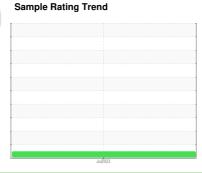


# **OIL ANALYSIS REPORT**



**NORMAL** 



Machine Id **635447** 

Component **Diesel Engine** 

PETRO CANADA DURON SHP 10W30 (--- 0

### DIAGNOSIS

#### Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

#### Wear

Metal levels are typical for a new component breaking in.

#### Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. 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.

Sample Number	GAL)				Jul2023		
Sample Date   Client Info   20 Jul 2023	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age         mls         Client Info         24449            Oil Age         mls         Client Info         24449            Oil Changed         Client Info         Changed            Sample Status         NORMAL             CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >5         <1.0	Sample Number		Client Info		PCA0100808		
Oil Age         mls         Client Info         24449	Sample Date		Client Info		20 Jul 2023		
Oil Changed Sample Status         Client Info MoRMAL         Changed NORMAL	•	mls	Client Info		24449		
Oil Changed Sample Status         Client Info         Changed NORMAL	Oil Age	mls	Client Info		24449		
CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >5         <1.0	Oil Changed		Client Info		Changed		
Fuel	Sample Status				NORMAL		
WEAR METALS	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         120             Chromium         ppm         ASTM D5185m         >20         5             Nickel         ppm         ASTM D5185m         >4         1             Silver         ppm         ASTM D5185m         >3         <1	Fuel		WC Method	>5	<1.0		
Iron	Glycol		WC Method		NEG		
Chromium         ppm         ASTM D5185m         >20         5             Nickel         ppm         ASTM D5185m         >4         1             Titanium         ppm         ASTM D5185m         >3         <1	WEAR METAL	.S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	120		
Titanium	Chromium	ppm	ASTM D5185m	>20	5		
Silver	Nickel	ppm	ASTM D5185m	>4	1		
Aluminum	Titanium	ppm	ASTM D5185m		<1		
Lead         ppm         ASTM D5185m         >40         0             Copper         ppm         ASTM D5185m         >330         412             Tin         ppm         ASTM D5185m         15         4             Vanadium         ppm         ASTM D5185m         0             Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0             Barium         ppm         ASTM D5185m         0         2             Molybdenum         ppm         ASTM D5185m         0         7             Magnesium         ppm         ASTM D5185m         0         7             Calcium         ppm         ASTM D5185m         995         1026             Phosphorus         ppm         ASTM D5185m         995         1026 </td <td>Silver</td> <td>ppm</td> <td>ASTM D5185m</td> <td>&gt;3</td> <th>&lt;1</th> <td></td> <td></td>	Silver	ppm	ASTM D5185m	>3	<1		
Copper         ppm         ASTM D5185m         >330         412             Tin         ppm         ASTM D5185m         >15         4             Vanadium         ppm         ASTM D5185m         0             Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         2             Barium         ppm         ASTM D5185m         0         2             Molybdenum         ppm         ASTM D5185m         0         7             Magnesium         ppm         ASTM D5185m         950         711             Calcium         ppm         ASTM D5185m         995         1026             Phosphorus         ppm         ASTM D5185m         995         1026             Sulfur         ppm         ASTM D5185m         2600         3237 <td>Aluminum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>&gt;20</td> <th>136</th> <td></td> <td></td>	Aluminum	ppm	ASTM D5185m	>20	136		
Tin         ppm         ASTM D5185m         >15         4             Vanadium         ppm         ASTM D5185m         0             Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         57             Barium         ppm         ASTM D5185m         0         2             Molybdenum         ppm         ASTM D5185m         50         59             Manganese         ppm         ASTM D5185m         950         711             Magnesium         ppm         ASTM D5185m         950         711             Calcium         ppm         ASTM D5185m         995         1026             Phosphorus         ppm         ASTM D5185m         2600         3237             Sulfur         ppm         ASTM D5185m         >25         11	Lead	ppm	ASTM D5185m	>40	0		
Vanadium         ppm         ASTM D5185m         0             Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         57             Barium         ppm         ASTM D5185m         0         2             Molybdenum         ppm         ASTM D5185m         50         59             Magnesium         ppm         ASTM D5185m         950         711             Calcium         ppm         ASTM D5185m         950         711             Phosphorus         ppm         ASTM D5185m         950         711             Phosphorus         ppm         ASTM D5185m         995         1026             Sulfur         ppm         ASTM D5185m         290         3237             CONTAMINANTS         method         limit/base         current         histor	Copper	ppm	ASTM D5185m	>330	412		
Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         57             Barium         ppm         ASTM D5185m         0         2             Molybdenum         ppm         ASTM D5185m         50         59             Manganese         ppm         ASTM D5185m         0         7             Magnesium         ppm         ASTM D5185m         950         711             Calcium         ppm         ASTM D5185m         950         711             Phosphorus         ppm         ASTM D5185m         995         1026             Zinc         ppm         ASTM D5185m         995         1026             Sulfur         ppm         ASTM D5185m         2600         3237             CONTAMINANTS         method         limit/base         cur	Tin	ppm	ASTM D5185m	>15	4		
ADDITIVES	Vanadium	ppm	ASTM D5185m		0		
Boron   ppm   ASTM D5185m   2   57       Barium   ppm   ASTM D5185m   0   2         Molybdenum   ppm   ASTM D5185m   50   59         Manganese   ppm   ASTM D5185m   0   7         Magnesium   ppm   ASTM D5185m   950   711           Magnesium   ppm   ASTM D5185m   950   711           Magnesium   ppm   ASTM D5185m   1050   2384           Magnesium   ppm   ASTM D5185m   995   1026         Magnesium   ppm   ASTM D5185m   995   1026         Magnesium   ppm   ASTM D5185m   2600   3237         Magnesium   ppm   ASTM D5185m   2600   3237         Magnesium   ppm   ASTM D5185m   2600   3237         Magnesium   ppm   ASTM D5185m   9         Magnesium   ppm   ASTM D5185m   20   330         Magnesium   ppm   ASTM D5185m   20   330         Magnesium   ppm   ASTM D5185m   20   330         Magnesium   ppm   ASTM D7844   20   330           Magnesium   Abs/.1mm   ASTM D7415   20   8.9           Magnesium   Abs/.1mm   ASTM D7415   20   8.9           Magnesium   Magnesium   Abs/.1mm   ASTM D7414   225   22.2             Magnesium   ASTM D7414   225   22.2             Magnesium   ASTM D7414   225   22.2               Magnesium   ASTM D7414   225   22.2	Cadmium	ppm	ASTM D5185m		0		
Barium         ppm         ASTM D5185m         0         2             Molybdenum         ppm         ASTM D5185m         50         59             Manganese         ppm         ASTM D5185m         0         7             Magnesium         ppm         ASTM D5185m         950         711             Calcium         ppm         ASTM D5185m         1050         2384             Phosphorus         ppm         ASTM D5185m         995         1026             Zinc         ppm         ASTM D5185m         995         1026             Sulfur         ppm         ASTM D5185m         1180         1240             Sulfur         ppm         ASTM D5185m         2600         3237             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         9             Sodium         ppm         ASTM D5185m	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         50         59             Manganese         ppm         ASTM D5185m         0         7             Magnesium         ppm         ASTM D5185m         950         711             Calcium         ppm         ASTM D5185m         1050         2384             Phosphorus         ppm         ASTM D5185m         1026             Zinc         ppm         ASTM D5185m         995         1026             Sulfur         ppm         ASTM D5185m         2600         3237             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         11             Sodium         ppm         ASTM D5185m         9             Potassium         ppm         ASTM D5185m         9             INFRA-RED         method         limit/base         current <t< td=""><td>Boron</td><td>ppm</td><td>ASTM D5185m</td><td>2</td><th>57</th><td></td><td></td></t<>	Boron	ppm	ASTM D5185m	2	57		
Manganese         ppm         ASTM D5185m         0         7             Magnesium         ppm         ASTM D5185m         950         711             Calcium         ppm         ASTM D5185m         1050         2384             Phosphorus         ppm         ASTM D5185m         995         1026             Zinc         ppm         ASTM D5185m         1180         1240             Sulfur         ppm         ASTM D5185m         2600         3237             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         11             Sodium         ppm         ASTM D5185m         9             Potassium         ppm         ASTM D5185m         9             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.6	Barium	ppm	ASTM D5185m	0	2		
Magnesium         ppm         ASTM D5185m         950         711             Calcium         ppm         ASTM D5185m         1050         2384             Phosphorus         ppm         ASTM D5185m         995         1026             Zinc         ppm         ASTM D5185m         1180         1240             Sulfur         ppm         ASTM D5185m         2600         3237             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         11             Sodium         ppm         ASTM D5185m         9             Potassium         ppm         ASTM D5185m         >20         330             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         8.9             Sulfation         Abs/.1mm         *ASTM D7415         >30<	Molybdenum	ppm	ASTM D5185m	50	59		
Calcium         ppm         ASTM D5185m         1050         2384             Phosphorus         ppm         ASTM D5185m         995         1026             Zinc         ppm         ASTM D5185m         1180         1240             Sulfur         ppm         ASTM D5185m         2600         3237             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         11             Sodium         ppm         ASTM D5185m         9             Potassium         ppm         ASTM D5185m         >20         330             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.6             Nitration         Abs/cm         *ASTM D7415         >30         23.1             FLUID DEGRADATION         *ASTM D7414         >25 <t< td=""><td>Manganese</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th>7</th><td></td><td></td></t<>	Manganese	ppm	ASTM D5185m	0	7		
Phosphorus         ppm         ASTM D5185m         995         1026             Zinc         ppm         ASTM D5185m         1180         1240             Sulfur         ppm         ASTM D5185m         2600         3237             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         11             Sodium         ppm         ASTM D5185m         9             Potassium         ppm         ASTM D5185m         >20         330             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         8.9             Nitration         Abs/.1mm         *ASTM D7415         >30         23.1             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414<	Magnesium	ppm	ASTM D5185m	950	711		
Zinc         ppm         ASTM D5185m         1180         1240             Sulfur         ppm         ASTM D5185m         2600         3237             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         11             Sodium         ppm         ASTM D5185m         9             Potassium         ppm         ASTM D5185m         >20         330             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.6             Nitration         Abs/cm         *ASTM D7624         >20         8.9             Sulfation         Abs/.1mm         *ASTM D7415         >30         23.1             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414<	Calcium	ppm	ASTM D5185m	1050	2384		
Sulfur         ppm         ASTM D5185m         2600         3237             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         11             Sodium         ppm         ASTM D5185m         9             Potassium         ppm         ASTM D5185m         >20         330             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.6             Nitration         Abs/cm         *ASTM D7624         >20         8.9             Sulfation         Abs/.1mm         *ASTM D7415         >30         23.1             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         22.2	Phosphorus	ppm	ASTM D5185m	995	1026		
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         11             Sodium         ppm         ASTM D5185m         9             Potassium         ppm         ASTM D5185m         >20         330             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.6             Nitration         Abs/cm         *ASTM D7624         >20         8.9             Sulfation         Abs/.1mm         *ASTM D7415         >30         23.1             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         22.2	Zinc	ppm	ASTM D5185m	1180	1240		
Silicon         ppm         ASTM D5185m         >25         11             Sodium         ppm         ASTM D5185m         9             Potassium         ppm         ASTM D5185m         >20         330             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.6             Nitration         Abs/cm         *ASTM D7624         >20         8.9             Sulfation         Abs/.1mm         *ASTM D7415         >30         23.1             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         22.2	Sulfur	ppm	ASTM D5185m	2600	3237		
Sodium         ppm         ASTM D5185m         9             Potassium         ppm         ASTM D5185m         >20         330             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.6             Nitration         Abs/cm         *ASTM D7624         >20         8.9             Sulfation         Abs/.1mm         *ASTM D7415         >30         23.1             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         22.2	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         330             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.6             Nitration         Abs/cm         *ASTM D7624         >20         8.9             Sulfation         Abs/.1mm         *ASTM D7415         >30         23.1             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         22.2	Silicon	ppm	ASTM D5185m	>25	11		
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.6             Nitration         Abs/cm         *ASTM D7624         >20         8.9             Sulfation         Abs/.1mm         *ASTM D7415         >30         23.1             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         22.2	Sodium	ppm	ASTM D5185m		9		
Soot %         %         *ASTM D7844         >3         0.6             Nitration         Abs/cm         *ASTM D7624         >20         8.9             Sulfation         Abs/.1mm         *ASTM D7415         >30         23.1             FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         22.2	Potassium	ppm	ASTM D5185m	>20	330		
Nitration         Abs/cm         *ASTM D7624         >20         8.9             Sulfation         Abs/.1mm         *ASTM D7415         >30         23.1             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         22.2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         23.1             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         22.2	Soot %	%	*ASTM D7844	>3	0.6		
FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm *ASTM D7414 >25 22.2	Nitration	Abs/cm	*ASTM D7624	>20	8.9		
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	23.1		
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	22.2		

Contact/Location: ROSTY VITER - MILPHINE



## **OIL ANALYSIS REPORT**





Certificate L2367

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

: PCA0100808 : 05921241 : 10593155

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 10 Aug 2023 Diagnosed

: 11 Aug 2023 Diagnostician : Sean Felton 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 #118** 

2196 BENNETT ROAD PHILADELPHIA, PA US 19116

Contact: ROSTY VITER rviter@millertransgroup.com T: (215)552-9832

Contact/Location: ROSTY VITER - MILPHINE

F: (215)552-9892

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)