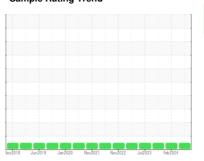


# **OIL ANALYSIS REPORT**

Sample Rating Trend



**NORMAL** 



Machine Id

# **FREIGHTLINER 481907**

Diesel Engine

PETRO CANADA DURON SHP 10W30 (24 QTS)

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the

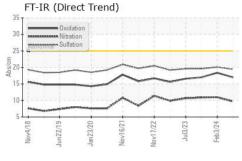
## **Fluid Condition**

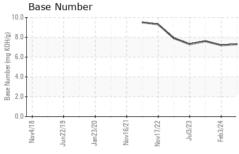
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

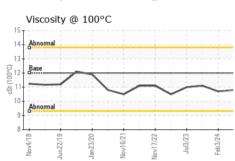
Cample Number   Client Info   PCA0126993   PCA0117071   PCA010626   Cample Date   Client Info   25 May 2024   03 Feb 2024   13 Oct 2023   13	ITS)		Vov2018 Ju	un2019 Jan2020 Nov	2021 Nov2022 Jul2023	Feb 2024		
Sample Date	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2	
Machine Age   mils   Client Info   Dit Changed   N/A   Changed   N/A   NORMAL	Sample Number		Client Info		PCA0126993	PCA0117071	PCA010628	
Dil Changed	Sample Date		Client Info		25 May 2024	03 Feb 2024	13 Oct 2023	
Client Info	Machine Age	mls	Client Info		244605	0	211357	
NORMAL   NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   history1   history2   history3   hi	Oil Age	mls	Client Info		0	0	0	
CONTAMINATION   method   limit/base   current   history1   history2	Oil Changed		Client Info		Changed	N/A	Changed	
Value	Sample Status				NORMAL	NORMAL	NORMAL	
Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         Imit/base         current         history1         history1           WEAR METALS         method         limit/base         current         history1         history1           ron         ppm         ASTM D5185m         >80         27         27         25           Chromium         ppm         ASTM D5185m         >5         <1	CONTAMINA	TION	method	limit/base	current	history1	history2	
WEAR METALS	<sup>=</sup> uel		WC Method	>5	<1.0	<1.0	<1.0	
WEAR METALS         method         limit/base         current         history1         history2           ron         ppm         ASTM D5185m         >80         27         27         25           Chromium         ppm         ASTM D5185m         >5         <1	<i>N</i> ater		WC Method	>0.2	NEG	NEG	NEG	
Chromium	Glycol		WC Method		NEG	NEG	NEG	
Chromium	WEAR META	LS	method	limit/base	current	history1	history2	
Silver	ron	ppm	ASTM D5185m	>80	27	27	25	
Description	Chromium	ppm	ASTM D5185m	>5	<1	<1	<1	
Saliver	Nickel	ppm	ASTM D5185m	>2	0	0	0	
Aluminum	Γitanium	ppm	ASTM D5185m		0	0	0	
Lead	Silver	ppm	ASTM D5185m	>3	0	0	<1	
Copper	Aluminum	ppm	ASTM D5185m	>30	8	8	7	
Tin	_ead	ppm	ASTM D5185m	>30	<1	<1	0	
Vanadium         ppm         ASTM D5185m         0         <1         0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         2         <1         2           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         63         62         60           Manganese         ppm         ASTM D5185m         0         <1         <1         <1         <1           Magnesium         ppm         ASTM D5185m         950         903         941         925           Calcium         ppm         ASTM D5185m         995         1015         1065         1047           Zinc         ppm         ASTM D5185m         995         1015         1065         1047           Zinc         ppm         ASTM D5185m         2600         3351         3057         2823           CONTAMINANTS         method         limit/base         current         history1 </td <td>Copper</td> <td>ppm</td> <td>ASTM D5185m</td> <td>&gt;150</td> <td>4</td> <td>2</td> <td>2</td>	Copper	ppm	ASTM D5185m	>150	4	2	2	
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         2         <1	Γin	ppm	ASTM D5185m	>5	<1	<1	0	
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         2         <1         2           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         50         63         62         60           Manganese         ppm         ASTM D5185m         0         <1         <1         <1         <1           Magnesium         ppm         ASTM D5185m         950         903         941         925           Calcium         ppm         ASTM D5185m         950         903         941         925           Calcium         ppm         ASTM D5185m         995         1015         1065         1047           Zinc         ppm         ASTM D5185m         995         1015         1065         1047           Zinc         ppm         ASTM D5185m         2600         3351         3057         2823           CONTAMINANTS         method         limit/base         current </td <td>Vanadium</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <td>0</td> <td>&lt;1</td> <td>0</td>	Vanadium	ppm	ASTM D5185m		0	<1	0	
Soron   ppm   ASTM D5185m   2   2   2   3   4   2   3   4   4   4   3   3   4   4   4   5   5   5   5   6   6   6   6   6   6	Cadmium		ASTM D5185m		0	0	0	
Barium	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum         ppm         ASTM D5185m         50         63         62         60           Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         950         903         941         925           Calcium         ppm         ASTM D5185m         1050         1048         1123         1023           Phosphorus         ppm         ASTM D5185m         995         1015         1065         1047           Zinc         ppm         ASTM D5185m         995         1015         1065         1047           Zinc         ppm         ASTM D5185m         2600         3351         3057         2823           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         4         4         4           Sodium         ppm         ASTM D5185m         >20         4         4         9           INFRA-RED         method         limit/base         current         history1         history2           Soot %         *6         *ASTM D7844	Boron	ppm	ASTM D5185m	2	2	<1	2	
Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         950         903         941         925           Calcium         ppm         ASTM D5185m         1050         1048         1123         1023           Phosphorus         ppm         ASTM D5185m         995         1015         1065         1047           Zinc         ppm         ASTM D5185m         1180         1230         1241         1227           Sulfur         ppm         ASTM D5185m         2600         3351         3057         2823           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         4         4         4           Sodium         ppm         ASTM D5185m         >20         4         4         9           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.4         0.6         0.6           Nitration         Abs/am         *ASTM D78	Barium	ppm	ASTM D5185m	0	0	0	0	
