

## **OIL ANALYSIS REPORT**

Sample Rating Trend



FREIGHTLINER 308958 Component Diesel Engine Fluid

PETRO CANADA DURON SHP 10W30 (--- QTS)

SAMPLE INFORMATION method

### DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Machine Id

#### 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.

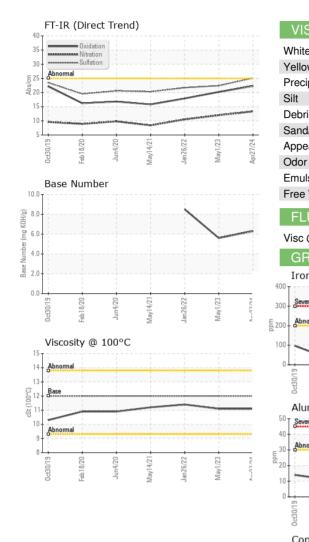
						5040004740
Sample Number		Client Info		PCA0121700	PCA0093154	PCA0064712
Sample Date		Client Info		27 Apr 2024	01 May 2023	26 Jan 2022
Machine Age	mls	Client Info		236822	186805	128613
Oil Age	mls	Client Info		0	46880	31194
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	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	>200	37	36	17
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>30	13	11	6
Lead	ppm	ASTM D5185m	>30	0	0	<1
Copper	ppm	ASTM D5185m	>30	1	2	2
Tin	ppm	ASTM D5185m	>15	2	<1	1
Antimony	ppm	ASTM D5185m				0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
				-		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 2		-	history2 4
				current	history1	
Boron	ppm	ASTM D5185m	2	current 5	history1 5	4
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	2 0 50	current 5 1	history1 5 0	4
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	current 5 1 74	history1 5 0 69	4 0 59
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	current 5 1 74 <1	history1 5 0 69 1	4 0 59 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	current 5 1 74 <1 930	history1 5 0 69 1 865	4 0 59 <1 962
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	current           5           1           74           <1           930           1182	history1 5 0 69 1 865 1115	4 0 59 <1 962 1183
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995	current           5           1           74           <1           930           1182           1096	history1 5 0 69 1 865 1115 908	4 0 59 <1 962 1183 1050
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180	current           5           1           74           <1           930           1182           1096           1289	history1 5 0 69 1 865 1115 908 1167	4 0 59 <1 962 1183 1050 1170
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 ASTM D5185m	2 0 50 950 1050 995 1180 2600	Current 5 1 74 <1 930 1182 1096 1289 3522	history1 5 0 69 1 865 1115 908 1167 2859	4 0 59 <1 962 1183 1050 1170 2349
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	2 0 50 950 1050 995 1180 2600	current           5           1           74           <1           930           1182           1096           1289           3522           current	history1 5 0 69 1 865 1115 908 1167 2859 history1	4 0 59 <1 962 1183 1050 1170 2349 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >30	current           5           1           74           <1           930           1182           1096           1289           3522           current           5	history1           5           0           69           1           865           1115           908           1167           2859           history1           4	4 0 59 <1 962 1183 1050 1170 2349 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >30	current           5           1           74           <1           930           1182           1096           1289           3522           current           5           3	history1           5           0           69           1           865           1115           908           1167           2859           history1           4           3	4 0 59 <1 962 1183 1050 1170 2349 history2 4 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >30	current           5           1           74           <1           930           1182           1096           1289           3522           current           5           3           6	history1         5         0         69         1         865         1115         908         1167         2859         history1         4         3         11	4 0 59 <1 962 1183 1050 1170 2349 history2 4 0 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >30 -20 <b>limit/base</b>	current         5         1         74         <1         930         1182         1096         1289         3522         current         5         3         6         current	history1         5         0         69         1         865         1115         908         1167         2859         history1         4         3         11         history1	4 0 59 <1 962 1183 1050 1170 2349 history2 4 0 5 5 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	2 0 50 950 1050 995 1180 2600 limit/base >30 20 limit/base >33	current           5           1           74           <1           930           1182           1096           1289           3522           current           5           3           6           current           1.1	history1         5         0         69         1         865         1115         908         1167         2859         history1         4         3         11         history1         1	4 0 59 <1 962 1183 1050 1170 2349 history2 4 0 5 <u>history2</u> 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 trs ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <b>limit/base</b> >30 <b>limit/base</b> >20	current         5         1         74         <1         930         1182         1096         1289         3522         current         5         3         6         current         1.1         13.3	history1         5         0         69         1         865         1115         908         1167         2859         history1         4         3         11         history1         1         12.0	4 0 59 <1 962 1183 1050 1170 2349 history2 4 0 5 history2 0.6 10.5
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 trs ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	2 0 50 950 1050 995 1180 2600 <b>imit/base</b> >30 <b>imit/base</b> >3 20 <b>imit/base</b> >3	current         5         1         74         <1         930         1182         1096         1289         3522         current         5         3         6         current         1.1         13.3         25.1	history1         5         0         69         1         865         1115         908         1167         2859         history1         4         3         11         history1         1         12.0         22.4	4 0 59 <1 962 1183 1050 1170 2349 <b>history2</b> 4 0 5 <b>history2</b> 0.6 10.5 21.7
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 D7844 *ASTM D7624 *ASTM D7415	2 0 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >30 20 <b>imit/base</b> >30 >20 >30	current         5         1         74         <1         930         1182         1096         1289         3522         current         5         3         6         current         1.1         13.3         25.1         current	history1         5         0         69         1         865         1115         908         1167         2859         history1         4         3         11         history1         1         12.0         22.4         history1	4 0 59 <1 962 1183 1050 1170 2349 history2 4 0 5 history2 0.6 10.5 21.7 history2

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Contact/Location: MIKE BOYER - MILPEN



# **OIL ANALYSIS REPORT**



NONE		method		VISUAL
NONE	NONE	*Visual	scalar	White Metal
NONE	NONE	*Visual	scalar	Yellow Metal
NONE	NONE	*Visual	scalar	Precipitate
NONE	NONE	*Visual	scalar	Silt
NONE	NONE	*Visual	scalar	Debris
NONE	NONE	*Visual	scalar	Sand/Dirt
NORML	NORML	*Visual	scalar	Appearance
NORML	NORML	*Visual	scalar	Odor
NEG	>0.2	*Visual	scalar	Emulsified Water
NEG		*Visual	scalar	Free Water
current	limit/base	method	RTIES	FLUID PROPE
11.1	12.00	ASTM D445	cSt	Visc @ 100°C
				GRAPHS
Lead (ppm)	80			Iron (ppm)
Sminn				300 + Severe
0			1	
			1	100
3/20	1/24	5/22	4/21	bct30/19 +
Oct3( Feb1	Apr2	Jan2( May	May1	0ct30/19 Feb18/20 Jun4/20
Chromium (				Aluminum (ppm)
T : :	50	,,		50 Severe
	40			40 -
	E. <sup>30</sup>			and a second sec
- o	20			20
	10		-	10
	-0	22	21	20+
0ct30/ Feb18/	4pr27/	Jan 26/ May 1/	/lay14,	Oct30/19 Feb18/20
Silicon (ppm		,	2	Copper (ppm)
Severe	50			60 50
				40
- 0	E 30		1	Abnormal
				20
				10
1 02/1		5/22 /23	4/21	3/19 + 02/1
Oct3( Feb18	Apr27	Jan26 May1	May1-	0ct30/19 - Feb18/20 - Jun4/20 -
Base Numbe				Viscosity @ 100°C
	〔10.0 第一公			<sup>16</sup>
	0 8.0 B			I4 - Abnormal
	E 6.0			00012 #3
	E 4.0			
•	8 2.0		1	
Oct30/19 +	Apr27/24	Jan 26/22 - May 1/23 -	May14/21+	0ct30/19
5 5		/1 26		
n))	NONE NORML NORML NEG NEG Lead (ppm Anomal Chromium Severe Anomal Severe Chromium Severe Chromium Severe	NONE NONE NORML NORML NORML NORML >0.2 NEG Imit/base current 12.00 11.1 Lead (ppm blue of blue ppo blue of blue of blue ppo blue of blue ppo blue of blue of blue ppo blue of blue of blue ppo blue of blue	*Visual NONE NONE *Visual NORML NORML *Visual NORML NORML *Visual >0.2 NEG *Visual >0.2 NEG *Visual 12.00 111.1	scalar *Visual NONE NONE scalar *Visual NORML NORML scalar *Visual NORML NORML scalar *Visual >0.2 NEG scalar *Visual D445 12.00 11.1 Lead (ppr dd dd

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)

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Certificate 12367

1.0

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