

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 234002 Component

Fluid

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

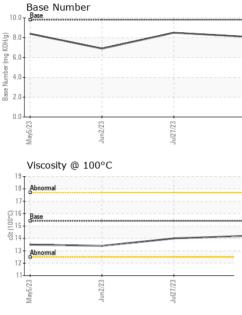
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0105992	PCA0095293	PCA0098124
Sample Date		Client Info		23 Oct 2023	27 Jul 2023	02 Jun 2023
Machine Age	hrs	Client Info		2268	1879	1501
Oil Age	hrs	Client Info		778	378	272
Oil Changed		Client Info		Changed	Not Changd	Not Changd
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	12	14	17
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	<1	1	5
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	ء <1	0	<1
Aluminum	ppm	ASTM D5185m		2	3	<1
Lead	ppm	ASTM D5185m	>40	- <1	0	<1
Copper	ppm	ASTM D5185m		2	7	30
Tin	ppm	ASTM D5185m	>15	- <1	1	2
Vanadium	ppm	ASTM D5185m	210	0	0	0
Cadmium	ppm	ASTM D5185m		ء <1	0	0
	PP				0	-
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	<1	2	12
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	0	<1 4	2 2	12 2
Boron Barium Molybdenum		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 4 66	2 2 86	12 2 76
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	0 0 60 0	<1 4 66 <1	2 2 86 <1	12 2 76 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<1 4 66 <1 930	2 2 86 <1 1322	12 2 76 <1 935
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	<1 4 66 <1	2 2 86 <1	12 2 76 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<1 4 66 <1 930	2 2 86 <1 1322	12 2 76 <1 935
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	<1 4 66 <1 930 1088	2 2 86 <1 1322 1435	12 2 76 <1 935 1152
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	<1 4 66 <1 930 1088 1074	2 2 86 <1 1322 1435 1356	12 2 76 <1 935 1152 1033
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	<1 4 66 <1 930 1088 1074 1204	2 2 86 <1 1322 1435 1356 1670	12 2 76 <1 935 1152 1033 1259
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	<1 4 66 <1 930 1088 1074 1204 3167	2 2 86 <1 1322 1435 1356 1670 4495	12 2 76 <1 935 1152 1033 1259 3403
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	<1 4 66 <1 930 1088 1074 1204 3167 current	2 2 86 <1 1322 1435 1356 1670 4495 history1	12 2 76 <1 935 1152 1033 1259 3403 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	<1 4 66 <1 930 1088 1074 1204 3167 current 4	2 2 86 <1 1322 1435 1356 1670 4495 history1 13	12 2 76 <1 935 1152 1033 1259 3403 history2 10
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	0 0 0 1010 1070 1150 1270 2060 limit/base	<1 4 66 <1 930 1088 1074 1204 3167 current 4 5	2 2 86 <1 1322 1435 1356 1670 4495 history1 13 12	12 2 76 <1 935 1152 1033 1259 3403 history2 10 8
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	<1 4 66 <1 930 1088 1074 1204 3167 current 4 5 3	2 2 86 <1 1322 1435 1356 1670 4495 history1 13 12 3	12 2 76 <1 935 1152 1033 1259 3403 history2 10 8 3
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	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >20	<1 4 66 <1 930 1088 1074 1204 3167 current 4 5 3 current	2 2 86 <1 1322 1435 1356 1670 4495 history1 13 12 3 history1	12 2 76 <1 935 1152 1033 1259 3403 history2 10 8 3 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 TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >20	<1 4 66 <1 930 1088 1074 1204 3167 current 4 5 3 current 0.7	2 2 86 <1 1322 1435 1356 1670 4495 history1 13 12 3 history1 0.4	12 2 76 <1 935 1152 1033 1259 3403 history2 10 8 3 3 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	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >20	<1 4 66 <1 930 1088 1074 1204 3167 <i>current</i> 4 5 3 <i>current</i> 0.7 7.9	2 2 86 <1 1322 1435 1356 1670 4495 history1 13 12 3 history1 0.4 6.9	12 2 76 <1 935 1152 1033 1259 3403 history2 10 8 3 3 history2 0.5 8.1
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 >20 imit/base >20	<1 4 66 <1 930 1088 1074 1204 3167 <i>current</i> 4 5 3 <i>current</i> 0.7 7.9 18.8	2 2 86 <1 1322 1435 1356 1670 4495 history1 13 12 3 history1 0.4 6.9 19.0	12 2 76 <1 935 1152 1033 1259 3403 history2 10 8 3 history2 0.5 8.1 20.5
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 D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	<1 4 66 <1 930 1088 1074 1204 3167 <i>current</i> 4 5 3 <i>current</i> 0.7 7.9 18.8 <i>current</i>	2 2 86 <1 1322 1435 1356 1670 4495 history1 13 12 3 history1 0.4 6.9 19.0 history1	12 2 76 <1 935 1152 1033 1259 3403 history2 10 8 3 history2 0.5 8.1 20.5 history2



OIL ANALYSIS REPORT

VISUAL



				11111/043		Thistory I	
	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
0ct23/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Oct	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE	RTIES	method	limit/bas	e current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	14.2	14.0	13.4
	GRAPHS						
	Ferrous Alloys						
	16- iron						
	14- nickel						
	12						
Eg	10						
_	8						
	4						
	2						
			C.				
	May5/23 Jun2/23		Jul27/23	0ct23/23			
	-		JL.	00			
	Non-ferrous Metal	S					
	copper						
	25 - management lead						
	20						
E	15	$\langle \rangle$					
1	10						
	5-						
				1111111			
	May5/23 Jun2/23		Jul27/23	0ct23/23			
			٦٢ ۲	00			
	Viscosity @ 100°C				Base Numbe	er	
	18 - Abnormal				10.0 Base		
	17+		1		8.0		
_				KOH/g			
00-0	516 Base			Buu).	6.0-		
11 55	314			mber	4.0		
	12			Base Number (mg KOH/g)			
	Abnormal				2.0-		
	11				0.0		
			Jul27/23 .	0ct23/23	May5/23 -	Jun2/23 .	0ct23/23 .
	May		Jul2	0ct2	May	unp dur	0ct2
Laboratory Sample No. Lab Number Jnique Number Fest Package	: 05994977	i01 Madii Received Diagnos Diagnos	d: :310 ed: :011	ry, NC 275 Oct 2023 Nov 2023 s Davis	513 LRS	BETHEL	HTS (NWA AR) 148 HWY 264 E HEIGHTS, AR US 72764 DBERT HEATH

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)

Certificate L2367

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