

OIL ANALYSIS REPORT

SAMPLE INFORMATION metho

Sample Rating Trend



Machine Id

727100-361676

Componenτ Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (--- 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 INFOR		method	limit/base	current	nistory i	nistory2
Sample Number		Client Info		GFL0104816	GFL0104823	GFL0104962
Sample Date		Client Info		19 Apr 2024	10 Apr 2024	13 Feb 2024
Machine Age	mls	Client Info		160546	159948	156539
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	MARGINAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	2 .6
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	>100	11	8	4
Chromium	ppm	ASTM D5185m	>20	<1	0	0
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	0	<1
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	4	0	0
Tin	ppm	ASTM D5185m	>15	<1	0	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current	history1 0	history2 0
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	1	0	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	1 0	0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	1 0 53	0 0 57	0 0 55
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	1 0 53 1	0 0 57 0	0 0 55 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	1 0 53 1 885	0 0 57 0 953	0 0 55 0 894
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	1 0 53 1 885 1028	0 0 57 0 953 1114	0 0 55 0 894 940
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	1 0 53 1 885 1028 1006	0 0 57 0 953 1114 1052	0 0 55 0 894 940 985
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	1 0 53 1 885 1028 1006 1196	0 0 57 0 953 1114 1052 1301	0 0 55 0 894 940 985 1153
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	1 0 53 1 885 1028 1006 1196 3229	0 0 57 0 953 1114 1052 1301 3583	0 0 55 0 894 940 985 1153 2847
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 1010 1070 1150 1270 2060	1 0 53 1 885 1028 1006 1196 3229 current	0 0 57 0 953 1114 1052 1301 3583 history1	0 0 55 0 894 940 985 1153 2847 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 1010 1070 1150 1270 2060 kimit/base >25	1 0 53 1 885 1028 1006 1196 3229 current 5	0 0 57 0 953 1114 1052 1301 3583 history1 3	0 0 55 0 894 940 985 1153 2847 history2 3
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 method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	1 0 53 1 885 1028 1006 1196 3229 current 5 6	0 0 57 0 953 1114 1052 1301 3583 history1 3 4	0 0 55 0 894 940 985 1153 2847 history2 3 3 3
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 limit/base >25 >20	1 0 53 1 885 1028 1006 1196 3229 current 5 6 <1 current	0 0 57 0 953 1114 1052 1301 3583 history1 3 4 4 <1	0 0 55 0 894 940 985 1153 2847 <u>history2</u> 3 3 0
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 limit/base >20	1 0 53 1 885 1028 1006 1196 3229 current 5 6 <1 5 6 <1 current 0.4	0 0 57 0 953 1114 1052 1301 3583 history1 3 4 <1 1 history1 0.4	0 0 55 0 894 940 985 1153 2847 history2 3 3 0 history2 0.2
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 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >20	1 0 53 1 885 1028 1006 1196 3229 current 5 6 <1 current	0 0 57 0 953 1114 1052 1301 3583 history1 3 4 <1 \$	0 0 55 0 894 940 985 1153 2847 history2 3 3 0 0
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 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	1 0 53 1 885 1028 1006 1196 3229 current 5 6 <1 5 6 <1 current 0.4 9.5	0 0 57 0 953 1114 1052 1301 3583 history1 3 4 <1 history1 0.4 9.0	0 0 55 0 894 940 985 1153 2847 history2 3 3 3 0 bistory2 0.2 6.1
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >3 >20 >30 20 30	1 0 53 1 885 1028 1006 1196 3229 current 5 6 <1 current 0.4 9.5 20.8 current	0 0 57 0 953 1114 1052 1301 3583 history1 3 4 <1 3 4 <1 0.4 9.0 20.7 history1	0 0 55 0 894 940 985 1153 2847 history2 3 3 3 0 0 history2 0.2 6.1 18.5 history2
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 imit/base >3 >20 imit/base >3 >20	1 0 53 1 885 1028 1006 1196 3229 current 5 6 <1 5 6 <1 current 0.4 9.5 20.8	0 0 57 0 953 1114 1052 1301 3583 history1 3 4 <1 \$ history1 0.4 9.0 20.7	0 0 55 0 894 940 985 1153 2847 history2 3 3 3 0 history2 0.2 6.1 18.5



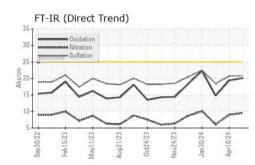
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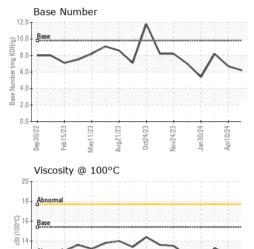
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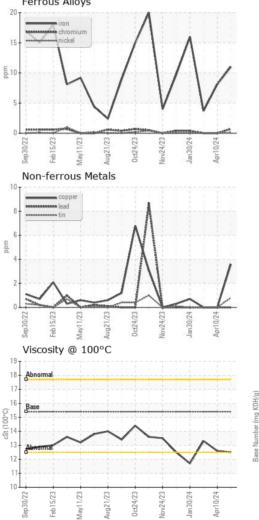
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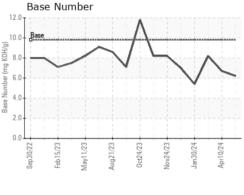
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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*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	12.5	12.6	13.3
GRAPHS						

Ferrous Alloys





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 820 - Joplin Hauling Sample No. : GFL0104816 Received : 13 May 2024 3700 West 7th Street Lab Number : 06176725 Tested : 14 May 2024 Joplin, MO US 64801 Unique Number : 11022778 Diagnosed : 14 May 2024 - Wes Davis Test Package : FLEET Contact: James Jarrett Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. jjarrett@gflenv.com T: (417)310-2802 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Submitted By: VINCE ASTI Page 2 of 2