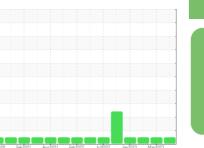


OIL ANALYSIS REPORT

SAMPLE INFORMATION method

Sample Rating Trend





NORMAL

Component	
Diesel Engine	
Fluid	
PETRO CANADA DURON SHP 10W30 (3	5 QTS)
BLACHOOLO	

DIAGNOSIS

Machine Id 2026861

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.

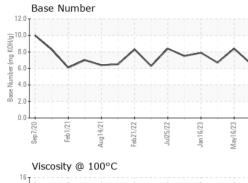
Fluid Condition

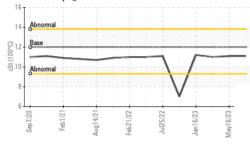
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number		Client Info		PCA0104348	PCA0099328	PCA0092019
Sample Date		Client Info		21 Aug 2023	16 May 2023	19 Feb 2023
Machine Age	mls	Client Info		328089	0	286182
Oil Age	mls	Client Info		41907	20000	20000
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>6.0	<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	34	18	30
Chromium	ppm	ASTM D5185m	>20	<1	0	0
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m		1	2	7
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	3	2	3
Lead	ppm	ASTM D5185m	>40	2	<1	0
Copper	ppm	ASTM D5185m	>330	8	5	8
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		ام م الذم معر			hintow d	history2
ADDITIVES		method	limit/base	current	history1	THSTOLA
Boron	ppm	ASTM D5185m	2	<1	<1	2
	ppm ppm					
Boron		ASTM D5185m	2	<1	<1	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0 50	<1 0	<1 0	2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	<1 0 60	<1 0 56	2 0 51
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	<1 0 60 <1	<1 0 56 <1	2 0 51 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	<1 0 60 <1 900	<1 0 56 <1 923	2 0 51 <1 852
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	<1 0 60 <1 900 1103	<1 0 56 <1 923 1091	2 0 51 <1 852 1177
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	2 0 50 0 950 1050 995	<1 0 60 <1 900 1103 987	<1 0 56 <1 923 1091 1020	2 0 51 <1 852 1177 892
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 0 950 1050 995 1180	<1 0 60 <1 900 1103 987 1230	<1 0 56 <1 923 1091 1020 1240	2 0 51 <1 852 1177 892 1209
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	2 0 50 0 950 1050 995 1180 2600	<1 0 60 <1 900 1103 987 1230 2905	<1 0 56 <1 923 1091 1020 1240 3051	2 0 51 <1 852 1177 892 1209 3103
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 ASTM D5185m	2 0 50 950 1050 995 1180 2600	<1 0 60 <1 900 1103 987 1230 2905 current	<1 0 56 <1 923 1091 1020 1240 3051 history1	2 0 51 <1 852 1177 892 1209 3103 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 method ASTM D5185m	2 0 50 950 1050 995 1180 2600 imit/base >25	<1 0 60 <1 900 1103 987 1230 2905 current 4	<1 0 56 <1 923 1091 1020 1240 3051 history1 3	2 0 51 <1 852 1177 892 1209 3103 history2 4
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 method ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 imit/base >25	<1 0 60 <1 900 1103 987 1230 2905 <u>current</u> 4 1	<1 0 56 <1 923 1091 1020 1240 3051 history1 3 2	2 0 51 <1 852 1177 892 1209 3103 history2 4 2
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	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20	<1 0 60 <1 900 1103 987 1230 2905 <u>current</u> 4 1 4	<1 0 56 <1 923 1091 1020 1240 3051 history1 3 2 0	2 0 51 <1 852 1177 892 1209 3103 history2 4 2 4
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 ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 imit/base >25 -20 imit/base	<1 0 60 <1 900 1103 987 1230 2905 current 4 1 4 1 4 current	<1 0 56 <1 923 1091 1020 1240 3051 history1 3 2 0 0 history1	2 0 51 <1 852 1177 892 1209 3103 history2 4 2 4 2 4 5 4 8 2 4
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 ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base	<1 0 60 <1 900 1103 987 1230 2905 current 4 1 4 1 4 0.6	<1 0 56 <1 923 1091 1020 1240 3051 history1 3 2 0 history1 0.4	2 0 51 <1 852 1177 892 1209 3103 history2 4 2 4 4 2 4 bistory2 0.7
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 imit/base >25 >20 imit/base >3 >20	<1 0 60 <1 900 1103 987 1230 2905 <u>current</u> 4 1 4 <u>current</u> 0.6 10.5	<1 0 56 <1 923 1091 1020 1240 3051 history1 3 2 0 history1 0.4 8.6	2 0 51 <1 852 1177 892 1209 3103 history2 4 2 4 2 4 history2 0.7 10.4
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 D78444 *ASTM D7624 *ASTM D7415	2 0 50 0 950 1050 995 1180 2600 imit/base >25 20 imit/base >3 >20 >30	<1 0 60 <1 900 1103 987 1230 2905 current 4 1 4 1 4 current 0.6 10.5 21.3	<1 0 56 <1 923 1091 1020 1240 3051 history1 3 2 0 history1 0.4 8.6 18.5	2 0 51 <1 852 1177 892 1209 3103 history2 4 2 4 kistory2 0.7 10.4 21.2
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 ASTM D7844 *ASTM D7624 *ASTM D7415	2 0 50 0 950 1050 995 1180 2600 imit/base >25 >20 imit/base >3 >20 >30	<1 0 60 41 900 1103 987 1230 2905 Current 4 1 4 1 4 0.6 10.5 21.3 Current	<1 0 56 <1 923 1091 1020 1240 3051 history1 3 2 0 history1 0.4 8.6 18.5 history1	2 0 51 <1 852 1177 892 1209 3103 history2 4 2 4 2 4 4 2 4 4 0.7 10.4 21.2 history2

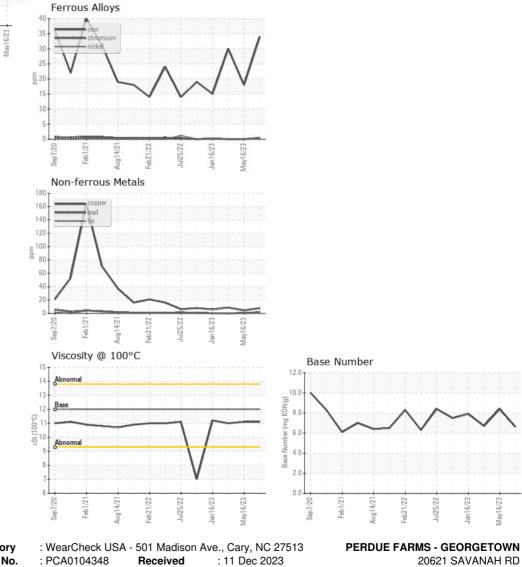


OIL ANALYSIS REPORT





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
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.00	11.1	11.1	11.0
GRAPHS						



Laboratory Sample No. : PCA0104348 Received : 11 Dec 2023 Lab Number Diagnosed : 13 Dec 2023 GEORGETOWN, DE :06031174 : 10780965 Unique Number Diagnostician : Wes Davis Test Package : FLEET Contact: ROBERT LOCKWOOD To discuss this sample report, contact Customer Service at 1-800-237-1369. Robert.Lockwood@Perdue.com * - 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

Jan 16/23

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