

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id

### 502636

#### Component Diesel Engine Fluid PETRO CANADA DURON SHP 10W30 (--- QTS)

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

#### 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.

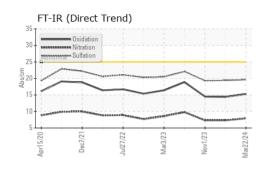
	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0120679	PCA0113335	PCA0110476
Sample Date		Client Info		22 Mar 2024	07 Dec 2023	01 Nov 2023
Machine Age	mls	Client Info		171309	159848	159828
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	19	10	10
Chromium	ppm	ASTM D5185m	>20	1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	7	5	5
Lead	ppm	ASTM D5185m	>40	0	0	1
Copper	ppm	ASTM D5185m	>330	12	9	9
Tin	ppm	ASTM D5185m	>15	0	<1	1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
				•		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	-	history1 23	history2 25
	ppm ppm			current		
Boron		ASTM D5185m	2	current	23	25
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	current 12 0	23 0	25 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	current 12 0 69	23 0 64	25 0 64
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	current 12 0 69 <1	23 0 64 0	25 0 64 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	current 12 0 69 <1 992	23 0 64 0 890 1165 1053	25 0 64 <1 925 1199 1106
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	current     12     0     69     <1     992     1353	23 0 64 0 890 1165	25 0 64 <1 925 1199
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	2 0 50 0 950 1050 995	current     12     0     69     <1     992     1353     1114	23 0 64 0 890 1165 1053	25 0 64 <1 925 1199 1106
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	current     12     0     69     <1     992     1353     1114     1348	23 0 64 0 890 1165 1053 1274	25 0 64 <1 925 1199 1106 1341
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 0 950 1050 995 1180 2600	current     12     0     69     <1     992     1353     1114     1348     3523	23 0 64 0 890 1165 1053 1274 3012	25 0 64 <1 925 1199 1106 1341 3141
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	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	current     12     0     69     <1     992     1353     1114     1348     3523     current	23 0 64 0 890 1165 1053 1274 3012 history1 4 0	25 0 64 <1 925 1199 1106 1341 3141 <b>history2</b>
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 ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	2 0 50 950 1050 995 1180 2600	current     12     0     69     <1     992     1353     1114     1348     3523     current     4	23 0 64 0 890 1165 1053 1274 3012 history1 4	25 0 64 <1 925 1199 1106 1341 3141 3141 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <b>limit/base</b> >25	current   12   0   69   <1   992   1353   1114   1348   3523   current   4   <1   7   current	23 0 64 0 890 1165 1053 1274 3012 history1 4 0	25 0 64 <1 925 1199 1106 1341 3141 3141 history2 4 0
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	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <b>imit/base</b> >25	current     12     0     69     <1     992     1353     1114     1348     3523     current     4     <1     7     current     0.6	23 0 64 0 890 1165 1053 1274 3012 history1 4 0 4 0 4 0.5	25 0 64 <1 925 1199 1106 1341 3141 history2 4 0 6 history2 0.5
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 <b>Imit/base</b> >25 >20	current     12     0     69     <1     992     1353     1114     1348     3523     current     4     <1     7     current     0.6     7.9	23 0 64 0 890 1165 1053 1274 3012 history1 4 0 4 0 4 history1 0.5 7.3	25 0 64 <1 925 1199 1106 1341 3141 history2 4 0 6 history2 0.5 7.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	current     12     0     69     <1     992     1353     1114     1348     3523     current     4     <1     7     current     0.6	23 0 64 0 890 1165 1053 1274 3012 history1 4 0 4 0 4 0.5	25 0 64 <1 925 1199 1106 1341 3141 history2 4 0 6 history2 0.5
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 50 950 1050 995 1180 2600 <i>imit/base</i> >25 >20 <i>imit/base</i> >3 >20	current     12     0     69     <1     992     1353     1114     1348     3523     current     4     <1     7     current     0.6     7.9	23 0 64 0 890 1165 1053 1274 3012 history1 4 0 4 0 4 history1 0.5 7.3	25 0 64 <1 925 1199 1106 1341 3141 history2 4 0 6 history2 0.5 7.3
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 D5185m	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 <b>imit/base</b> >3 >20	current   12   0   69   <1   992   1353   1114   1348   3523   current   4   <1   7   current   0.6   7.9   19.6	23 0 64 0 890 1165 1053 1274 3012 history1 4 0 4 0 4 0 4 0 5 7.3 19.4	25 0 64 <1 925 1199 1106 1341 3141 history2 4 0 6 <u>history2</u> 0.5 7.3 19.3

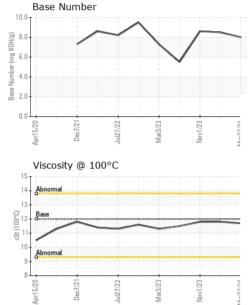


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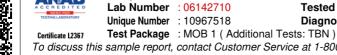
Laboratory

Sample No.





		method	limit/base	current	histor	ʻy1	histor	ry2
White Metal	scalar	*Visual	NONE	NONE	NONE		NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE		NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE		NONE	
Silt	scalar	*Visual	NONE	NONE	NONE		NONE	
Debris	scalar	*Visual	NONE	NONE	NONE		NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE		NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML		NORML	
Odor	scalar	*Visual	NORML	NORML	NORM		NORM	
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	L	NEG	L
Free Water	scalar	*Visual	>0.2	NEG	NEG		NEG	
FLUID PROPER		method	limit/base	current	histor	ʻv1	histor	rv2
	cSt	ASTM D445	12.00	11.7	11.8	,	11.8	
GRAPHS								
Iron (ppm)				Lead (ppm)				
Severe			100	Sama				
J <b>- G</b>			- 80	Severe				
Abnormal			60 Ed 40	Abnomzi				
			40	Abnormal				
		$\sim$	20					
22	23 -	23	24	20	22	23	23	74
Apr15/20 Dec7/21 Jul27/22	Mar3/23	Nov1/23	Mar22/24	Apr15/20 Dec7/21	Jul27/22	Mar3/23	Nov1/23	Mar 2 7 1 7 4
4	_	_	$\geq$	4			_	2
Aluminum (ppm)			50	Chromium (	opm)			
Severe				Severe				
Almormal			<sup>30</sup> ع	Abnormal				
		~	10					
			0					
Apr15/20 Dec7/21	Mar3/23	Nov1/23	Mar22/24	Apr15/20 Dec7/21	Jul27/22	Mar3/23	Nov1/23	Mar27/74
Apr1 Dei Jul2	Mai	Nov	Mar2	Aprl	Jul2	Mai	Nov	Mar 7
Copper (ppm)				Silicon (ppm	)			
]			80	Severe		1		
Alternal			60					
- Appoinal			E 40					
			20	Abnormal				
721	23	23-	0	/20 /21	722	/23	23-	74
Apr15/20 Dec7/21	Mar3/23	Nov1/23	Mar22/24	Apr15/20	Jul27/22	Mar3/23	Nov1/23	0.00 C La C
Viscosity @ 100°C			2	⊲ Base Numbe				2
Viscosity @ 100°C			10.0		a 			
Abnormal			(B/HO) 8.0 B) 100 Kolone B) 10		$\sim$			
Base			¥ ٤.0					
			ਬ ਦ 4.0					
Abnormal			eg 2.0		ļļ			
3			0.0					
	Mar3/23	Nov1/23	Mar22/24	Apr15/20 Dec7/21	Jul27/22	Mar3/23	Nov1/23	DC/CCreW
Apr15/20 - Dec7/21 -			12		1	r6	6	5



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) F: (201)528-7053

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