

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Plymouth & Brockton Machine Id 11442

Component **Diesel Engine**

PETRO CANADA 15W40 (--- 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

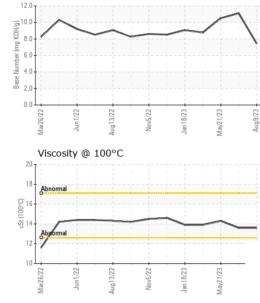
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0090649	PCA0090671	PCA0090510
Sample Date		Client Info		09 Aug 2023	27 Jun 2023	21 May 2023
Machine Age	mls	Client Info		167340	155485	144228
Oil Age	mls	Client Info		24000	12000	24000
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method	7 0.0	NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>165	19	10	20
Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	0	<1	<1
Lead	ppm	ASTM D5185m	>150	0	0	0
Copper	ppm	ASTM D5185m	>90	0	1	<1
Tin	ppm	ASTM D5185m	>5	0	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method				history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 8	history1 13	history2 5
	ppm		limit/base		•	
Boron		ASTM D5185m	limit/base	8	13	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	8 0	13	5
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	8 0 65	13 0 62	5 0 63
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	8 0 65 <1	13 0 62 <1	5 0 63 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	8 0 65 <1 1056	13 0 62 <1 874	5 0 63 <1 1013
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	8 0 65 <1 1056 1201	13 0 62 <1 874 1094	5 0 63 <1 1013 1152
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	8 0 65 <1 1056 1201 1053	13 0 62 <1 874 1094 980	5 0 63 <1 1013 1152 1039
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 ASTM D5185m ASTM D5185m	limit/base	8 0 65 <1 1056 1201 1053 1372	13 0 62 <1 874 1094 980 1170	5 0 63 <1 1013 1152 1039 1270
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 ASTM D5185m ASTM D5185m	limit/base	8 0 65 <1 1056 1201 1053 1372 3815	13 0 62 <1 874 1094 980 1170 2928	5 0 63 <1 1013 1152 1039 1270 3575
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	8 0 65 <1 1056 1201 1053 1372 3815	13 0 62 <1 874 1094 980 1170 2928 history1	5 0 63 <1 1013 1152 1039 1270 3575 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >35	8 0 65 <1 1056 1201 1053 1372 3815 current	13 0 62 <1 874 1094 980 1170 2928 history1	5 0 63 <1 1013 1152 1039 1270 3575 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >35	8 0 65 <1 1056 1201 1053 1372 3815 current 4	13 0 62 <1 874 1094 980 1170 2928 history1 3	5 0 63 <1 1013 1152 1039 1270 3575 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >35 >20 limit/base	8 0 65 <1 1056 1201 1053 1372 3815 current 4 0	13 0 62 <1 874 1094 980 1170 2928 history1 3 0 1	5 0 63 <1 1013 1152 1039 1270 3575 history2 3 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >35 >20 limit/base >7.5	8 0 65 <1 1056 1201 1053 1372 3815 current 4 0 current	13 0 62 <1 874 1094 980 1170 2928 history1 3 0 1	5 0 63 <1 1013 1152 1039 1270 3575 history2 3 2 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 ppm ppm	ASTM D5185m	limit/base >35 >20 limit/base >7.5	8 0 65 <1 1056 1201 1053 1372 3815 current 4 0 current 2	13 0 62 <1 874 1094 980 1170 2928 history1 3 0 1 history1 1.1	5 0 63 <1 1013 1152 1039 1270 3575 history2 3 2 0 history2
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 Method *ASTM D5185m ASTM D5185m	limit/base >35 >20 limit/base >7.5 >20	8 0 65 <1 1056 1201 1053 1372 3815 current 4 0 0 current 2 10.3	13 0 62 <1 874 1094 980 1170 2928 history1 3 0 1 history1 1.1 7.5	5 0 63 <1 1013 1152 1039 1270 3575 history2 3 2 0 history2 2.1 10.2
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 Method *ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	limit/base >35 >20 limit/base >7.5 >20 >30	8 0 65 <1 1056 1201 1053 1372 3815 current 4 0 0 current 2 10.3 23.4	13 0 62 <1 874 1094 980 1170 2928 history1 3 0 1 history1 1.1 7.5 20.2	5 0 63 <1 1013 1152 1039 1270 3575 history2 3 2 0 history2 2.1 10.2 23.4



Base Number

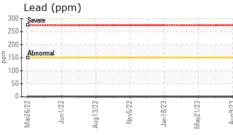
OIL ANALYSIS REPORT

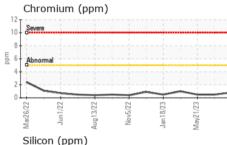


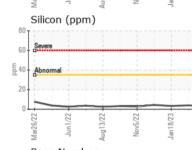
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

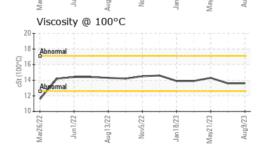
I LOID I NOI	LITTLO	method		HISTOLAL	Historyz
Visc @ 100°C	cSt	ASTM D445	13.6	13.6	14.3

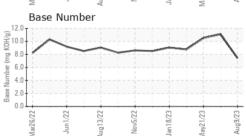
	(ppm)							
300 Severe	e :							
250 - Abnor	rmal							
E 150								
100								
50								
Mar26/22	Jun1/22	Aug13/22	Nov5/22	Jan 18/23 -	May21/23 -	Aug9/23		
	Aluminum (ppm)							
40 Severe	е	[:	[]	[]				
30								
E 20 Abnor	rmal							













Laboratory Sample No. Lab Number **Unique Number**

: 05951609

: PCA0090649 : 10647568

Copper (ppm)

E 100

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 14 Sep 2023 Received : 18 Sep 2023 Diagnosed : Wes Davis Diagnostician

Test Package : MOB 2 Certificate L2367 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)

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