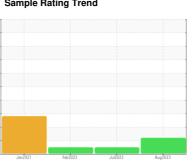


# **OIL ANALYSIS REPORT**

Sample Rating Trend



## **DEGRADATION**



Machine Id **706373** Component

**Diesel Engine** 

PETRO CANADA DURON SHP 10W30 (--- QTS)

### **DIAGNOSIS**

#### Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

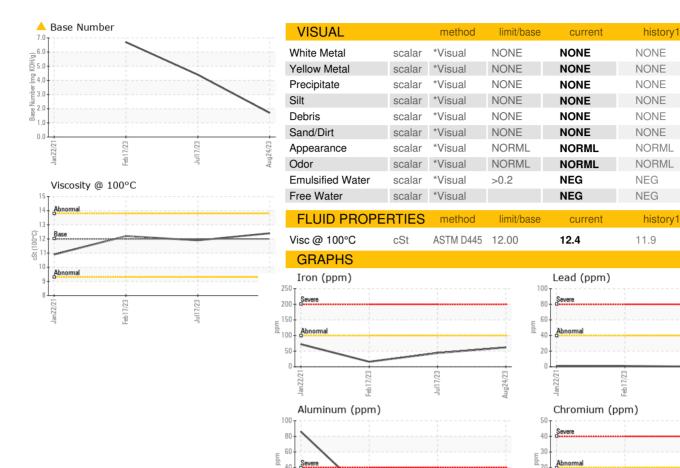
### Fluid Condition

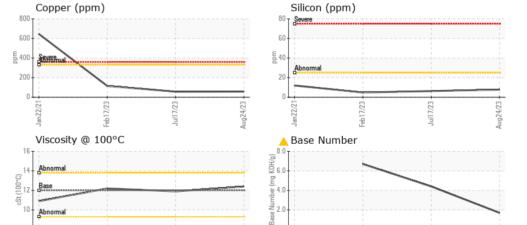
The BN level is low.

