

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend



## Machine Id PD816

Component Diesel Engine

# Fluid PETRO CANADA DURON UHP 5W40 (30 LTR)

## 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 condition of the oil is acceptable for the time in service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PC0082669	PC0047946	
Sample Date		Client Info		08 Feb 2024	13 Jun 2021	
Machine Age	hrs	Client Info		8101	8023	
Oil Age	hrs	Client Info		0	0	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	ABNORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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 D5185(m)	>100	3	89	
Chromium	ppm	ASTM D5185(m)	>20	0	4	
Nickel	ppm	ASTM D5185(m)	>4	<1	<b>▲</b> 5	
Titanium	ppm	ASTM D5185(m)	0	0	<1	
Silver	ppm	ASTM D5185(m)	>3	0	<1	
Aluminum	ppm	ASTM D5185(m)	>20	2	13	
Lead	ppm	ASTM D5185(m)	>40	<1	2	
Copper	ppm	ASTM D5185(m)	>330	<1	9	
Tin	ppm	ASTM D5185(m)	>15	0	1	
Antimony	ppm	ASTM D5185(m)		0	0	
Vanadium	ppm	ASTM D5185(m)		0	<1	
Beryllium	ppm	ASTM D5185(m)		0	0	
- , -	le le			<b>U</b>	÷	
Cadmium	ppm	ASTM D5185(m)		0	0	
-			limit/base			 history2
Cadmium		ASTM D5185(m)	limit/base 65	0	0	
Cadmium ADDITIVES	ppm	ASTM D5185(m) method		0 current	0 history1	history2
Cadmium ADDITIVES Boron	ppm ppm	ASTM D5185(m) method ASTM D5185(m)	65	0 current 56	0 history1 38	history2
Cadmium ADDITIVES Boron Barium	ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m)	65 0	0 current 56 0	0 history1 38 <1	history2 
Cadmium ADDITIVES Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	65 0 65	0 current 56 0 54	0 history1 38 <1 57	history2  
Cadmium ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	65 0 65 0	0 current 56 0 54 0	0 history1 38 <1 57 1	history2   
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	65 0 65 0 1160	0 current 56 0 54 0 1065	0 history1 38 <1 57 1 1 1070	history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	65 0 65 0 1160 820	0 current 56 0 54 0 1065 779	0 history1 38 <1 57 1 1070 889	history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	65 0 65 0 1160 820 1160 1260	0 current 56 0 54 0 1065 779 989	0 history1 38 <1 57 1 1070 889 979	history2
Cadmium ADDITIVES Boron Barium Molybdenum Molybdenum Magnese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	65 0 65 0 1160 820 1160 1260	0 current 56 0 54 0 1065 779 989 1136	0 history1 38 <1 57 1 1070 889 979 1210	history2
Cadmium ADDITIVES Boron Barium Molybdenum Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	65 0 65 0 1160 820 1160 1260	0 current 56 0 54 0 1065 779 989 1136 2919	0 history1 38 <1 57 1 1070 889 979 1210 2863	history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) method 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)	65 0 65 0 1160 820 1160 1260 3000	0 current 56 0 54 0 1065 779 989 1136 2919 <1	0 history1 38 <1 57 1 1070 889 979 1210 2863 <1	history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) method 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)	65 0 65 1160 820 1160 1260 3000	0 current 56 0 54 0 1065 779 989 1136 2919 <1 current	0 history1 38 <1 57 1 1070 889 979 1210 2863 <1 kistory1	history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) method 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)	65 0 65 1160 820 1160 1260 3000	0 current 56 0 54 0 1065 779 989 1136 2919 <1 current 4	0 history1 38 <1 57 1 1070 889 979 1210 2863 <1 history1 ▲ 41	history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m)	65 0 65 0 1160 820 1160 1260 3000 ilimit/base >25	0 current 56 0 54 0 1065 779 989 1136 2919 <1 current 4 3	0 history1 38 <1 57 1 1070 889 979 1210 2863 <1 history1 ▲ 41 6	history2
Cadmium ADDITIVES 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) method ASTM D5185(m) ASTM D5185(m)	65 0 65 1160 820 1160 1260 3000 <b>imit/base</b> >25 >20	0 current 56 0 54 0 1065 779 989 1136 2919 <1 current 4 3 <1	0 history1 38 <1 57 1 1070 889 979 1210 2863 <1 2863 <1 • history1 ▲ 41 6 4	history2 history2
Cadmium ADDITIVES 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) method ASTM D5185(m) ASTM D5185(m)	65 0 65 1160 820 1160 1260 3000 <b>iimit/base</b> >25 >20	0 current 56 0 54 0 1065 779 989 1136 2919 <1 current 4 3 <1 current	0 history1 38 <1 57 1 1070 889 979 1210 2863 <1 1210 2863 <1 history1	history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m)	65 0 65 0 1160 820 1160 1260 3000 <b>imit/base</b> >25 >20 <b>imit/base</b> >3	0 current 56 0 54 0 1065 779 989 1136 2919 <1 current 4 3 <1 current 0	0 history1 38 <1 57 1 1070 889 979 1210 2863 <1 × 41 6 4 4 1 6 4 × history1 0	history2 history2 history2 history2 history2



