

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Plymouth & Brockton Machine Id 11443

Component **Diesel Engine**

PETRO CANADA 15W40 (36 QTS)

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

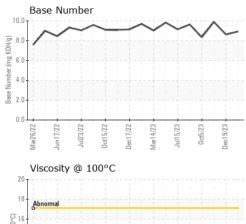
Fluid Condition

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	hictory1	history2	
	VIATION		IIIIII/Dase		history1	•	
Sample Number		Client Info		PCA0110051	PCA0104493	PCA0098614	
Sample Date		Client Info		30 Jan 2024	19 Dec 2023	10 Nov 2023	
Machine Age	mls	Client Info		215366	203386	192539	
Oil Age	mls	Client Info		12000	24000	12000	
Oil Changed		Client Info		Not Changd	Changed	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	
Water		WC Method	>0.2	NEG	NEG	NEG	
Glycol			NEG		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>165	10	16	8	
Chromium	ppm	ASTM D5185m		<1	1	0	
Nickel	ppm	ASTM D5185m	>4	0	0	0	
Titanium	ppm	ASTM D5185m		<1	0	0	
Silver	ppm	ASTM D5185m	>2	0	0	0	
Aluminum	ppm	ASTM D5185m		1	3	1	
Lead	ppm	ASTM D5185m	>150	0	<1	0	
Copper	ppm	ASTM D5185m	>90	<1	1	0	
Tin	ppm	ASTM D5185m	>5	0	<1	0	
Vanadium	ppm	ASTM D5185m		0	0	0	
Cadmium	ppm	ASTM D5185m		0	0	0	
ADDITIVEC			11 1. //		Indiana and	h:-40	
ADDITIVES		method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m	limit/base	current 8	nistory i 2	0	
	ppm ppm		limit/base				
Boron		ASTM D5185m	limit/base	8	2	0	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	8 3	2	0	
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	8 3 61	2 0 59	0 0 60	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	8 3 61 0	2 0 59 <1	0 0 60	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	8 3 61 0 890	2 0 59 <1 963	0 0 60 0 1052	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	8 3 61 0 890 1072	2 0 59 <1 963 1029	0 0 60 0 1052 1153	
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 ASTM D5185m	limit/base	8 3 61 0 890 1072 988	2 0 59 <1 963 1029 1008	0 0 60 0 1052 1153 1156	
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 3 61 0 890 1072 988 1174	2 0 59 <1 963 1029 1008	0 0 60 0 1052 1153 1156 1512	
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 3 61 0 890 1072 988 1174 3378	2 0 59 <1 963 1029 1008 1259 2888	0 0 60 0 1052 1153 1156 1512 3376	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	8 3 61 0 890 1072 988 1174 3378 current	2 0 59 <1 963 1029 1008 1259 2888 history1	0 0 60 0 1052 1153 1156 1512 3376	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	8 3 61 0 890 1072 988 1174 3378	2 0 59 <1 963 1029 1008 1259 2888 history1	0 0 60 0 1052 1153 1156 1512 3376 history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	8 3 61 0 890 1072 988 1174 3378 current 3	2 0 59 <1 963 1029 1008 1259 2888 history1	0 0 60 0 1052 1153 1156 1512 3376 history2 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	8 3 61 0 890 1072 988 1174 3378 current 3 0 2	2 0 59 <1 963 1029 1008 1259 2888 history1 3 2 <1	0 0 60 0 1052 1153 1156 1512 3376 history2 2 <1 0	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base >35 >20 limit/base >7.5	8 3 61 0 890 1072 988 1174 3378 current 3 0 2 current	2 0 59 <1 963 1029 1008 1259 2888 history1 3 2 <1 history1	0 0 60 0 1052 1153 1156 1512 3376 history2 2 <1 0	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m Method ASTM D5185m	limit/base >35 >20 limit/base >7.5 >20	8 3 61 0 890 1072 988 1174 3378 current 3 0 2 current 1.4 7.4	2 0 59 <1 963 1029 1008 1259 2888 history1 3 2 <1 history1 2.4 10.3	0 0 60 0 1052 1153 1156 1512 3376 history2 2 <1 0 history2	
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 3 61 0 890 1072 988 1174 3378 current 3 0 2 current 1.4 7.4 19.9	2 0 59 <1 963 1029 1008 1259 2888 history1 3 2 <1 history1 2.4 10.3 23.5	0 0 60 0 1052 1153 1156 1512 3376 history2 2 <1 0 history2 1.3 7.8 20.7	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844	limit/base >35 >20 limit/base >7.5 >20 >30 limit/base	8 3 61 0 890 1072 988 1174 3378 current 3 0 2 current 1.4 7.4 19.9 current	2 0 59 <1 963 1029 1008 1259 2888 history1 3 2 <1 history1 2.4 10.3 23.5	0 0 0 1052 1153 1156 1512 3376 history2 2 <1 0 history2 1.3 7.8 20.7 history2	
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 3 61 0 890 1072 988 1174 3378 current 3 0 2 current 1.4 7.4 19.9	2 0 59 <1 963 1029 1008 1259 2888 history1 3 2 <1 history1 2.4 10.3 23.5	0 0 60 0 1052 1153 1156 1512 3376 history2 2 <1 0 history2 1.3 7.8 20.7	

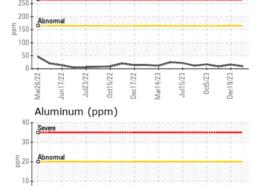


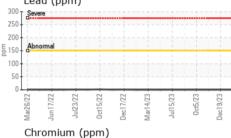
OIL ANALYSIS REPORT



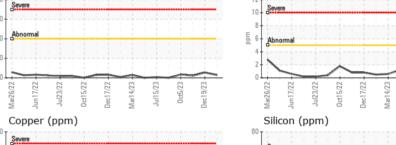
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar *Visual NORML	NORML	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	Water scalar *Visual		NEG		NEG	NEG
FLUID PROPE	RTIFS	method	limit/base	current	history1	historv2

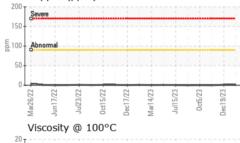
18	Abnormal	FLUID PROPI	ERTIES	method				
() 16		Visc @ 100°C	cSt	ASTM D445		14.1	14.8	
ਵੱ <u>ਤ</u> 14	Almormal	GRAPHS						
12		Iron (ppm)			200	Lead (ppm)		

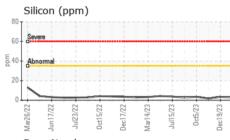


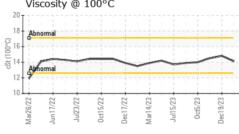


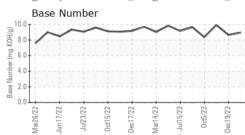
14.5















Laboratory Sample No.

Lab Number : 06094389

: PCA0110051 Unique Number: 10887242

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 20 Feb 2024 Received : 21 Feb 2024 **Tested**

: 21 Feb 2024 - Wes Davis Diagnosed

US 02360 Contact: Donald Pelpquin Dpeloquin@P-B.com

8 INDUSTRIAL PARK RD

PLYMOUTH, MA

PLYMOUTH & BROCKTON

T: (508)732-6039 F: (508)732-6091

Certificate L2367

Test Package : MOB 2 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)