SAMPLE INFORMATION   method   limit/base   current   history1   history2	QTS)		Jan202	1 Feb2023	Jul2023 Au	g2023	
Sample Date         Client Info         24 Aug 2023         17 Jul 2023         17 Feb 2023           Machine Age         mis         Client Info         74845         37789         520538           Oil Age         mis         Client Info         74845         37789         520538           Oil Changed         Client Info         Changed Changed Changed Changed Changed ABNORMAL         NORMAL         NORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         S         <1.0         <1.0         <1.0         <1.0           Glycol         WC Method         NEG         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D6185m         >10         62         44         16           Glycol         ppm         ASTM D6185m         >10         62         44         16           Chromium         ppm         ASTM D6185m         >4         <1         <1         0           Chromium         ppm         ASTM D6185m         >3         0<	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age         mls         Client Info         74845         37789         520538           Oil Age         mls         Client Info         74845         37789         520538           Oil Changed         Client Info         Changed         Changed<	Sample Number		Client Info		PCA0102939	PCA0100803	PCA0085224
Oil Age         mls         Client Info         74845         37789         520538           Oil Changed         Client Info         Changed Changed Changed Changed Changed Changed NoRMAL         Changed Changed Changed Changed Changed Changed Changed NoRMAL           Sample Status         WC Method         5         <1.0	Sample Date		Client Info		24 Aug 2023	17 Jul 2023	17 Feb 2023
Oil Changed Sample Status         Client Info         Changed ABNORMAL NORMAL NORMAL NORMAL         Changed NORMAL NORMAL NORMAL NORMAL NORMAL         NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL           CONTAMINATION         method Method sold imit/base         current unitation         history1         history2           Fuel (Glycol)         WC Method (WC Method)         NEG NEG NEG NEG         NEG NEG         NEG NEG           WEAR METALS         method (Imit/base)         current (Imit) history1         history2         listory2           Iron         ppm (ASTM DS185m)         >100         62         44         16           Chromium (Imit)         ppm (ASTM DS185m)         >20         3         2         1           Chromium (Imit)         ppm (ASTM DS185m)         >4         <1	Machine Age	mls	Client Info		74845	37789	520538
CONTAMINATION	Oil Age	mls	Client Info		74845	37789	520538
CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >5         <1.0         <1.0         <1.0         <1.0           Glycol         WC Method         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         62         44         16           Chromium         ppm         ASTM D5185m         >20         3         2         1           Nickel         ppm         ASTM D5185m         >4         <1         <1         0           Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >20         12         8         4           Lead         ppm         ASTM D5185m         >30         58         57         115           Tin         ppm         ASTM D5185m         >15         2         2         2         1           Antimony         ppm         ASTM D5185m         >10         0 <td< th=""><th>Oil Changed</th><th></th><th>Client Info</th><th></th><th>Changed</th><th>Changed</th><th>Changed</th></td<>	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				ABNORMAL	NORMAL	NORMAL
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         62         44         16           Chromium         ppm         ASTM D5185m         >20         3         2         1           Nickel         ppm         ASTM D5185m         >4         <1         <1         0           Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >40         0         <1         1           Lead         ppm         ASTM D5185m         >330         58         57         115           Tin         ppm         ASTM D5185m         15         2         2         <1           Antimony         ppm         ASTM D5185m         0         <1         0           Vanadium         ppm         ASTM D5185m         0         <1         0           Cadmium         ppm         ASTM D5185m         0         0         <1         1	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >10         62         44         16           Chromium         ppm         ASTM D5185m         >20         3         2         1           Nickel         ppm         ASTM D5185m         >4         <1         <1         0           Titanium         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >40         0         <1         1           Copper         ppm         ASTM D5185m         >40         0         <1         1           Copper         ppm         ASTM D5185m         >40         0         <1         1           Antimony         ppm         ASTM D5185m         >15         2         2         <1         1           Vanadium         ppm         ASTM D5185m         0         0         0         0         0           Cadmium         ppm         ASTM D5185m         0	Fuel		WC Method	>5	<1.0	<1.0	<1.0
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	62	44	16
Titanium	Chromium	ppm	ASTM D5185m	>20	3	2	1
Silver         ppm         ASTM D5185m         >3         0         0         0           Aluminum         ppm         ASTM D5185m         >20         12         8         4           Lead         ppm         ASTM D5185m         >40         0         <1	Nickel	ppm	ASTM D5185m	>4	<1	<1	0
Aluminum	Titanium	ppm	ASTM D5185m		7	7	22
Lead	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper         ppm         ASTM D5185m         >330         58         57         115           Tin         ppm         ASTM D5185m         >15         2         2         <1           Antimony         ppm         ASTM D5185m              Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         50         57         57         39           Manganese         ppm         ASTM D5185m         0         1         1         1         1           Magnesium         ppm         ASTM D5185m         950         940         912         698           Calcium         ppm         ASTM D5185m         1050         1376         1377         1779 </th <th>Aluminum</th> <th>ppm</th> <th>ASTM D5185m</th> <th>&gt;20</th> <th>12</th> <th>8</th> <th>4</th>	Aluminum	ppm	ASTM D5185m	>20	12	8	4
Tin         ppm         ASTM D5185m         >15         2         2         <1	Lead	ppm	ASTM D5185m	>40	0	<1	1
Antimony	Copper	ppm	ASTM D5185m	>330	58	57	115
Vanadium         ppm         ASTM D5185m         0         <1	Tin	ppm	ASTM D5185m	>15	2	2	<1
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         2         1         13           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         50         57         57         39           Manganese         ppm         ASTM D5185m         0         1         1         1         1           Magnesium         ppm         ASTM D5185m         950         940         912         698           Calcium         ppm         ASTM D5185m         950         940         912         698           Calcium         ppm         ASTM D5185m         995         1055         1014         1036           Zinc         ppm         ASTM D5185m         2600         2709         2749         2944           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20 <th< th=""><th>Antimony</th><th>ppm</th><th>ASTM D5185m</th><th></th><th></th><th></th><th></th></th<>	Antimony	ppm	ASTM D5185m				
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         2         1         13           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         50         57         57         39           Manganese         ppm         ASTM D5185m         50         57         57         39           Magnesium         ppm         ASTM D5185m         950         940         912         698           Calcium         ppm         ASTM D5185m         950         940         912         698           Calcium         ppm         ASTM D5185m         950         1376         1377         1779           Phosphorus         ppm         ASTM D5185m         995         1055         1014         1036           Zinc         ppm         ASTM D5185m         2600         2709         2749         2944           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         50         57         57         39           Manganese         ppm         ASTM D5185m         0         1         1         1           Magnesium         ppm         ASTM D5185m         950         940         912         698           Calcium         ppm         ASTM D5185m         1050         1376         1377         1779           Phosphorus         ppm         ASTM D5185m         1050         1376         1377         1779           Phosphorus         ppm         ASTM D5185m         995         1055         1014         1036           Zinc         ppm         ASTM D5185m         2600         2709         2749         2944           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8         6         5           Sodium         ppm         ASTM D5185m         >20         9         6         8           INFRA-RED         method         limit/base	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         50         57         57         39           Manganese         ppm         ASTM D5185m         0         1         1         1           Magnesium         ppm         ASTM D5185m         950         940         912         698           Calcium         ppm         ASTM D5185m         1050         1376         1377         1779           Phosphorus         ppm         ASTM D5185m         995         1055         1014         1036           Zinc         ppm         ASTM D5185m         995         1055         1014         1036           Zinc         ppm         ASTM D5185m         2600         2709         2749         2944           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8         6         5           Sodium         ppm         ASTM D5185m         >20         9         6         8           INFRA-RED         method         limit/base         current         history1         history2           Soot %         *ASTM D7844         >3	Boron	ppm	ASTM D5185m	2	2	1	13
Manganese         ppm         ASTM D5185m         0         1         1         1           Magnesium         ppm         ASTM D5185m         950         940         912         698           Calcium         ppm         ASTM D5185m         1050         1376         1377         1779           Phosphorus         ppm         ASTM D5185m         995         1055         1014         1036           Zinc         ppm         ASTM D5185m         2600         2709         2749         2944           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8         6         5           Sodium         ppm         ASTM D5185m         >25         8         6         5           Sodium         ppm         ASTM D5185m         >20         9         6         8           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         19.0         13.9         9.2           Sulfation         Abs/:1mm         *ASTM D7415	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium         ppm         ASTM D5185m         950         940         912         698           Calcium         ppm         ASTM D5185m         1050         1376         1377         1779           Phosphorus         ppm         ASTM D5185m         995         1055         1014         1036           Zinc         ppm         ASTM D5185m         1180         1388         1300         1367           Sulfur         ppm         ASTM D5185m         2600         2709         2749         2944           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8         6         5           Sodium         ppm         ASTM D5185m         >20         9         6         8           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9         0.7         0.4           Nitration         Abs/cm         *ASTM D7624         >20         19.0         13.9         9.2           Sulfation         Abs/cm         *ASTM D7415	Molybdenum	ppm	ASTM D5185m	50	57	57	39
Calcium         ppm         ASTM D5185m         1050         1376         1377         1779           Phosphorus         ppm         ASTM D5185m         995         1055         1014         1036           Zinc         ppm         ASTM D5185m         1180         1388         1300         1367           Sulfur         ppm         ASTM D5185m         2600         2709         2749         2944           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8         6         5           Sodium         ppm         ASTM D5185m         >20         9         6         8           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9         0.7         0.4           Nitration         Abs/cm         *ASTM D7624         >20         19.0         13.9         9.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.8         25.0         21.6           FLUID DEGRADATION         "ASTM D	Manganese	ppm	ASTM D5185m	0	1	1	1
Phosphorus         ppm         ASTM D5185m         995         1055         1014         1036           Zinc         ppm         ASTM D5185m         1180         1388         1300         1367           Sulfur         ppm         ASTM D5185m         2600         2709         2749         2944           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8         6         5           Sodium         ppm         ASTM D5185m         >20         9         6         8           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9         0.7         0.4           Nitration         Abs/cm         *ASTM D7624         >20         19.0         13.9         9.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.8         25.0         21.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm	Magnesium	ppm	ASTM D5185m	950	940	912	698
Zinc         ppm         ASTM D5185m         1180         1388         1300         1367           Sulfur         ppm         ASTM D5185m         2600         2709         2749         2944           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8         6         5           Sodium         ppm         ASTM D5185m         20         9         6         8           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9         0.7         0.4           Nitration         Abs/cm         *ASTM D7624         >20         19.0         13.9         9.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.8         25.0         21.6           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         34.3         25.2         18.1	Calcium	ppm	ASTM D5185m	1050	1376	1377	1779
Sulfur         ppm         ASTM D5185m         2600         2709         2749         2944           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8         6         5           Sodium         ppm         ASTM D5185m         4         4         2           Potassium         ppm         ASTM D5185m         >20         9         6         8           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9         0.7         0.4           Nitration         Abs/cm         *ASTM D7624         >20         19.0         13.9         9.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.8         25.0         21.6           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         34.3         25.2         18.1	Phosphorus	ppm	ASTM D5185m	995	1055	1014	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8         6         5           Sodium         ppm         ASTM D5185m         4         4         2           Potassium         ppm         ASTM D5185m         >20         9         6         8           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9         0.7         0.4           Nitration         Abs/cm         *ASTM D7624         >20         19.0         13.9         9.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.8         25.0         21.6           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         34.3         25.2         18.1	Zinc	ppm	ASTM D5185m	1180	1388	1300	1367
Silicon         ppm         ASTM D5185m         >25         8         6         5           Sodium         ppm         ASTM D5185m         4         4         2           Potassium         ppm         ASTM D5185m         >20         9         6         8           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9         0.7         0.4           Nitration         Abs/cm         *ASTM D7624         >20         19.0         13.9         9.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.8         25.0         21.6           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         34.3         25.2         18.1	Sulfur	ppm	ASTM D5185m	2600	2709	2749	2944
Sodium         ppm         ASTM D5185m         4         4         2           Potassium         ppm         ASTM D5185m         >20         9         6         8           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9         0.7         0.4           Nitration         Abs/cm         *ASTM D7624         >20         19.0         13.9         9.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.8         25.0         21.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         34.3         25.2         18.1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         9         6         8           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.9         0.7         0.4           Nitration         Abs/cm         *ASTM D7624         >20         19.0         13.9         9.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.8         25.0         21.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         34.3         25.2         18.1	Silicon	ppm	ASTM D5185m	>25	8	6	5
INFRA-RED	Sodium	ppm	ASTM D5185m		4	4	2
Soot %         %         *ASTM D7844         >3         0.9         0.7         0.4           Nitration         Abs/cm         *ASTM D7624         >20         19.0         13.9         9.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.8         25.0         21.6           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         34.3         25.2         18.1	Potassium	ppm	ASTM D5185m	>20	9	6	8
Nitration         Abs/cm         *ASTM D7624         >20         19.0         13.9         9.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         28.8         25.0         21.6           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         34.3         25.2         18.1	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         28.8         25.0         21.6           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         34.3         25.2         18.1	Soot %	%	*ASTM D7844	>3	0.9	0.7	0.4
FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     34.3     25.2     18.1	Nitration	Abs/cm	*ASTM D7624	>20	19.0	13.9	9.2
Oxidation         Abs/.1mm         *ASTM D7414         >25         34.3         25.2         18.1	Sulfation	Abs/.1mm	*ASTM D7415	>30	28.8	25.0	21.6
	FLUID DEGRAD	OATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	34.3	25.2	18.1
	Base Number (BN)	mg KOH/g	ASTM D2896			4.4	



## **OIL ANALYSIS REPORT**









Certificate L2367

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

: 05943325 : 10633937

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0102939

Feb17/23

Received : 06 Sep 2023 Diagnosed

: 08 Sep 2023 Diagnostician : Don Baldridge

Aug24/23

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. 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

Contact/Location: ROSTY VITER - MILPHINE

F: (215)552-9892

history2

NONE

NONE

NONE

NONE NONE

NONE

NORML

NORML

history

NEG

NEG

12.2