Abnormal

120

110

(), 100 Bas to 90

120

110

().04) ts 90

80

70

Viscosity @ 40°C

Viscosity @ 40°C

Abnormal

ormal

# **OIL ANALYSIS REPORT**

	FLUID DEGRA	DATION	ATION method			current	history1	history2
	Oxidation	Abs/.1mm	ASTM D7414*	>25		17.2	19.0	
	VISUAL		method	limit/	/base	current	history1	history2
	Emulsified Water	scalar	Visual*	>0.2		NEG	NEG	
	Free Water	scalar	Visual*			NEG	NEG	
	FLUID PROPE	RTIES	method	limit/	/base	current	history1	history2
Feb 8/24	Visc @ 40°C	cSt	ASTM D7279(m)	95.1		78.9	80.9	
	Visc @ 100°C	cSt	ASTM D7279(m)			13.0	13.0	
	Viscosity Index (VI)	Scale	ASTM D2270*	169		166	161	
	GRAPHS					Lead (ppm)		
	Iron (ppm)				100			
	200 - Severe				80	Severe		
	150 Abnormal				Ed 60	Abnormal		
2	100				40			
8 1 1	50				20			
	13/21			Feb 8/24 -	0	Jun13/21-		
				æ		,	,	
	Aluminum (ppm)				50	Chromium (pp	om)	
	40 - Severe				40	Severe		
	30 - Abnormal				e 30			
	a. 20 - Abnormal			-	<sup>2</sup> 20	Abnormal		
	10-				10			
	0 13/21 0			Feb 8/24	0	Jun13/21		
	,			Fet				
	Copper (ppm)				80	Silicon (ppm)		
	Abnormal 300 -				60			
	Ē 200-				튭 40			
						Abnormal		
	100-				20			
				Feb 8/24	0	3/21		
	Jun 13/2			Feb(		Jun 13/2		
	Viscosity @ 100°C	:			6.0	Soot %		
	17- Abnormal				5.0	Severe		
	0 0 0 0 15				4.0 8 <sup>2</sup>	Abnormal		
	Base 14				<sup>3</sup> ° 3.0 2.0			
	Abnormal				1.0			
	11			24	0.0	71		
	Jun13/2			Feb 8/24		Jun 13/2		
CALA Laboratory Sample No. Lab Number Unique Number		5 Appleby Receiv Testeo Diagn	<b>ved</b> :14 d :14	Feb 2 Feb 2	024 024	. 5H9 Green Infrastru es Davis	cture and Partners Inc (GIPI) 151 F	286 - Shoring & Foun Ram Forest Stouffville, CA L4A 2

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Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.

Validity of results and interpretation are based on the sample and information as supplied.

Contact/Location: Bill Acton - GFL286

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