

## **OIL ANALYSIS REPORT**

# (P1019458) Preferred Service-Tractor [Preferred Service-Tractor] 192A02034

**Diesel Engine** 

Fluid PETRO CANADA DURON SHP 10W30 (36 QTS)

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

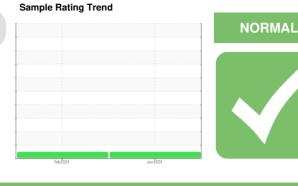
All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

#### Fluid Condition

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



SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0126922	PCA0116696	
Sample Date		Client Info		12 Jun 2024	14 Feb 2024	
Machine Age	mls	Client Info		256231	241181	
Oil Age	mls	Client Info		15050	15604	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>6.0	<1.0	<1.0	
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	22	34	
Chromium	ppm	ASTM D5185m	>20	<1	<1	
Nickel	ppm	ASTM D5185m	>2	0	<1	
Titanium	ppm	ASTM D5185m		<1	<1	
Silver	ppm	ASTM D5185m	>2	0	<1	
Aluminum	ppm	ASTM D5185m	>25	4	5	
Lead	ppm	ASTM D5185m	>40	2	1	
Copper	ppm	ASTM D5185m	>330	6	12	
Tin	ppm	ASTM D5185m	>15	<1	1	
Vanadium	ppm	ASTM D5185m		0	<1	
Cadmium	ppm	ASTM D5185m		0	<1	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 2	current	history1 0	history2
	ppm ppm					
Boron		ASTM D5185m	2	1	0	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	1 0	0 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	1 0 60	0 0 63	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	1 0 60 <1	0 0 63 <1	  
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	1 0 60 <1 922	0 0 63 <1 1007	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	1 0 60 <1 922 1059	0 0 63 <1 1007 1114	   
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995	1 0 60 <1 922 1059 1035	0 0 63 <1 1007 1114 1142	   
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180	1 0 60 <1 922 1059 1035 1228	0 0 63 <1 1007 1114 1142 1282	    
Boron 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	2 0 50 950 1050 995 1180 2600	1 0 60 <1 922 1059 1035 1228 3287	0 0 63 <1 1007 1114 1142 1282 3317	
Boron 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	2 0 50 950 1050 995 1180 2600	1 0 60 <1 922 1059 1035 1228 3287 current	0 0 63 <1 1007 1114 1142 1282 3317 history1	     history2
Boron 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 ASTM D5185m	2 0 50 950 1050 995 1180 2600	1 0 60 <1 922 1059 1035 1228 3287 current 4	0 0 63 <1 1007 1114 1142 1282 3317 history1 6	    history2
Boron 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 ASTM D5185m	2 0 50 950 1050 995 1180 2600 <b>limit/base</b> >25	1 0 60 <1 922 1059 1035 1228 3287 current 4 5	0 0 63 <1 1007 1114 1142 1282 3317 history1 6 3	     history2
Boron 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	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25 >20	1 0 60 <1 922 1059 1035 1228 3287 <u>current</u> 4 5 3	0 0 63 <1 1007 1114 1142 1282 3317 history1 6 3 4	    history2
Boron 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	2 0 50 0 950 1050 995 1180 2600 <b>Imit/base</b> >25 -20 <b>Imit/base</b>	1 0 60 <1 922 1059 1035 1228 3287 current 4 5 3 3 2 8 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 63 <1 1007 1114 1142 1282 3317 history1 6 3 4 history1	     history2    history2
Boron 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	2 0 50 0 950 1050 995 1180 2600 <b>Imit/base</b> >25 >20 <b>Imit/base</b> >3	1 0 60 <1 922 1059 1035 1228 3287 current 4 5 3 3 current 0.5	0 0 63 <1 1007 1114 1142 1282 3317 history1 6 3 4 history1 0.5	     history2   history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN 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 <i>imit/base</i> >25 >20 <i>imit/base</i> >3 >20	1 0 60 <1 922 1059 1035 1228 3287 <i>current</i> 4 5 3 <i>current</i> 0.5 8.9	0 0 63 <1 1007 1114 1142 1282 3317 history1 6 3 4 history1 0.5 9.4	     history2   history2
Boron 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 TS 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 <b>imit/base</b> >3 >20	1 0 60 <1 922 1059 1035 1228 3287 <b>current</b> 4 5 3 3 <b>current</b> 0.5 8.9 20.7	0 0 63 <1 1007 1114 1142 1282 3317 history1 6 3 4 <b>history1</b> 0.5 9.4 20.7	    history2  history2  history2
Boron 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 ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 >20 <b>imit/base</b> >3 >20 >30	1 0 60 <1 922 1059 1035 1228 3287 current 4 5 3 3 current 0.5 8.9 20.7 current	0 0 63 <1 1007 1114 1142 1282 3317 history1 6 3 4 history1 0.5 9.4 20.7 history1	    history2  history2  history2  history2