Magnesium         ppm         ASTM D5185m         950         903         941         925           Calcium         ppm         ASTM D5185m         1050         1048         1123         1023           Phosphorus         ppm         ASTM D5185m         995         1015         1065         1047           Zinc         ppm         ASTM D5185m         1180         1230         1241         1227           Sulfur         ppm         ASTM D5185m         2600         3351         3057         2823           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         4         4         4           Potassium         ppm         ASTM D5185m         >20         4         4         9           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.4         0.6         0.6           Nitration         Abs/cm         *ASTM D7624         >20         9.7         11.0         10.9           Sulfation         Abs/cm	Molybdenum	ppm	ASTM D5185m	50	63	62	60	
Calcium         ppm         ASTM D5185m         1050         1048         1123         1023           Phosphorus         ppm         ASTM D5185m         995         1015         1065         1047           Zinc         ppm         ASTM D5185m         1180         1230         1241         1227           Sulfur         ppm         ASTM D5185m         2600         3351         3057         2823           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >20         4         4         4           Sodium         ppm         ASTM D5185m         3         <1	Manganese	ppm	ASTM D5185m	0	<1	<1	<1	
Phosphorus         ppm         ASTM D5185m         995         1015         1065         1047           Zinc         ppm         ASTM D5185m         1180         1230         1241         1227           Sulfur         ppm         ASTM D5185m         2600         3351         3057         2823           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >20         4         4         4           Sodium         ppm         ASTM D5185m         3         <1	Magnesium	ppm	ASTM D5185m	950	903	941	925	
Zinc         ppm         ASTM D5185m         1180         1230         1241         1227           Sulfur         ppm         ASTM D5185m         2600         3351         3057         2823           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >20         4         4         4           Sodium         ppm         ASTM D5185m         3         <1	Calcium	ppm	ASTM D5185m	1050	1048	1123	1023	
Sulfur         ppm         ASTM D5185m         2600         3351         3057         2823           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         4         4         4           Sodium         ppm         ASTM D5185m         3         <1         <1           Potassium         ppm         ASTM D5185m         >20         4         4         9           INFRA-RED         method         limit/base         current         history1         history3           Soot %         %         *ASTM D7844         >3         0.4         0.6         0.6           Nitration         Abs/cm         *ASTM D7624         >20         9.7         11.0         10.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         20.1         19.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.0         18.4         17.0	Phosphorus	ppm	ASTM D5185m	995	1015	1065	1047	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         4         4         4           Sodium         ppm         ASTM D5185m         3         <1	Zinc	ppm	ASTM D5185m	1180	1230	1241	1227	
Silicon         ppm         ASTM D5185m         >20         4         4         4         4           Sodium         ppm         ASTM D5185m         3         <1         <1           Potassium         ppm         ASTM D5185m         >20         4         4         9           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.4         0.6         0.6           Nitration         Abs/cm         *ASTM D7624         >20         9.7         11.0         10.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         20.1         19.6           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.0         18.4         17.0	Sulfur	ppm	ASTM D5185m	2600	3351	3057	2823	
Sodium         ppm         ASTM D5185m         3         <1         <1           Potassium         ppm         ASTM D5185m         >20         4         4         9           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.4         0.6         0.6           Nitration         Abs/cm         *ASTM D7624         >20         9.7         11.0         10.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         20.1         19.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.0         18.4         17.0	CONTAMINAL	NTS	method	limit/base	current	history1	history2	
Potassium         ppm         ASTM D5185m         >20         4         4         9           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.4         0.6         0.6           Nitration         Abs/cm         *ASTM D7624         >20         9.7         11.0         10.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         20.1         19.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.0         18.4         17.0	Silicon	ppm	ASTM D5185m	>20	4	4	4	
INFRA-RED	Sodium	ppm	ASTM D5185m		3	<1	<1	
Soot %         %         *ASTM D7844         >3         0.4         0.6         0.6           Nitration         Abs/cm         *ASTM D7624         >20         9.7         11.0         10.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         20.1         19.6           FLUID DEGRADATION method limit/base current history1         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.0         18.4         17.0	Potassium	ppm	ASTM D5185m	>20	4	4	9	
Nitration         Abs/cm         *ASTM D7624         >20         9.7         11.0         10.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         20.1         19.6           FLUID DEGRADATION method limit/base current         history1         history1           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.0         18.4         17.0	INFRA-RED		method	limit/base	current	history1	history2	
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.4         20.1         19.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         17.0         18.4         17.0	Soot %	%	*ASTM D7844	>3	0.4	0.6	0.6	
FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm *ASTM D7414 >25 17.0 18.4 17.0	Nitration	Abs/cm	*ASTM D7624	>20	9.7	11.0	10.9	
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.4	20.1	19.6	
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2	
Base Number (BN) mg KOH/g   ASTM D2896   7.3   7.2   7.6	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.0	18.4	17.0	
	Base Number (BN)	mg KOH/g	ASTM D2896		7.3	7.2	7.6	



