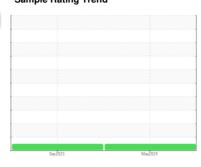


# **OIL ANALYSIS REPORT**

Sample Rating Trend







Machine Id **438732** 

**Diesel Engine** 

PETRO CANADA DURON SHP 10W30 (--- G

## DIAGNOSIS

### Recommendation

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

#### Wear

Metal levels are typical for a new component breaking in.

## 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.

SAMPLE INFORMATION method  Sample Number Client Info  Sample Date Client Info  Machine Age mls Client Info  Oil Age mls Client Info  Oil Changed Client Info  Sample Status  CONTAMINATION method  Fuel WC Method  Water WC Method  Glycol WC Method  WEAR METALS method  Iron ppm ASTM D5185m  Chromium ppm ASTM D5185m  Nickel ppm ASTM D5185m  Silver ppm ASTM D5185m  Aluminum ppm ASTM D5185m  Lead ppm ASTM D5185m  Copper ppm ASTM D5185m  Tin ppm ASTM D5185m  Vanadium ppm ASTM D5185m  Cadmium ppm ASTM D5185m  ADDITIVES method  Boron ppm ASTM D5185m  Manganese ppm ASTM D5185m  Manganese ppm ASTM D5185m  Manganese ppm ASTM D5185m  Calcium ppm ASTM D5185m		current PCA0125210 17 May 2024 50644 50644 Not Changd NORMAL  current <1.0 NEG NEG  current  71 2 0 <1 0 22	history1 PCA0105277 21 Sep 2023 24059 24059 Changed NORMAL history1 <1.0 NEG NEG history1 89 2 1 0 0	history2 history2 history2
Sample Date Machine Age Oil Age Oil Age Oil Changed Client Info Sample Status  CONTAMINATION Fuel WC Method Water WC Method Glycol WC Method WEAR METALS Iron Nickel ppm ASTM D5185m Nickel ppm ASTM D5185m Aluminum ppm ASTM D5185m Aluminum ppm ASTM D5185m Copper ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m ASTM D5185m ASTM D5185m Cadmium ppm ASTM D5185m ASTM	>5 >0.2 limit/base >100 >20 >4 >3 >20	17 May 2024 50644 50644 Not Changd NORMAL	21 Sep 2023 24059 24059 Changed NORMAL history1 <1.0 NEG NEG history1 89 2 1	history2 history2
Machine Age mls Client Info Oil Age Client Info Oil Changed Client Info Sample Status  CONTAMINATION Method Fuel WC Method Water WC Method Glycol WC Method Iron ppm ASTM D5185m Chromium ppm ASTM D5185m Nickel ppm ASTM D5185m Silver ppm ASTM D5185m Lead ppm ASTM D5185m Lead ppm ASTM D5185m Copper ppm ASTM D5185m Copper ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Manganese ppm ASTM D5185m Manganese ppm ASTM D5185m Calcium ppm ASTM D5185m Calcium ppm ASTM D5185m Sulfur ppm ASTM D5185m Calcium ppm ASTM D5185m Contaminant ppm ASTM D5185m Co	>5 >0.2 limit/base >100 >20 >4 >3 >20	50644 50644 Not Changd NORMAL	24059 24059 Changed NORMAL history1 <1.0 NEG NEG 2 1 0	history2 history2
Machine Age Oil Age Oil Age Oil Changed Sample Status  CONTAMINATION Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Dead Dead Dead Dead Dead Dead Dead D	>5 >0.2 limit/base >100 >20 >4 >3 >20	50644 Not Changd NORMAL  current  <1.0 NEG NEG  current  71 2 0 <1 0 22	24059 24059 Changed NORMAL history1 <1.0 NEG NEG 2 1 0	history2 history2 history2
Oil Changed Sample Status  CONTAMINATION Fuel Wc Method Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver ASTM D5185m Aluminum Lead Dpm ASTM D5185m Tin Dpm ASTM D5185m Tin Dpm ASTM D5185m Tin Dpm ASTM D5185m ASTM D5185m Tin Dpm ASTM D5185m Tin Dpm ASTM D5185m ASTM D5185m Tin Dpm ASTM D5185m Tin Dpm ASTM D5185m ASTM D5185m Tin Dpm ASTM D5185m Tin Dpm ASTM D5185m ADDITIVES  Method Boron Barium Dpm ASTM D5185m Dpm ASTM D5185m	>5 >0.2 limit/base >100 >20 >4 >3 >20	Not Changd NORMAL  current  <1.0  NEG  NEG  current  71  2  0  <1  0  22	Changed NORMAL  history1  <1.0 NEG NEG  history1  89 2 1 0	history2 history2 history2
CONTAMINATION Fuel Water WC Method Water WC Method WC Method WEAR METALS Iron WEAR METALS	>5 >0.2 limit/base >100 >20 >4 >3 >20	NORMAL  current <1.0 NEG NEG  current  71 2 0 <1 0 22	NORMAL history1 <1.0 NEG NEG history1 89 2 1 0	history2 history2
