

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id 631561 Component Diesel Engine Fluid PETRO CANADA DURON SHP 10W30 (--- GAL)

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

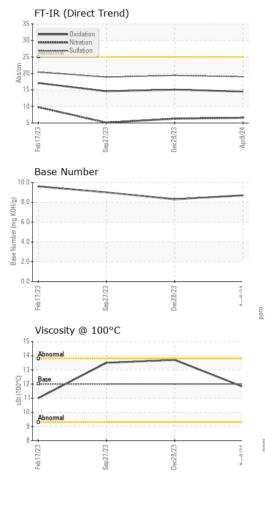
#### Fluid Condition

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

	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0121433	PCA0114541	PCA0105338
Sample Date		Client Info		09 Apr 2024	28 Dec 2023	27 Sep 2023
Machine Age	mls	Client Info		96984	5318	27860
Oil Age	mls	Client Info		96984	5318	27860
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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	>100	13	7	4
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		4	<1	0
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m		6	5	3
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m		25	22	8
Tin	ppm	ASTM D5185m		1	1	<1
Vanadium	ppm	ASTM D5185m	210	0	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES	pp	method	limit/base	current	history1	history2
						,
Baran	nnm	ASTM D5185m	2	22	04	122
Boron	ppm	ASTM D5185m	2	33	94	133
Barium	ppm	ASTM D5185m	0	0	0	0
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	0 50	0 51	0 34	0 39
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0	0 51 <1	0 34 <1	0 39 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950	0 51 <1 842	0 34 <1 459	0 39 <1 524
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050	0 51 <1 842 1364	0 34 <1 459 1551	0 39 <1 524 1791
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 50 0 950 1050 995	0 51 <1 842 1364 1128	0 34 <1 459 1551 1012	0 39 <1 524 1791 1035
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180	0 51 <1 842 1364 1128 1314	0 34 <1 459 1551 1012 1199	0 39 <1 524 1791 1035 1309
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 50 0 950 1050 995 1180 2600	0 51 <1 842 1364 1128 1314 3753	0 34 <1 459 1551 1012 1199 3238	0 39 <1 524 1791 1035 1309 3337
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600 Limit/base	0 51 <1 842 1364 1128 1314 3753 current	0 34 <1 459 1551 1012 1199 3238 history1	0 39 <1 524 1791 1035 1309 3337 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600	0 51 <1 842 1364 1128 1314 3753 current 3	0 34 <1 459 1551 1012 1199 3238 history1 3	0 39 <1 524 1791 1035 1309 3337 history2 5
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600 Limit/base >25	0 51 <1 842 1364 1128 1314 3753 current 3 2	0 34 <1 459 1551 1012 1199 3238 history1 3 2	0 39 <1 524 1791 1035 1309 3337 history2 5 16
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600 <i>limit/base</i> >25 >20	0 51 <1 842 1364 1128 1314 3753 current 3 2 13	0 34 <1 459 1551 1012 1199 3238 history1 3 2 14	0 39 <1 524 1791 1035 1309 3337 history2 5 16 13
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600 <i>limit/base</i> >25 >20	0 51 <1 842 1364 1128 1314 3753 current 3 2 13 current	0 34 <1 459 1551 1012 1199 3238 history1 3 2 14 history1	0 39 <1 524 1791 1035 1309 3337 history2 5 16 13 13 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 50 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >3	0 51 <1 842 1364 1128 1314 3753 current 3 2 13 current 0.3	0 34 <1 459 1551 1012 1199 3238 history1 3 2 14 14 history1 0.3	0 39 <1 524 1791 1035 1309 3337 history2 5 16 13 13 history2 0.1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 50 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >20	0 51 <1 842 1364 1128 1314 3753 current 3 2 13 current 0.3 6.6	0 34 <1 459 1551 1012 1199 3238 history1 3 2 14 history1 0.3 6.3	0 39 <1 524 1791 1035 1309 3337 history2 5 16 13 history2 0.1 5.1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 50 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >3	0 51 <1 842 1364 1128 1314 3753 current 3 2 13 current 0.3	0 34 <1 459 1551 1012 1199 3238 history1 3 2 14 14 history1 0.3	0 39 <1 524 1791 1035 1309 3337 history2 5 16 13 13 history2 0.1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm	ASTM D5185m ASTM D5185m	0 50 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >20	0 51 <1 842 1364 1128 1314 3753 current 3 2 13 current 0.3 6.6	0 34 <1 459 1551 1012 1199 3238 history1 3 2 14 history1 0.3 6.3	0 39 <1 524 1791 1035 1309 3337 history2 5 16 13 history2 0.1 5.1
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	ASTM D5185m ASTM D5185m	0 50 950 1050 995 1180 2600 imit/base >25 >20 imit/base >3 >20 >30	0 51 <1 842 1364 1128 1314 3753 current 3 2 13 current 0.3 6.6 19.0	0 34 <1 459 1551 1012 1199 3238 history1 3 2 14 history1 0.3 6.3 19.4	0 39 <1 524 1791 1035 1309 3337 history2 5 16 13 history2 0.1 5.1 18.9



# **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
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPER	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.00	11.8	13.7	13.5
GRAPHS						
Iron (ppm)			100	Lead (ppm	1)	
0 - Severe			80	Severe		
0 10 - Abnormal			60 E			
			40	Abnormal		
0			20	•		
330		723	0	723	23.	23
Feb17/23 Sep27/23		Dec28/23	Apr9/24	Feb 17/23	Sep27/23	Dec28/23
Aluminum (ppm)				Chromium	(ppm)	
0 Severe			50	Severe		1
0						
Abnormal			E 20	Abnormal		
0-			10			
0						
Feb17/23 Sep27/23		Dec28/23	Apr9/24	Feb 17/23	Sep27/23	Dec28/23
Sep		Dec	Ap	Feb	Sep	Deci
Copper (ppm)			0.0	Silicon (pp	m)	
Abitotimat			80	Severe	!	
0			60			
0			튭.40		1	
0-			20	Abnormal		
0						
Feb17/23 - Sep27/23 -		Dec28/23 -	Apr9/24 -	Feb 17/23 -	7/23 -	ec28/23 -
Feb 17/23 Sep 27/23		Deci	Ap	Feb 1	Sep 27/23	Dec28/23 And/74
Viscosity @ 100°C			10.0	Base Num	ber	
Abnormal			( <sup>B</sup> )Ho: 8.0			
2 Base			(b/H0 8.0 6.0 Base Number 82.0			
			4.0	+		
<sup>0</sup> Abnormal			2.0			
		2		5		13
Feb 17/23 Sep 27/23		Dec28/23	Apr9/24	Feb 17/23	Sep 27/23	Dec28/23
VearCheck USA - 501 PCA0121433 16150075 0980153 I/OB 1 ( Additional Test	Receiv Testeo Diagn	n Ave., Cary ved : 16 d : 17 osed : 17	r, NC 27513 6 Apr 2024 7 Apr 2024 7 Apr 2024 - W		MILLER TRUCK 2196 E PHI	

To discuss this sample report, co \* - 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)

Report Id: MILPHINE [WUSCAR] 06150075 (Generated: 04/17/2024 12:43:55) Rev: 1

Certificate L2367

Laboratory Sample No. Lab Number **Unique Number Test Package** 

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