35

30

7.0 T

Base Number (mg K0H/g)

1.0 0.0 Feb14/24

15 <del>т</del> 14. Abnormal

13 cSt (100°C) 11 Base

10

# **OIL ANALYSIS REPORT**

T-IR (Direct Trend)	VISUAL		method				history2	
Oxidation Nitration	White Metal	scalar	*Visual	NONE	NONE	NONE		
amormar Sulfation	Yellow Metal	scalar	*Visual	NONE	NONE	NONE		
	Precipitate	scalar	*Visual	NONE	NONE	NONE		
	Silt	scalar	*Visual	NONE	NONE	NONE		
	Debris	scalar	*Visual	NONE	NONE	NONE		
***************************************	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE		
		scalar	*Visual	NORML	NORML	NORML		
	Odor	scalar	*Visual	NORML	NORML	NORML		
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG		
Base Number	Free Water	scalar	*Visual	20.L	NEG	NEG		
	FLUID PROP		method	limit/base	current	history1	history2	
	Visc @ 100°C	cSt	ASTM D445		10.8	11.0		
	GRAPHS	001	7.0111.01110	12.00		11.0		
	Ferrous Alloys							
4 C C 1	30-							
C	25-							
-								
/iscosity @ 100°C	و20 15							
Abnormal	15							
	10							
Base	5							
AL	Feb 14/24			Jun 12/24				
Abnormal	멸			Jun				
- <del>-</del>	Non-ferrous Met	als						
¥ (, , , , , , , , , , , , , , , , , , ,	12 copper							
	10 - management lead							
	8-							
	ق 6-		- Charles and a	Concession of the local division of the loca				
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	4 - 1							
	2 -							
	0							
	4/24			2/24				
	Feb1			Jun1				
	Viscosity @ 100°	C			Base Numbe	r		
	15 T			7.0				
	14 - Abnormal			6.0				
	13 -							
	Base	*****	*****	DX DE				
	0 12 - Base 0 12 - Base 3 11 - Base			E 4.0				
				(0,100 5.0 HOX Bu Jao quany 888 82.0				
	10 - Abnormal			8 2.0 8				
	9 -			1.0				
	84				4			
	Feb 14/24			Jun 12/24	Feb 14/24			
	면			Jur	æ			
Laboratory					Transer	vice - Shop 1920 -		
		Recei		l Jun 2024 5 Jun 2024		1955 W. North		
ANAB Sample No		Teste		Melrose Park,				
Lab Number		: 11082687 Diagnosed : 15 Jun 2024 - Wes Davis						
Lab Number Transcentory Unique Number	er :11082687	Diagr	nosed : 15	Jun 2024 - W	es Davis	0	US 601	
Lab Number	er :11082687 ge :FLEET	-			es Davis	Contact: tlindemann@t	Tom Lindem	

Submitted By: Tom Lindeman Page 2 of 2