

# **OIL ANALYSIS REPORT**



Machine Id **5118** 

Fluid

Component Diesel Engine

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

# 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

Elemental level of silicon (Si) above normal indicating ingress of seal material.

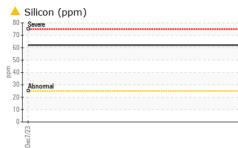
#### Fluid Condition

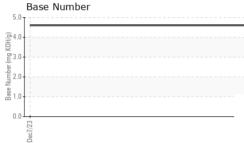
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

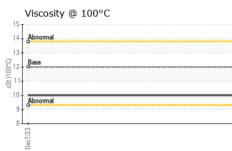
SAMPLE INFORM	<u>IATION</u>	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0113399		
Sample Date		Client Info		07 Dec 2023		
Machine Age	mls	Client Info		11804		
Oil Age	mls	Client Info		0		
Oil Changed		Client Info		Changed		
Sample Status				ABNORMAL		
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0		
Water		WC Method	>0.2	NEG		
Glycol		WC Method		NEG		
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	164		
Chromium	ppm	ASTM D5185m	>20	3		
Nickel	ppm	ASTM D5185m	>4	<1		
Titanium	ppm	ASTM D5185m		0		
Silver	ppm	ASTM D5185m	>3	<1		
Aluminum	ppm	ASTM D5185m	>20	25		
Lead	ppm	ASTM D5185m	>40	2		
Copper	ppm	ASTM D5185m	>330	151		
Tin	ppm	ASTM D5185m	>15	6		
Vanadium						
v u luului l	ppm	ASTM D5185m		<1		
	ppm ppm	ASTM D5185m ASTM D5185m		<1 0		
			limit/base			
Cadmium ADDITIVES	ppm	ASTM D5185m method		0 current		
Cadmium ADDITIVES Boron	ppm ppm	ASTM D5185m method ASTM D5185m	2	0	 history1	 history2
Cadmium ADDITIVES Boron Barium	ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	2 0	0 current 134 7	 history1 	 history2 
Cadmium ADDITIVES Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	0 current 134 7 11	 history1 	 history2 
Cadmium ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	0 current 134 7 11 4	 history1  	 history2  
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	0 current 134 7 11 4 11	 history1  	 history2   
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	0 current 134 7 11 4 11 11 1072	 history1   	 history2   
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995	0 current 134 7 11 4 11 1072 861	 history1    	 history2     
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	0 current 134 7 11 4 11 11 1072	 history1      	 history2      
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180	0 current 134 7 11 4 11 1072 861 1085	 history1       	 history2        -
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600	0 current 134 7 11 4 11 1072 861 1085 2793	 history1        -	 history2        -
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	0 current 134 7 11 4 11 1072 861 1085 2793 current	 history1        history1	 history2        history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	0 current 134 7 11 4 11 1072 861 1085 2793 current ▲ 62	 history1        history1	 history2        history2 
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25	0 current 134 7 11 4 11 1072 861 1085 2793 current ▲ 62 3	 history1        history1  history1	 history2        history2  history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25 >20	0 current 134 7 11 4 11 1072 861 1085 2793 current ▲ 62 3 3	 history1       history1  	 history2        history2  history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25 >20 <b>limit/base</b>	0 current 134 7 11 4 11 1072 861 1085 2793 current ▲ 62 3 3 3 current	 history1       history1    history1	 history2       history2  history2   history2
Cadmium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium	ppm   ppm   ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>Imit/base</b> >25 >20 <b>Imit/base</b> >3	0 current 134 7 11 4 11 1072 861 1085 2793 current ▲ 62 3 3 3 current 0.7	 history1      history1   history1  	 history2       history2   history2  history2
Cadmium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 >20 <b>imit/base</b> >3 >3	0 current 134 7 11 4 11 1072 861 1085 2793 current ▲ 62 3 3 current 0.7 9.0	 history1       history1   history1   history1	 history2       history2   history2  history2
Cadmium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 20 <b>imit/base</b> >3 >20 >30	0 current 134 7 11 4 11 1072 861 1085 2793 current ▲ 62 3 3 3 current 0.7 9.0 21.9	 history1        history1   history1	 history2       history2  history2  history2

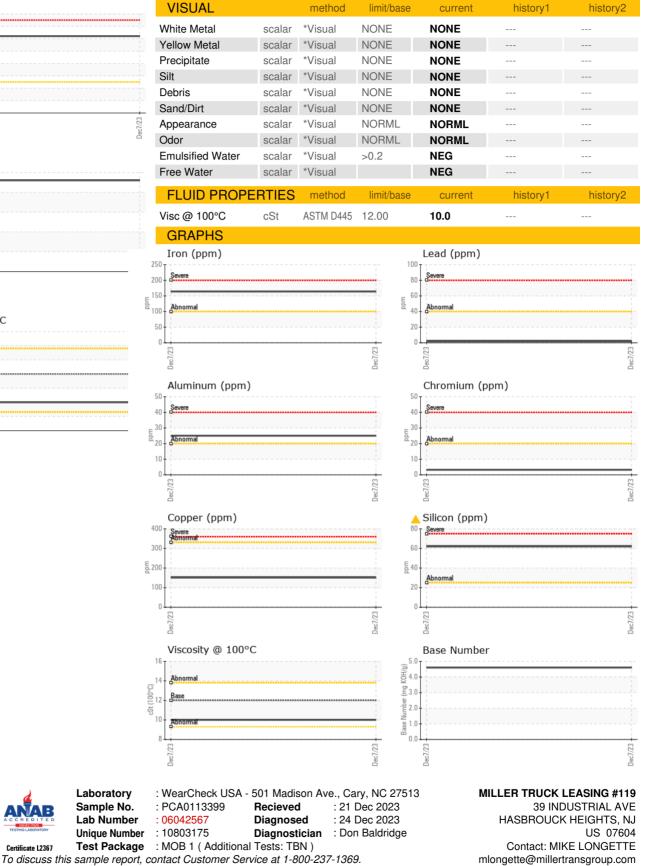


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\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Certificate L2367

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