

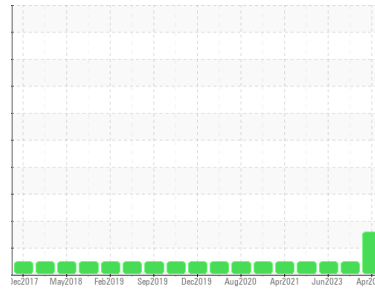


# OIL ANALYSIS REPORT



Area  
**56000 series**  
 Machine Id  
**Freightliner 56146**  
 Component  
**Diesel Engine**  
 Fluid  
**PETRO CANADA DURON SHP 10W30 (40 LTR)**

## Sample Rating Trend



**WEAR**



### DIAGNOSIS

#### Recommendation

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

#### Wear

Aluminum and iron ppm levels are abnormal. Cylinder, crank, or cam shaft wear is indicated. Piston wear is indicated.

#### Contamination

There is no indication of any contamination in the oil.

#### Fluid Condition

The oil is no longer serviceable as a result of the abnormal and/or severe wear.

### SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>WC0915079</b>	WC0837210	WC0817377
Sample Date	Client Info		<b>11 Apr 2024</b>	24 Nov 2023	06 Jun 2023
Machine Age	mls	Client Info	<b>625831</b>	588135	548812
Oil Age	mls	Client Info	<b>37696</b>	39323	40225
Oil Changed	Client Info		<b>Changed</b>	Changed	Changed
Sample Status			<b>ABNORMAL</b>	NORMAL	NORMAL

### CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>3.0	<b>&lt;1.0</b>	<1.0	<1.0
Water	WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol	WC Method		<b>NEG</b>	NEG	NEG

### WEAR METALS

	method	limit/base	current	history1	history2	
PQ	ASTM D8184*	>80	<b>0</b>	---	---	
Iron	ppm	ASTM D5185(m)	>65	<b>▲ 66</b>	55	53
Chromium	ppm	ASTM D5185(m)	>5	<b>5</b>	5	4
Nickel	ppm	ASTM D5185(m)	>3	<b>0</b>	<1	<1
Titanium	ppm	ASTM D5185(m)	>5	<b>0</b>	0	<1
Silver	ppm	ASTM D5185(m)	>2	<b>0</b>	<1	0
Aluminum	ppm	ASTM D5185(m)	>35	<b>▲ 37</b>	31	29
Lead	ppm	ASTM D5185(m)	>10	<b>0</b>	<1	<1
Copper	ppm	ASTM D5185(m)	>180	<b>9</b>	8	10
Tin	ppm	ASTM D5185(m)	>8	<b>&lt;1</b>	<1	<1
Antimony	ppm	ASTM D5185(m)	>35	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	0	0
Beryllium	ppm	ASTM D5185(m)		<b>0</b>	0	0
Cadmium	ppm	ASTM D5185(m)		<b>0</b>	0	0

### ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185(m)	2	<b>2</b>	1	1
Barium	ppm	ASTM D5185(m)	0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185(m)	50	<b>65</b>	63	65
Manganese	ppm	ASTM D5185(m)	0	<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185(m)	950	<b>1054</b>	1005	1046
Calcium	ppm	ASTM D5185(m)	1050	<b>1130</b>	1092	1123
Phosphorus	ppm	ASTM D5185(m)	995	<b>1034</b>	980	1072
Zinc	ppm	ASTM D5185(m)	1180	<b>1264</b>	1258	1256
Sulfur	ppm	ASTM D5185(m)	2600	<b>2138</b>	2112	2141
Lithium	ppm	ASTM D5185(m)		<b>&lt;1</b>	<1	<1

### CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m)	>15	<b>6</b>	6	7
Sodium	ppm	ASTM D5185(m)		<b>4</b>	3	5
Potassium	ppm	ASTM D5185(m)	>20	<b>1</b>	2	3

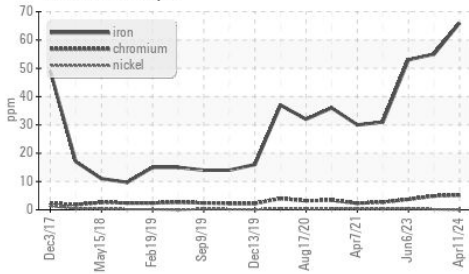
### INFRA-RED

	method	limit/base	current	history1	history2	
Soot %	%	ASTM D7844*	>3	<b>0.6</b>	0.7	0.6
Nitration	Abs/cm	ASTM D7624*	>20	<b>10.2</b>	10.3	10.0
Sulfation	Abs/.1mm	ASTM D7415*	>30	<b>22.8</b>	23.1	22.1

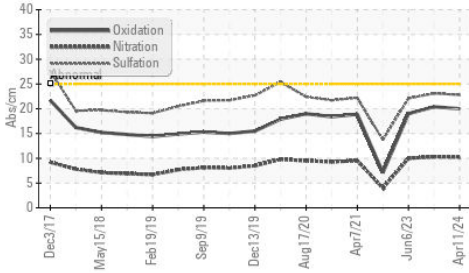


# OIL ANALYSIS REPORT

## ▲ Ferrous Alloys



## ● FT-IR (Direct Trend)



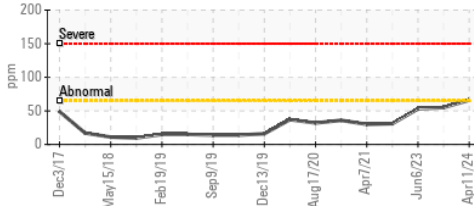
FLUID DEGRADATION	method	limit/base	current	history1	history2	
Oxidation	Abs./1mm	ASTM D7414*	>25	<b>20.0</b>	20.4	19.0

VISUAL	method	limit/base	current	history1	history2	
White Metal	scalar	Visual*	NONE	NONE	---	
Yellow Metal	scalar	Visual*	NONE	NONE	---	
Precipitate	scalar	Visual*	NONE	NONE	---	
Silt	scalar	Visual*	NONE	NONE	---	
Debris	scalar	Visual*	NONE	NONE	---	
Sand/Dirt	scalar	Visual*	NONE	NONE	---	
Appearance	scalar	Visual*	NORML	NORML	---	
Odor	scalar	Visual*	NORML	NORML	NORML	
Emulsified Water	scalar	Visual*	>0.2	<b>NEG</b>	NEG	NEG
Free Water	scalar	Visual*	<b>NEG</b>	NEG	NEG	

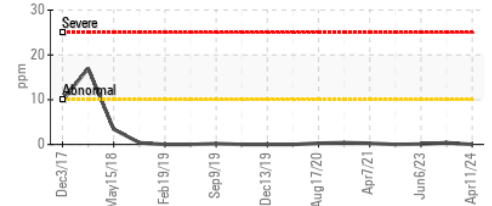
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D7279(m)	12.00	<b>11.6</b>	11.7	11.6

## GRAPHS

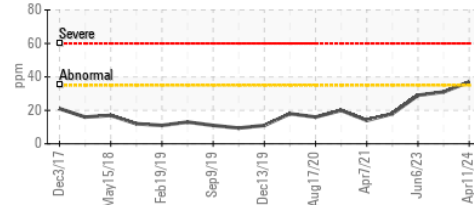
### ▲ Iron (ppm)



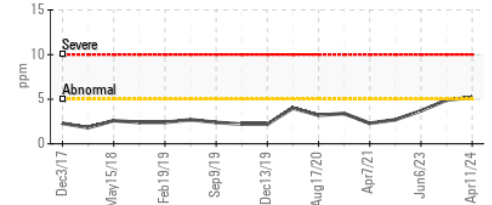
### ▲ Lead (ppm)



### ▲ Aluminum (ppm)



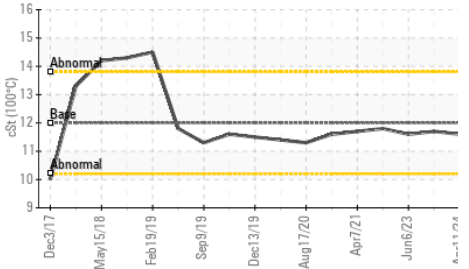
### ▲ Chromium (ppm)



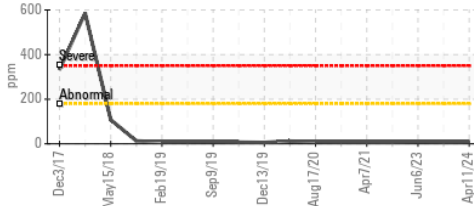
### PQ



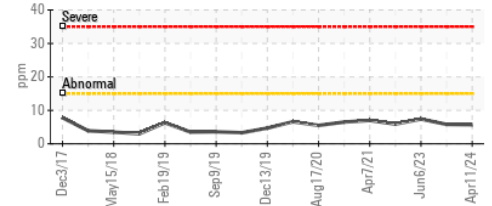
### Viscosity @ 100°C



### ▲ Copper (ppm)



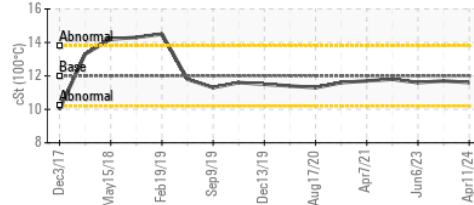
### ▲ Silicon (ppm)



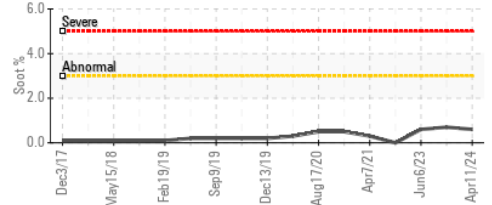
### PQ



### Viscosity @ 100°C



### Soot %



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0915079  
**Lab Number** : 02629565  
**Unique Number** : 5762697  
**Test Package** : MOB 1 ( Additional Tests: PQ, Visual )

**MANITOU LIN TRANSPORT (GARAGE)**  
 1335 SHAWSON DRIVE  
 MISSISSAUGA, ON  
 CA L4W 1C4  
 Contact: Travis Spence  
 tspence@manitoulintransport.com

To discuss this sample report, contact Customer Service at 1-800-268-2131.

Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.

Validity of results and interpretation are based on the sample and information as supplied.

T: (905)564-6361