



# OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ABNORMAL

Area  
**3000 series**  
 Machine Id  
**Freightliner 3228**  
 Component  
**Diesel Engine**  
 Fluid  
**PETRO CANADA DURON SHP 10W30 (26 LTR)**

## RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0854868	WC0864023	WC0863990
Sample Date		Client Info		13 Jan 2024	18 Oct 2023	03 Oct 2023
Machine Age	kms	Client Info		206367	323071	199982
Oil Age	kms	Client Info		9548	0	3163
Filter Age	kms	Client Info		9548	0	3163
Oil Changed		Client Info		Changed	N/A	Not Changd
Filter Changed		Client Info		Changed	N/A	Not Changd
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>90	24	13	11
Chromium	ppm	ASTM D5185(m)	>20	<1	<1	<1
Nickel	ppm	ASTM D5185(m)	>2	<1	<1	<1
Titanium	ppm	ASTM D5185(m)	>2	0	0	0
Silver	ppm	ASTM D5185(m)	>2	0	<1	<1
Aluminum	ppm	ASTM D5185(m)	>20	3	2	2
Lead	ppm	ASTM D5185(m)	>40	1	2	<1
Copper	ppm	ASTM D5185(m)	>330	42	17	16
Tin	ppm	ASTM D5185(m)	>15	0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0

## CONTAMINATION

There is no indication of any contamination in the oil.

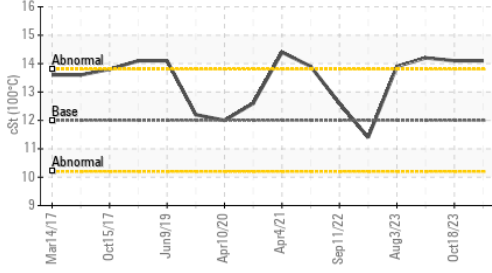
Silicon	ppm	ASTM D5185(m)	>25	5	4	4
Potassium	ppm	ASTM D5185(m)	>20	3	1	1
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	ASTM D7844*	>6	0.2	0.1	0
Nitration	Abs/cm	ASTM D7624*	>20	11.4	8.0	7.4
Sulfation	Abs/.1mm	ASTM D7415*	>30	22.2	20.0	19.3
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG

## FLUID CONDITION

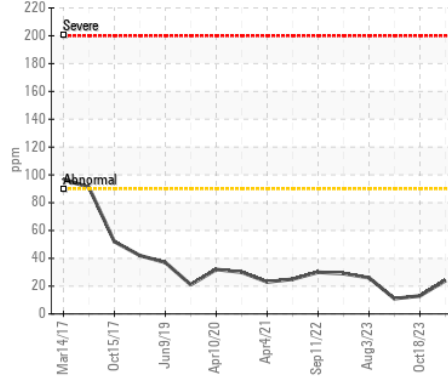
Viscosity of sample indicates oil is within SAE 40 range, advise investigate. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185(m)		2	2	2
Boron	ppm	ASTM D5185(m)	2	1	2	2
Barium	ppm	ASTM D5185(m)	0	0	<1	<1
Molybdenum	ppm	ASTM D5185(m)	50	62	65	61
Manganese	ppm	ASTM D5185(m)	0	0	0	0
Magnesium	ppm	ASTM D5185(m)	950	962	1045	983
Calcium	ppm	ASTM D5185(m)	1050	1081	1124	1055
Phosphorus	ppm	ASTM D5185(m)	995	943	1096	1003
Zinc	ppm	ASTM D5185(m)	1180	1173	1282	1198
Sulfur	ppm	ASTM D5185(m)	2600	2532	2736	2589
Oxidation	Abs/.1mm	ASTM D7414*	>25	20.1	16.7	15.7
Visc @ 100°C	cSt	ASTM D7279(m)	12.00	▲ 14.1	▲ 14.1	▲ 14.2

