

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

(P638954) 2435

Component **Diesel Engine**

Fluid

PETRO CANADA DURON SHP 15W40 (12 GAL)

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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.

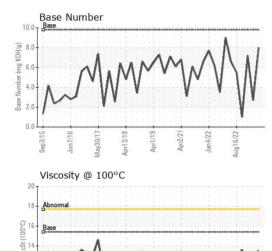
Sample Number		Client Info		GFL0096945	GFL0096938	GFL0069769
Sample Date		Client Info		29 Jan 2024	03 Jan 2024	18 Sep 2023
Machine Age	hrs	Client Info		27966	24938	27539
Oil Age	hrs	Client Info		27966	24938	27539
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	ABNORMAL	ATTENTION
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	2.4
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	2	21	5
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>5	<1	<1	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	1	0
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	<1	1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		and the set	12			le te te un o
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	limit/base	current 11	history1	16
	ppm ppm			11 <1		
Boron		ASTM D5185m	0 0 60	11	11	16 0 67
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	11 <1	11 11	16 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	11 <1 57 <1 858	11 11 61 0 778	16 0 67
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	11 <1 57 <1	11 11 61 0	16 0 67 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	11 <1 57 <1 858	11 11 61 0 778 1025 1027	16 0 67 <1 920
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	11 <1 57 <1 858 970	11 11 61 0 778 1025	16 0 67 <1 920 1167
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	11 <1 57 <1 858 970 986	11 11 61 0 778 1025 1027	16 0 67 <1 920 1167 1056
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	11 <1 57 <1 858 970 986 1140	11 11 61 0 778 1025 1027 1053	16 0 67 <1 920 1167 1056 1253
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 00 00 1010 1070 1150 1270 2060	11 <1 57 <1 858 970 986 1140 2881	11 11 61 0 778 1025 1027 1053 3197	16 0 67 <1 920 1167 1056 1253 3940
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 00 00 1010 1070 1150 1270 2060	11 <1 57 <1 858 970 986 1140 2881 current	11 11 61 0 778 1025 1027 1053 3197 history1	16 0 67 <1 920 1167 1056 1253 3940 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	0 00 00 1010 1070 1150 1270 2060	11 <1 57 <1 858 970 986 1140 2881 current 3	11 11 61 0 778 1025 1027 1053 3197 history1 4	16 0 67 <1 920 1167 1056 1253 3940 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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	111 <1 57 <1 858 970 986 1140 2881 current 3 <1	11 11 61 0 778 1025 1027 1053 3197 history1 4 2	16 0 67 <1 920 1167 1056 1253 3940 history2 4 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	111 <1 57 <1 858 970 986 1140 2881 current 3 <1 <1	11 11 61 0 778 1025 1027 1053 3197 history1 4 2 2	16 0 67 <1 920 1167 1056 1253 3940 history2 4 4 4 2
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	11 <1 57 <1 858 970 986 1140 2881 current 3 <1 <1 <1 current	11 11 61 0 778 1025 1027 1053 3197 history1 4 2 2 history1	16 0 67 <1 920 1167 1056 1253 3940 history2 4 4 2 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 limit/base >25 >20 limit/base	111 <1 57 <1 858 970 986 1140 2881 current 3 <1 <1 <1 <1 current 0.1	11 11 61 0 778 1025 1027 1053 3197 history1 4 2 2 history1 0.6	16 0 67 <1 920 1167 1056 1253 3940 history2 4 4 2 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 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	111 <1 57 <1 858 970 986 1140 2881 current 3 <1 <1 <1 current 0.1 6.1	11 11 61 0 778 1025 1027 1053 3197 history1 4 2 2 history1 0.6 14.8	16 0 67 <1 920 1167 1056 1253 3940 history2 4 4 2 history2 0.2 9.3
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 >4 >20	111 <1 57 <1 858 970 986 1140 2881 <u>current</u> 3 <1 <1 <1 <u>current</u> 0.1 6.1 18.6	11 11 61 0 778 1025 1027 1053 3197 history1 4 2 2 history1 0.6 14.8 30.2	16 0 67 <1 920 1167 1056 1253 3940 history2 4 4 4 2 history2 0.2 9.3 20.4
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 D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 220 220 230 20 20 20 20 20 20 20 20 20 20 20 20 20	111 <1 57 <1 858 970 986 1140 2881 Current 3 <1 <1 Current 0.1 6.1 18.6 Current	11 11 61 0 778 1025 1027 1053 3197 history1 4 2 2 history1 0.6 14.8 30.2 history1	16 0 67 <1 920 1167 1056 1253 3940 history2 4 4 4 2 history2 0.2 9.3 20.4 history2



Sep3/15

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OIL ANALYSIS REPORT



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Aug 16/22

10

19

18 17

16 cSt (100°C)

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10

Sep3/15

InT/16

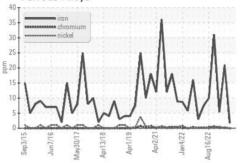
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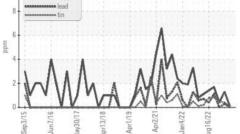
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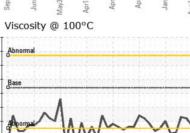
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	13.1	▲ 12.4
GRAPHS						

Ferrous Alloys









Apr2/21

Recieved

Diagnosed

Diagnostician

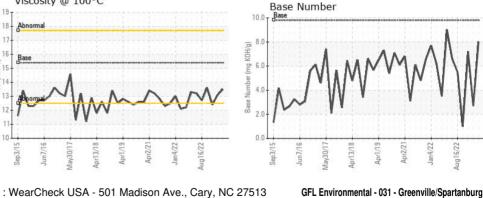
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Aug16/22

:01 Feb 2024

:01 Feb 2024

: Wes Davis



GFL Environmental - 031 - Greenville/Spartanburg 1635 Antioch Church Rd Piedmont, SC US 29673 Contact: TECHNICIAN ACCOUNT catherine.anastasio@wearcheck.com Т: F:



Test Package : FLEET Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. * - 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)

Laboratory

Sample No.

Lab Number

Unique Number