

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 234007 Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (9 GAL)

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		PCA0106029	PCA0102957	PCA0098103
Sample Date		Client Info		23 Oct 2023	28 Jul 2023	19 Jun 2023
Machine Age	hrs	Client Info		1300	910	537
Oil Age	hrs	Client Info		390	373	0
Oil Changed		Client Info		Not Changd	Not Changd	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	8	28	13
Chromium	ppm	ASTM D5185m	>20	<1	1	0
Nickel	ppm	ASTM D5185m	>5	1	11	4
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	<1	<1	0
Aluminum	ppm	ASTM D5185m	>20	2	1	0
Lead	ppm	ASTM D5185m	>40	<1	<1	0
Copper	ppm	ASTM D5185m	>330	55	253	20
Tin	ppm	ASTM D5185m	>15	<1	2	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/booo		In the transmission	history2
ADDITIVES		method	limit/base	current	history1	nistory2
Boron	ppm		0	2	13	26
	ppm ppm					
Boron		ASTM D5185m	0	2	13	26
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	2 4	13 2	26 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 4 66	13 2 69	26 0 60
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 4 66 <1	13 2 69 1	26 0 60 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 4 66 <1 925	13 2 69 1 915	26 0 60 <1 838
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	2 4 66 <1 925 1098	13 2 69 1 915 1109	26 0 60 <1 838 990
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	0 0 60 0 1010 1070 1150	2 4 66 <1 925 1098 1058	13 2 69 1 915 1109 936	26 0 60 <1 838 990 869
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	0 0 60 0 1010 1070 1150 1270	2 4 66 <1 925 1098 1058 1194	13 2 69 1 915 1109 936 1176	26 0 60 <1 838 990 869 1060
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	0 0 60 1010 1070 1150 1270 2060	2 4 66 <1 925 1098 1058 1194 3418	13 2 69 1 915 1109 936 1176 2676	26 0 60 <1 838 990 869 1060 3333
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	0 0 60 1010 1070 1150 1270 2060	2 4 66 <1 925 1098 1058 1194 3418 current	13 2 69 1 915 1109 936 1176 2676 history1	26 0 60 <1 838 990 869 1060 3333 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	0 0 60 1010 1070 1150 1270 2060	2 4 66 <1 925 1098 1058 1194 3418 current 7	13 2 69 1 915 1109 936 1176 2676 history1 11	26 0 60 <1 838 990 869 1060 3333 history2 9
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	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >25	2 4 66 <1 925 1098 1058 1194 3418 <u>current</u> 7 1	13 2 69 1 915 1109 936 1176 2676 history1 11 9	26 0 60 <1 838 990 869 1060 3333 history2 9 5
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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	2 4 66 <1 925 1098 1058 1194 3418 current 7 1 2	13 2 69 1 915 1109 936 1176 2676 history1 11 9 3	26 0 60 <1 838 990 869 1060 3333 history2 9 5 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	2 4 66 <1 925 1098 1058 1194 3418 <u>current</u> 7 1 2 2	13 2 69 1 915 1109 936 1176 2676 history1 11 9 3 3 history1	26 0 60 <1 838 990 869 1060 3333 history2 9 5 <1 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 ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	2 4 66 <1 925 1098 1058 1194 3418 <u>current</u> 7 1 2 <u>current</u> 0.3	13 2 69 1 915 1109 936 1176 2676 history1 11 9 3 <i>history1</i> 0.6	26 0 60 <1 838 990 869 1060 3333 history2 9 5 <1 5 <1 history2 0.3
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	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	2 4 66 <1 925 1098 1058 1194 3418 <i>current</i> 7 1 2 <i>current</i> 0.3 6.2	13 2 69 1 915 1109 936 1176 2676 history1 11 9 3 history1 0.6 8.8	26 0 60 <1 838 990 869 1060 3333 history2 9 5 <1 5 <1 history2 0.3 6.5
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	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >4 >20	2 4 66 <1 925 1098 1058 1194 3418 <u>current</u> 7 1 2 <u>current</u> 0.3 6.2 18.9	13 2 69 1 915 1109 936 1176 2676 history1 11 9 3 history1 0.6 8.8 20.5	26 0 60 <1 838 990 869 1060 3333 history2 9 5 <1 5 <1 history2 0.3 6.5 19.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 220 220 220 230 20 20 20 20 20 20 20 20 20 20 20 20 20	2 4 66 <1 925 1098 1058 1194 3418 <i>current</i> 7 1 2 <i>current</i> 0.3 6.2 18.9 <i>current</i>	13 2 69 1 915 1109 936 1176 2676 history1 11 9 3 history1 0.6 8.8 20.5 history1	26 0 60 <1 838 990 869 1060 3333 history2 9 5 <1 5 <1 history2 0.3 6.5 19.9 history2



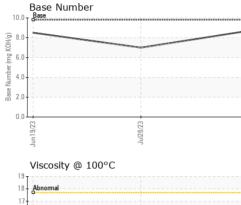
() 16 () 15 14 Base

> 13 Abnormal 12 11

Jun19/23

OIL ANALYSIS REPORT

VISUAL



Jul28/23

0d23/23	White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water	scalar *V scalar *V	'isual 'isual 'isual 'isual 'isual 'isual 'isual 'isual	NONE NONE NONE NONE NONE NONE NONE NONE	NONE NONE NONE NONE NONE NORML NORML NEG	NONE NONE NONE NONE NONE NONE NONE NORML NORML NORML	NONE NONE NONE NONE NONE NORML NORML NORML
	Free Water		'isual	1. 1. 1.	NEG	NEG	NEG
	FLUID PROPE Visc @ 100°C		method STM D445	limit/base	current 14.0	history1 13.3	history2 13.7
	GRAPHS	COL AG	51W D445	15.4	14.0	13.5	13.7
	Ferrous Alloys	Juiterza		0et2373			
	Viscosity @ 100°	С					
	Base 17 16 Base 17 16 Base 17 18 Abnomal 13 Abnomal 12 11 12 11 12 11	10128/23		(0,HO) bull 3-quint 4.0- 888 2.0- 0.0	Base 52/61 unp	Jui28/23	0e23/23
	: WearCheck USA - : PCA0106029 : 05995004 : 10723364 : FLEET contact Customer Ser re outside of the ISO	501 Madison Received Diagnosed Diagnosticia	:31 C :01 N an :Wes <i>237-1369</i>	y, NC 27513 Oct 2023 Iov 2023 Davis	LRS - BE	ETHEL HEIGHT 848 BETHEL H Contact: JAMIE I jhayworth@Irsi	S (NWA AR) 3 HWY 264 E EIGHTS, AR US 72764 HAYWORTH

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Submitted By: ALSO ORIVANAR ORIHAR ORITOP - JAMIE HAYWORTH

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