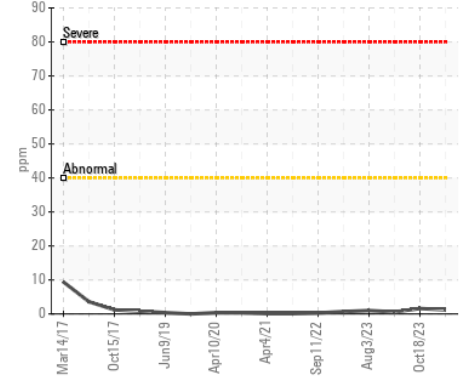
▲ Viscosity @ 100°C



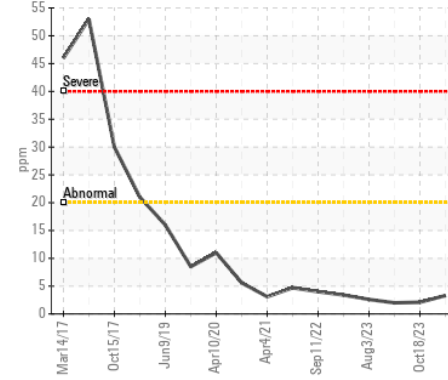
Iron (ppm)



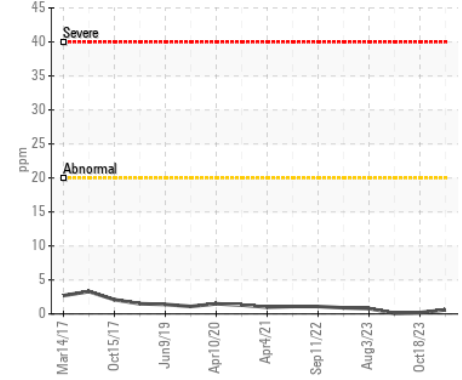
Lead (ppm)



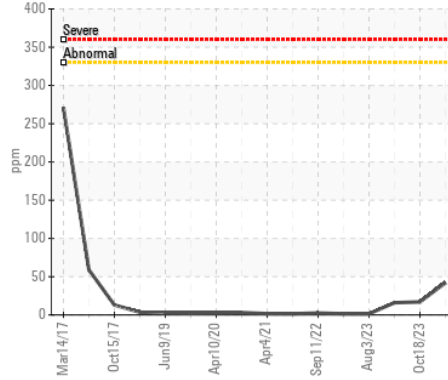
Aluminum (ppm)



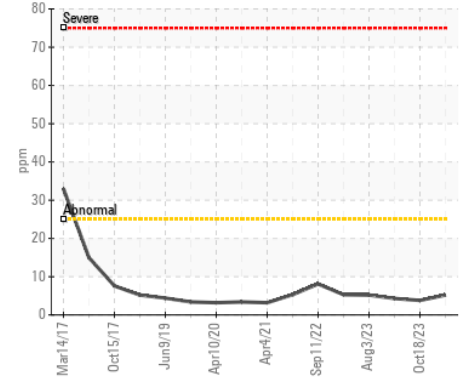
Chromium (ppm)



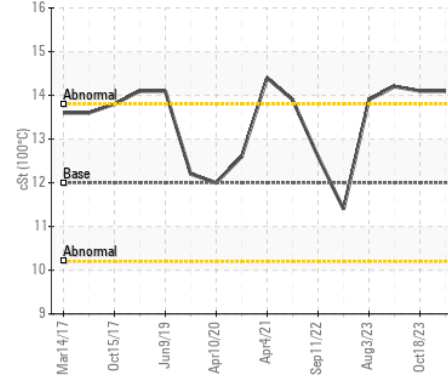
Copper (ppm)



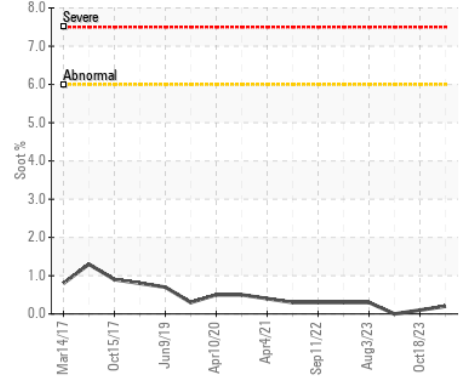
Silicon (ppm)



▲ Viscosity @ 100°C



Soot %



ISO 17025:2017  
Accredited  
Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0854868 **Received** : 18 Jan 2024  
**Lab Number** : 02609674 **Diagnosed** : 18 Jan 2024  
**Unique Number** : 5710760 **Diagnostician** : Kevin Marson  
**Test Package** : MOB 1

**MANITOU LIN TRANSPORT**

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LIVELY, ON  
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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.