Fuel WC Method Water WC Method Water WC Method Glycol WC Method WEAR METALS method Iron ppm ASTM D5185m Chromium ppm ASTM D5185m Nickel ppm ASTM D5185m ASTM D5185	>5 >0.2 limit/base >100 >20 >4 >3 >20	current <1.0 NEG NEG current 71 2 0 <1 0 22	history1 <1.0 NEG NEG history1 89 2 1 0	history2 history2
Fuel WC Method Water WC Method Glycol WC Method  WEAR METALS method  Iron ppm ASTM D5185m Chromium ppm ASTM D5185m Nickel ppm ASTM D5185m Titanium ppm ASTM D5185m Silver ppm ASTM D5185m Aluminum ppm ASTM D5185m Lead ppm ASTM D5185m Copper ppm ASTM D5185m Tin ppm ASTM D5185m Tin ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m  ADDITIVES method  Barium ppm ASTM D5185m Manganese ppm ASTM D5185m Manganese ppm ASTM D5185m Calcium ppm ASTM D5185m Solium ppm ASTM D5185m Solium ppm ASTM D5185m  CONTAMINANTS method Silicon ppm ASTM D5185m Solium ppm ASTM D5185m Potassium ppm ASTM D5185m	>5 >0.2 limit/base >100 >20 >4 >3 >20	<1.0 NEG NEG Current 71 2 0 <1 0 22	<1.0 NEG NEG history1 89 2 1	history2
Water Glycol  WC Method  WEAR METALS  Iron  Chromium  Chromium  Nickel  India ASTM D5185m  Calcium  India ASTM D5185m	>0.2 limit/base >100 >20 >4 	NEG NEG current 71 2 0 <1 0	NEG NEG history1 89 2 1	history2
WC Method  WEAR METALS  method  Iron ppm ASTM D5185m  Chromium ppm ASTM D5185m  Nickel ppm ASTM D5185m  Titanium ppm ASTM D5185m  Silver ppm ASTM D5185m  Aluminum ppm ASTM D5185m  Lead ppm ASTM D5185m  Copper ppm ASTM D5185m  Tin ppm ASTM D5185m  Vanadium ppm ASTM D5185m  Cadmium ppm ASTM D5185m  Cadmium ppm ASTM D5185m  ADDITIVES method  Boron ppm ASTM D5185m  Barium ppm ASTM D5185m  Manganese ppm ASTM D5185m  Manganese ppm ASTM D5185m  Calcium ppm ASTM D5185m  Contamination ppm ASTM D5185m  Contamination ppm ASTM D5185m  Contamination ppm ASTM D5185m  ASTM D5185m  Contamination ppm ASTM D5185m	limit/base >100 >20 >4	NEG	NEG history1 89 2 1	history2
WEAR METALS  Iron ppm ASTM D5185m Chromium ppm ASTM D5185m Nickel ppm ASTM D5185m Titanium ppm ASTM D5185m Silver ppm ASTM D5185m Aluminum ppm ASTM D5185m Lead ppm ASTM D5185m Copper ppm ASTM D5185m Tin ppm ASTM D5185m Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m Manganese ppm ASTM D5185m Manganese ppm ASTM D5185m Manganese ppm ASTM D5185m Calcium ppm ASTM D5185m Chalcium ppm ASTM D5185m	>100 >20 >4 >3 >20	current 71 2 0 <1 0 22	history1  89 2 1 0	
Iron ppm ASTM D5185m Chromium ppm ASTM D5185m Nickel ppm ASTM D5185m Titanium ppm ASTM D5185m Silver ppm ASTM D5185m Aluminum ppm ASTM D5185m Lead ppm ASTM D5185m Copper ppm ASTM D5185m Tin ppm ASTM D5185m Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m Manganese ppm ASTM D5185m Manganese ppm ASTM D5185m Manganese ppm ASTM D5185m Calcium ppm ASTM D5185m Chalcium ppm ASTM D5185m	>100 >20 >4 >3 >20	71 2 0 <1 0	89 2 1 0	
Chromium ppm ASTM D5185m Nickel ppm ASTM D5185m Titanium ppm ASTM D5185m Silver ppm ASTM D5185m Aluminum ppm ASTM D5185m Lead ppm ASTM D5185m Copper ppm ASTM D5185m Tin ppm ASTM D5185m Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m ADDITIVES method Boron ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Calcium ppm ASTM D5185m Solium ppm ASTM D5185m Solium ppm ASTM D5185m Solium ppm ASTM D5185m Solium ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Solium ppm ASTM D5185m	>20 >4 >3 >20	2 0 <1 0 22	2 1 0	
Nickel ppm ASTM D5185m Titanium ppm ASTM D5185m Silver ppm ASTM D5185m Aluminum ppm ASTM D5185m Lead ppm ASTM D5185m Lead ppm ASTM D5185m Copper ppm ASTM D5185m Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m ADDITIVES method Boron ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Calcium ppm ASTM D5185m Solitur ppm ASTM D5185m Solitur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Solitum ppm ASTM D5185m Solitum ppm ASTM D5185m Solitum ppm ASTM D5185m	>4 >3 >20	0 <1 0	1 0	
