

## **OIL ANALYSIS REPORT**

### NORMAL

### **FREIGHTLINER 10619E** Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (6 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.

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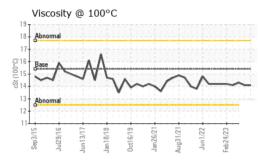


SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0087470	GFL0071820	GFL0071818
Sample Date		Client Info		14 Sep 2023	07 Aug 2023	12 Jul 2023
Machine Age	hrs	Client Info		9310	9040	8883
Oil Age	hrs	Client Info		427	157	575
Oil Changed		Client Info		Not Changd	N/A	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	.S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	24	12	29
Chromium	ppm	ASTM D5185m	>20	2	<1	1
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	10	6	<b>4</b> 24
Lead	ppm	ASTM D5185m	>40	1	0	1
Copper	ppm	ASTM D5185m	>330	8	5	23
Tin	ppm	ASTM D5185m	>15	3	<1	3
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 5	history1 8	history2 6
	ppm ppm		0			
Boron		ASTM D5185m	0	5	8	6
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	5 44	8 0	6 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	5 44 60	8 0 62	6 0 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	5 44 60 1	8 0 62 <1	6 0 61 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	5 44 60 1 841	8 0 62 <1 929	6 0 61 <1 948
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 1010 1070 1150 1270	5 44 60 1 841 1094 903 1161	8 0 62 <1 929 1212	6 0 61 <1 948 1230
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	5 44 60 1 841 1094 903	8 0 62 <1 929 1212 1001	6 0 61 <1 948 1230 996
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 1010 1070 1150 1270	5 44 60 1 841 1094 903 1161	8 0 62 <1 929 1212 1001 1245	6 0 61 <1 948 1230 996 1301
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 1010 1070 1150 1270 2060	5 44 60 1 841 1094 903 1161 2907	8 0 62 <1 929 1212 1001 1245 3479	6 0 61 <1 948 1230 996 1301 3133
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	5 44 60 1 841 1094 903 1161 2907 current	8 0 62 <1 929 1212 1001 1245 3479 history1	6 0 61 <1 948 1230 996 1301 3133 history2
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 <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	5 44 60 1 841 1094 903 1161 2907 current 7	8 0 62 <1 929 1212 1001 1245 3479 history1 4	6 0 61 <1 948 1230 996 1301 3133 history2 6
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 <b>method</b> ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	5 44 60 1 841 1094 903 1161 2907 current 7 2	8 0 62 <1 929 1212 1001 1245 3479 history1 4 2	6 0 61 <1 948 1230 996 1301 3133 history2 6 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25	5 44 60 1 841 1094 903 1161 2907 current 7 2 3	8 0 62 <1 929 1212 1001 1245 3479 history1 4 2 2 <1	6 0 61 <1 948 1230 996 1301 3133 history2 6 4 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6	5 44 60 1 841 1094 903 1161 2907 current 7 2 3 3	8 0 62 <1 929 1212 1001 1245 3479 history1 4 2 <1 kistory1	6 0 61 <1 948 1230 996 1301 3133 history2 6 4 4 4
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 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >6 >20	5 44 60 1 841 1094 903 1161 2907 current 7 2 3 3 current 1.3	8 0 62 <1 929 1212 1001 1245 3479 history1 4 2 <1 4 2 <1 history1 1	6 0 61 <1 948 1230 996 1301 3133 history2 6 4 4 4 <b>history2</b> 1.7
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> >6 >20	5 44 60 1 841 1094 903 1161 2907 <i>current</i> 7 2 3 <i>current</i> 1.3 9.7	8 0 62 <1 929 1212 1001 1245 3479 history1 4 2 <1 4 2 <1 history1 1 8.4	6 0 61 <1 948 1230 996 1301 3133 history2 6 4 4 4 history2 1.7 10.8
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 20 imit/base >6 >20 >30 imit/base	5 44 60 1 841 1094 903 1161 2907 current 7 2 3 3 current 1.3 9.7 20.0	8 0 62 <1 929 1212 1001 1245 3479 history1 4 2 <1 4 2 <1 history1 1 8.4 20.5	6 0 61 <1 948 1230 996 1301 3133 history2 6 4 4 4 <b>history2</b> 1.7 10.8 23.9
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 <b>TS</b> ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >6 >20 >30 imit/base	5 44 60 1 841 1094 903 1161 2907 current 7 2 3 current 1.3 9.7 20.0 current	8 0 62 <1 929 1212 1001 1245 3479 history1 4 2 <1 history1 1 8.4 20.5 history1	6 0 61 <1 948 1230 996 1301 3133 history2 6 4 4 4 history2 1.7 10.8 23.9 history2



# **OIL ANALYSIS REPORT**

Base Number 12.0 10.0



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	14.1	14.1	14.3
GRAPHS						

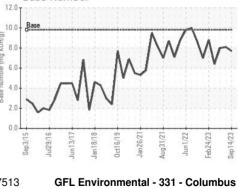
Ferrous Alloys 160 140 120 100 Md 80 60 40 20 n Sep3/15 Jul29/16 4/73 47417 Jun 13/1 an 18/1 Oct16/1 an26/5 Non-ferrous Metals 120 100 80 Md 60 40 20 0 C/2C40 an26/7 ua31/2 Sep3/ an 18/ Oct16/ Viscosity @ 100°C Base Number 19 12.0 18 10. 17 nber (mg KOH/g) (100°C) 8 ( 6.0 531 Base Nun 4.0 Abr 2 12 11 0.0 Sep14/23. Sep3/15 Oct16/19 Feb24/23 Jul29/16 Jan 26/21 Aug31/21 an 18/15 Sep3/1 : WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0087470 Received : 15 Sep 2023

Diagnosed

Diagnostician

: 18 Sep 2023

: Wes Davis



180 Ada Moore Rd Columbus, NC US 28722 Contact: Matt Segars matt.segars@gflenv.com T: (800)207-6618 2) F: (252)617-2494



 Certificate L2367
 Test Package
 : FLEET

 To discuss this sample report, contact Customer Service at 1-800-237-1369.
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 \* - 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)

: 05952511

Laboratory

Sample No.

Lab Number

Unique Number : 10648470

Submitted By: Matt Segars

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