

### **OIL ANALYSIS REPORT**

Sample Rating Trend

**FUEL** 

X

# INTERNATIONAL 1243

Component

Diesel Engine

PETRO CANADA DURON HP 15W40 (--- GAL)

#### DIAGNOSIS

#### Recommendation

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

#### Wear

All component wear rates are normal.

#### Contamination

There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

#### Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

L)		L		Oct2023		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PC0081533		
Sample Date		Client Info		30 Oct 2023		
Machine Age	kms	Client Info		0		
Oil Age	kms	Client Info		3432		
Oil Changed		Client Info		Changed		
Sample Status				SEVERE		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG		
Glycol		WC Method		NEG		
WEAR METAL	.S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>127	54		
Chromium	ppm	ASTM D5185(m)	>3	<1		
Nickel	ppm	ASTM D5185(m)	>30	<1		
Titanium	ppm	ASTM D5185(m)	>2	0		
Silver	ppm	ASTM D5185(m)	>2	<1		
Aluminum	ppm	ASTM D5185(m)	>59	7		
Lead	ppm	ASTM D5185(m)	>29	1		
Copper	ppm	ASTM D5185(m)	>135	<1		
Tin	ppm	ASTM D5185(m)	>2	0		
Antimony	ppm	ASTM D5185(m)		0		
Vanadium	ppm	ASTM D5185(m)		0		
Beryllium	ppm	ASTM D5185(m)		0		
Cadmium	ppm	ASTM D5185(m)		0		
ADDITIVES		method	limit/base	current	history1	history2
	ppm	method ASTM D5185(m)	limit/base	2	history1	history2
Boron	ppm ppm					
Boron Barium		ASTM D5185(m)	0	2		
Boron Barium Molybdenum	ppm	ASTM D5185(m) ASTM D5185(m)	0	2 0		
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60	2 0 55		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0	2 0 55 0		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010	2 0 55 0 840		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070	2 0 55 0 840 923	  	  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070 1150	2 0 55 0 840 923 883	  	   
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270	2 0 55 0 840 923 883 1042	  	   
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270	2 0 55 0 840 923 883 1042 2214		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060	2 0 55 0 840 923 883 1042 2214 <1		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060	2 0 555 0 840 923 883 1042 2214 <1 <1	      history1	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) <b>method</b> ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060	2 0 55 0 840 923 883 1042 2214 <1 <1 current 4	       history1	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) <b>method</b> ASTM D5185(m) ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060 limit/base >18	2 0 55 0 840 923 883 1042 2214 <1 <1 Current 4 2	       history1	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060 <b>limit/base</b> >18	2 0 55 0 840 923 883 1042 2214 <1 2214 <1 2214 <1 2214 <1 2214 <1	       history1	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060 <b>limit/base</b> >18 >20 >20	2 0 555 0 840 923 883 1042 2214 <1 2214 <1 2214 <1 2214 <1 2 214 <1 8 8 8 8 8 8 8 8 8 8 8 8 8 8	       history1   	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>JTS</b>	ASTM D5185(m) ASTM D7593*	0 0 0 1010 1070 1150 1270 2060 <b>Iimit/base</b> >18 >20 >20 >20 >2.0	2 0 55 0 840 923 883 1042 2214 <1 current 4 2 214 <1	       history1    history1	       history2      history2



## **OIL ANALYSIS REPORT**

0d30/23 - 0d30/2	Oxidation VISUAL White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 40°C	scalar scalar scalar scalar scalar scalar scalar scalar scalar scalar	ASTM D7414* method Visual* Visual* Visual* Visual* Visual* Visual* Visual* Visual* Visual* Visual* Misual* Misual*	>25 limit/base NONE NONE NONE NONE NONE NORML NORML >0.2	19.5 current NONE NONE NONE NONE NONE NORML NORML NEG	 history1      	 history2      
	White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water Free Water Visc @ 40°C	scalar scalar scalar scalar scalar scalar scalar scalar scalar	Visual* Visual* Visual* Visual* Visual* Visual* Visual* Visual* Visual*	NONE NONE NONE NONE NONE NORML NORML	NONE NONE NONE NONE NONE NORML NORML NEG		
	Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 40°C	scalar scalar scalar scalar scalar scalar scalar scalar scalar	Visual* Visual* Visual* Visual* Visual* Visual* Visual* Visual* Visual*	NONE NONE NONE NONE NORML	NONE NONE NONE NONE NORML NORML NEG	   	    
	Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 40°C	scalar scalar scalar scalar scalar scalar scalar scalar RTIES	Visual* Visual* Visual* Visual* Visual* Visual* Visual*	NONE NONE NONE NORML NORML	NONE NONE NONE NONE NORML NORML NEG	  	   
	Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 40°C	scalar scalar scalar scalar scalar scalar scalar	Visual* Visual* Visual* Visual* Visual* Visual*	NONE NONE NONE NORML NORML	NONE NONE NORML NORML NEG	  	  
	Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 40°C	scalar scalar scalar scalar scalar scalar RTIES	Visual* Visual* Visual* Visual* Visual* Visual*	NONE NONE NORML NORML	NONE NORML NORML NEG	 	
	Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 40°C	scalar scalar scalar scalar scalar RTIES	Visual* Visual* Visual* Visual* Visual*	NONE NORML NORML	NONE NORML NORML NEG		
0ed80/23	Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 40°C	scalar scalar scalar scalar RTIES	Visual* Visual* Visual* Visual*	NORML NORML	NORML NORML NEG		
0ed30/23	Odor Emulsified Water Free Water FLUID PROPE Visc @ 40°C	scalar scalar scalar RTIES	Visual* Visual* Visual*	NORML	NORML NEG		
0dd0023 -	Emulsified Water Free Water FLUID PROPE Visc @ 40°C	scalar scalar RTIES	Visual* Visual*		NEG		
0ed30/23 -	Free Water FLUID PROPE Visc @ 40°C	scalar RTIES	Visual*	>0.2			
0ed30/23 -	FLUID PROPE Visc @ 40°C	RTIES			NEC		
0ct30/23 -	Visc @ 40°C		method		NEG		
0ct30/23		cSt		limit/base	current	history1	history2
0ct30/23 -			ASTM D7279(m)	118.2	86.9		
0ct30	Visc @ 100°C	cSt	ASTM D7279(m)	15.6	12.9		
	Viscosity Index (VI)	Scale	ASTM D2270*	139	147		
	GRAPHS						
	Iron (ppm)				Lead (ppm)		
				60·	Severe		
	200 +			40· E	Abnormal		
	- 100			20			
	ct30/2			ct30/2	ct30/2		0ct30/23
				Ó			ō
	<sup>150</sup> T			8-	Chromium (pp	m)	
	100-			6.	Severe		
	Abnormal			Ed 4.	Abnormal		
	30			2.			
	0/23			0/23	0/23		0/23 -
	0 ct3(			0ct3(	0ct3(		0ct30/23
	Copper (ppm)				Silicon (ppm)		
				30.	Severe		
	200 -			20·	Abnormal		
	100			ā 10-	•		
				- 0-			
	t30/2:			:430/2:	:30/2:		0ct30/23
	-						ŏ
	20 T			10.0-	Fuel Dilution		
	Abnormal Page						
	0015 Abnormal			₽ ₽ %	Severe		
	8				Abnormal		
	10				//23		- 1/23
	0ct30			0ct30	0ct30		0ct30/23
15:2017 Lab Number Attrive Unique Number Test Package cuss this sample report,	: PC0081533 : 02598162 : 5683242 : MOB 1 ( Additional contact Customer Serv	Received Diagnose Diagnose Tests: Fu ice at 1-8	d : 22   ed : 23   ician : We elDilution, K 00-268-213	Nov 2023 Nov 2023 s Davis V40, Percentl v.	<sup>-</sup> uel, VI, Visual )	567 Con Djhall@	<b>5B - Brantford</b> 7 Oak Park Rd. Brantford, ON CA N3T 5L8 tact: Doug Hall Sharpbus.com (519)751-3434
	Laboratory Sample No. Lab Number Unique Number Test Package cuss this sample report, lenoted (*) outside scope	Iron (ppm)     Iron (ppm)	Iron (ppm)     Iron (ppm)  I	Iron (ppm)     Iron (ppm)  I	Iron (ppm)   Iron (ppm)     Iron (ppm)   I	Iron (ppm)   Iron (ppm)     Iron (ppm)   I	Aluminum (ppm) Aluminum (ppm) Coper (ppm) Silicon (ppm) Uscosity @ 100°C Uscosity @ 100°C Uscosi