Titanium         ppm         ASTM D5185m           Silver         ppm         ASTM D5185m           Aluminum         ppm         ASTM D5185m           Lead         ppm         ASTM D5185m           Copper         ppm         ASTM D5185m           Tin         ppm         ASTM D5185m           Vanadium         ppm         ASTM D5185m           Cadmium         ppm         ASTM D5185m           ADDITIVES         method           Boron         ppm         ASTM D5185m           Marjum         ppm         ASTM D5185m           Molybdenum         ppm         ASTM D5185m           Magnesium         ppm         ASTM D5185m           Calcium         ppm         ASTM D5185m           Phosphorus         ppm         ASTM D5185m           Sulfur         ppm         ASTM D5185m           CONTAMINANTS         method           Silicon         ppm         ASTM D5185m           Sodium         ppm         ASTM D5185m           Potassium         ppm         ASTM D5185m	>3 >20	<1 0 22	0	
Silver ppm ASTM D5185m Aluminum ppm ASTM D5185m Lead ppm ASTM D5185m Copper ppm ASTM D5185m Tin ppm ASTM D5185m Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m ADDITIVES method Boron ppm ASTM D5185m Marjanese ppm ASTM D5185m Manganese ppm ASTM D5185m Calcium ppm ASTM D5185m Contaminant ppm ASTM D5185m	>20	0 22		
Aluminum         ppm         ASTM D5185m           Lead         ppm         ASTM D5185m           Copper         ppm         ASTM D5185m           Tin         ppm         ASTM D5185m           Vanadium         ppm         ASTM D5185m           Cadmium         ppm         ASTM D5185m           Cadmium         ppm         ASTM D5185m           Boron         ppm         ASTM D5185m           Barium         ppm         ASTM D5185m           Molybdenum         ppm         ASTM D5185m           Magnesium         ppm         ASTM D5185m           Calcium         ppm         ASTM D5185m           Phosphorus         ppm         ASTM D5185m           Zinc         ppm         ASTM D5185m           CONTAMINANTS         method           Silicon         ppm         ASTM D5185m           Sodium         ppm         ASTM D5185m           Potassium         ppm         ASTM D5185m	>20	22	0	
Lead ppm ASTM D5185m Copper ppm ASTM D5185m Tin ppm ASTM D5185m Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m  ADDITIVES method Boron ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Pinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Sodium ppm ASTM D5185m				
Copper ppm ASTM D5185m Tin ppm ASTM D5185m Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m ADDITIVES method Boron ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Calcium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Calcium ppm ASTM D5185m Calcium ppm ASTM D5185m Calcium ppm ASTM D5185m Calcium ppm ASTM D5185m Contamination ppm ASTM D	>40		30	
Tin ppm ASTM D5185m Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m  ADDITIVES method Barium ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Calcium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Sodium ppm ASTM D5185m		0	<1	
Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m  ADDITIVES method Boron ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Sodium ppm ASTM D5185m	>330	17	31	
ADDITIVES  method  Boron ppm ASTM D5185m  Barium ppm ASTM D5185m  Molybdenum ppm ASTM D5185m  Manganese ppm ASTM D5185m  Magnesium ppm ASTM D5185m  Calcium ppm ASTM D5185m  Phosphorus ppm ASTM D5185m  Sulfur ppm ASTM D5185m  CONTAMINANTS  method  Silicon ppm ASTM D5185m  Sodium ppm ASTM D5185m	>15	3	4	
ADDITIVES method  Boron ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Zinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m		0	<1	
Boron ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m	11 11 11	0	0	
Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Zinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Zinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m	2	10	27	
Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Zinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m	0	<1	0	
Magnesium         ppm         ASTM D5185m           Calcium         ppm         ASTM D5185m           Phosphorus         ppm         ASTM D5185m           Zinc         ppm         ASTM D5185m           Sulfur         ppm         ASTM D5185m           CONTAMINANTS         method           Silicon         ppm         ASTM D5185m           Sodium         ppm         ASTM D5185m           Potassium         ppm         ASTM D5185m	50	59	52	
Calcium         ppm         ASTM D5185m           Phosphorus         ppm         ASTM D5185m           Zinc         ppm         ASTM D5185m           Sulfur         ppm         ASTM D5185m           CONTAMINANTS         method           Silicon         ppm         ASTM D5185m           Sodium         ppm         ASTM D5185m           Potassium         ppm         ASTM D5185m	0	6	12	
Phosphorus         ppm         ASTM D5185m           Zinc         ppm         ASTM D5185m           Sulfur         ppm         ASTM D5185m           CONTAMINANTS         method           Silicon         ppm         ASTM D5185m           Sodium         ppm         ASTM D5185m           Potassium         ppm         ASTM D5185m	950	790	671	
Zinc         ppm         ASTM D5185m           Sulfur         ppm         ASTM D5185m           CONTAMINANTS         method           Silicon         ppm         ASTM D5185m           Sodium         ppm         ASTM D5185m           Potassium         ppm         ASTM D5185m	1050	1478	1795	
Sulfur         ppm         ASTM D5185m           CONTAMINANTS         method           Silicon         ppm         ASTM D5185m           Sodium         ppm         ASTM D5185m           Potassium         ppm         ASTM D5185m	995	952	877	
CONTAMINANTS method  Silicon ppm ASTM D5185m  Sodium ppm ASTM D5185m  Potassium ppm ASTM D5185m	1180 2600	1177 3151	1107 2396	
Silicon         ppm         ASTM D5185m           Sodium         ppm         ASTM D5185m           Potassium         ppm         ASTM D5185m		current	history1	history2
Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m	limit/base	17	10	
Potassium ppm ASTM D5185m	limit/base		8	
INFRA-RED method	limit/base >25	5	49	
		5 28		history2
Soot % % *ASTM D7844	>25		history1	
Nitration Abs/cm *ASTM D7624	>25 >20	28	history1	
Sulfation Abs/.1mm *ASTM D7415	>25 >20 limit/base	28 current		
FLUID DEGRADATION method	>25 >20 limit/base >3	28 current 0.4	0.5	
Oxidation Abs/.1mm *ASTM D7414	>25 >20 limit/base >3 >20	28 current 0.4 6.8	0.5 10.6	
Base Number (BN) mg KOH/g ASTM D2896	>25 >20 limit/base >3 >20 >30	28 current 0.4 6.8 18.0	0.5 10.6 23.6	



# **OIL ANALYSIS REPORT**







Certificate 12367

Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0125210 Lab Number : 06195261 Unique Number : 11057384

Received : 30 May 2024 **Tested** : 31 May 2024 Diagnosed

: 31 May 2024 - Wes Davis Test Package : MOB 1 ( Additional Tests: TBN ) To discuss this sample report, contact Customer Service at 1-800-237-1369.

 $^st$  - 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)

**MILLER TRUCK LEASING #118** 

2196 BENNETT ROAD PHILADELPHIA, PA US 19116

Contact: ROSTY VITER rviter@millertransgroup.com

T: (215)552-9832 F: (215)552-9892

Report Id: MILPHINE [WUSCAR] 06195261 (Generated: 05/31/2024 12:33:33) Rev: 1

Contact/Location: ROSTY VITER - MILPHINE