59 <1 856 1040 952 1157 2806 history1 8 5 2 history1 0.5 8.0	6 0 62 <1 1018 1142 1171 1390 3695 history2 9 6 <1 9 6 <1 history2 0.6 9.1
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	2 0 61 0 969 1078 1040 1302 3479 <i>current</i> 7 4 2 <i>current</i> 0.3	9 2 59 <1 856 1040 952 1157 2806 history1 8 5 2 2 history1 0.5	6 0 62 <1 1018 1142 1171 1390 3695 history2 9 6 <1 ×1 history2 0.6
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 2060 225 220 220 1imit/base >20	2 0 61 0 969 1078 1040 1302 3479 <i>current</i> 7 4 2 <i>current</i> 0.3 6.4	9 2 59 <1 856 1040 952 1157 2806 history1 8 5 2 history1 0.5 8.0	6 0 62 <1 1018 1142 1171 1390 3695 history2 9 6 <1 9 6 <1 history2 0.6 9.1
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 2060 225 20 225 20 <u>imit/base</u> >6 >20 20	2 0 61 0 969 1078 1040 1302 3479 <u>current</u> 7 4 2 2 <u>current</u> 0.3 6.4 18.0	9 2 59 <1 856 1040 952 1157 2806 history1 8 5 2 2 history1 0.5 8.0 19.2	6 0 62 <1 1018 1142 1171 1390 3695 history2 9 6 <1 history2 0.6 9.1 19.8

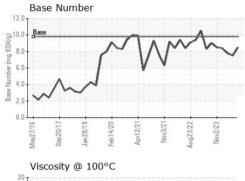
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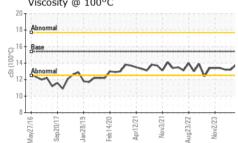




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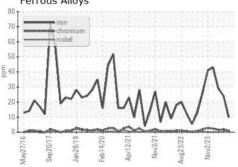
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	13.8	13.2	13.2
GRAPHS						

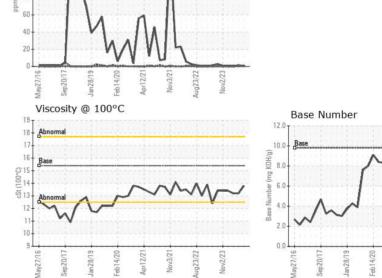
Ferrous Alloys

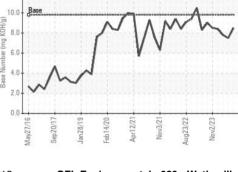
Non-ferrous Metals

140

120 100 80







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 029 - Wytheville Sample No. : GFL0113931 Received : 22 May 2024 2390 North 4th Street Lab Number : 06188549 Tested : 24 May 2024 Wytheville, VA Unique Number : 11045301 Diagnosed : 24 May 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 T: (276)223-4476 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. П. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (276)223-1283

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Submitted By: CHARLES CORVIN

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