# **OIL ANALYSIS REPORT**







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
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	historv1	historv2

LLUID PK	OPERILES	metrioa	IIIIII/ba	se current	HISTO	уі	riistoryz
Visc @ 100°C	cSt	ASTM D445	12.00	10.8	10.7	1	1.1
GRAPHS							
Iron (ppm)  Severe Abnormal				Lead (ppm)  80 Aswere  840 Abnormal			
,		Nov17/22 +-	Feb3/24	Nov4/18	Jan23/20	Nov17/22	Feb3/24
Aluminum (p	opm)			Chromium (  12 J Severe  8	opm)		
Nov4/18	Jan 23/20 +	Nov17/22 +	Feb3/24	Nov4/18	Jan23/20 +	Nov17/22 -	Feb3/24 -
Copper (ppn 300 T Severe 250 - Abnormal 100 - 50	n)			Silicon (ppm	)		
Nov4/18	Jan 23/20	Nov17/22	Feb3/24 -	Nov4/18	Jan 23/20 +	Nov17/22	Feb3/24
Viscosity @ 1	100°C			Base Numbe	r		

10.0 (mg KOH/g) 8.0

6.0

0.0

Base Number 4.0

Feb3/24 -





Certificate 12367

Laboratory Sample No.

Lab Number : 06209815 Unique Number : 11082679

:St (100°C)

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0126993 Received : 14 Jun 2024 : 15 Jun 2024

**Tested** Diagnosed : 15 Jun 2024 - Wes Davis

Test Package : MOB 1 ( Additional Tests: TBN )

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.

**MILLER TRUCK LEASING #119** 39 INDUSTRIAL AVE HASBROUCK HEIGHTS, NJ US 07604

Contact: MIKE LONGETTE mlongette@millertransgroup.com

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (201)528-7053

T: