

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 328291

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (--- 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.

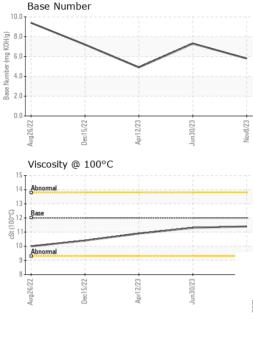
Fluid Condition

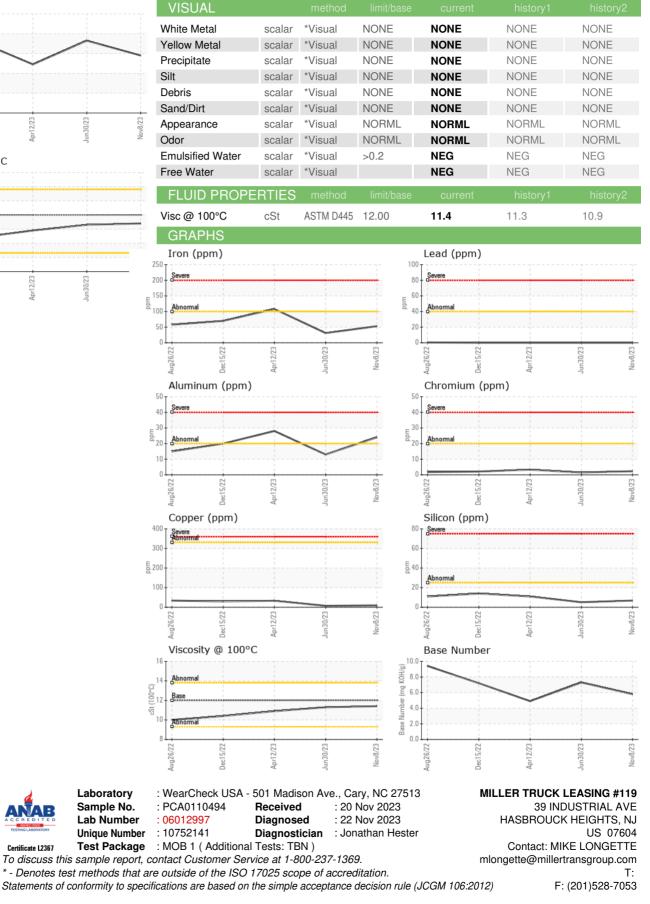
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR		method	limit/base	current	history1	history2
			minubase			
Sample Number		Client Info		PCA0110494	PCA0101301	PCA0095917
Sample Date		Client Info		08 Nov 2023	30 Jun 2023	12 Apr 2023
Machine Age	mls	Client Info		78367	57640	41961
Oil Age	mls	Client Info		0	0 Nat Observed	0 Changed
Oil Changed		Client Info		N/A	Not Changd	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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	53	31	<u> </u>
Chromium	ppm	ASTM D5185m	>20	2	2	3
Nickel	ppm	ASTM D5185m	>4	<1	<1	1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	24	13	28
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	9	7	33
Tin	ppm	ASTM D5185m	>15	2	1	3
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 4	history1 9	history2 17
	ppm ppm					
Boron Barium	ppm ppm ppm	ASTM D5185m	2	4	9	17
Boron	ppm	ASTM D5185m ASTM D5185m	2 0	4 0	9 0	17 2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	4 0 62	9 0 64	17 2 48
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	4 0 62 2	9 0 64 1	17 2 48 9
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	4 0 62 2 936	9 0 64 1 841	17 2 48 9 618
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	4 0 62 2 936 1213	9 0 64 1 841 1176	17 2 48 9 618 1560
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	4 0 62 2 936 1213 910	9 0 64 1 841 1176 1004	17 2 48 9 618 1560 775
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 50 950 1050 995 1180	4 0 62 2 936 1213 910 1220	9 0 64 1 841 1176 1004 1179	17 2 48 9 618 1560 775 992
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	4 0 62 2 936 1213 910 1220 2656	9 0 64 1 841 1176 1004 1179 2945	17 2 48 9 618 1560 775 992 2328
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	4 0 62 2 936 1213 910 1220 2656 current	9 0 64 1 841 1176 1004 1179 2945 history1	17 2 48 9 618 1560 775 992 2328 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	2 0 50 0 950 1050 995 1180 2600 limit/base	4 0 62 2 936 1213 910 1220 2656 current 7	9 0 64 1 841 1176 1004 1179 2945 history1 5	17 2 48 9 618 1560 775 992 2328 history2 11
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	2 0 50 0 950 1050 995 1180 2600 limit/base	4 0 62 2 936 1213 910 1220 2656 current 7 2	9 0 64 1 841 1176 1004 1179 2945 history1 5 0	17 2 48 9 618 1560 775 992 2328 history2 11 7
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	2 0 50 0 950 1050 995 1180 2600 limit/base >25 -20 limit/base	4 0 62 2 936 1213 910 1220 2656 <u>current</u> 7 2 38 <u>current</u>	9 0 64 1 841 1176 1004 1179 2945 history1 5 0 222 history1	17 2 48 9 618 1560 775 992 2328 history2 11 7 52 history2
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 limit/base >3	4 0 62 2 936 1213 910 1220 2656 <u>current</u> 7 2 38 <u>current</u> 0.9	9 0 64 1 841 1176 1004 1179 2945 history1 5 0 22 history1 0.6	17 2 48 9 618 1560 775 992 2328 history2 11 7 52 history2 0.9
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	2 0 50 0 950 1050 995 1180 2600 limit/base >25 -20 limit/base	4 0 62 2 936 1213 910 1220 2656 <u>current</u> 7 2 38 <u>current</u>	9 0 64 1 841 1176 1004 1179 2945 history1 5 0 222 history1	17 2 48 9 618 1560 775 992 2328 history2 11 7 52 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 ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 imit/base >25 imit/base >3 >20 >30	4 0 62 2 936 1213 910 1220 2656 <u>current</u> 7 2 38 <u>current</u> 0.9 12.6 25.4	9 0 64 1 841 1176 1004 1179 2945 history1 5 0 22 history1 0.6 10.9 21.0	17 2 48 9 618 1560 775 992 2328 history2 11 7 52 history2 0.9 14.1 24.9
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	2 0 0 50 0 950 1050 995 1180 2600 imit/base >25 20 >20 >30 >30 imit/base	4 0 62 2 936 1213 910 1220 2656 <i>current</i> 7 2 38 <i>current</i> 0.9 12.6 25.4 <i>current</i>	9 0 64 1 841 1176 1004 1179 2945 history1 5 0 22 history1 0.6 10.9 21.0 history1	17 2 48 9 618 1560 775 992 2328 history2 11 7 52 history2 0.9 14.1 24.9 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 ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 imit/base >25 imit/base >3 >20 >30	4 0 62 2 936 1213 910 1220 2656 <u>current</u> 7 2 38 <u>current</u> 0.9 12.6 25.4	9 0 64 1 841 1176 1004 1179 2945 history1 5 0 22 history1 0.6 10.9 21.0	17 2 48 9 618 1560 775 992 2328 history2 11 7 52 history2 0.9 14.1 24.9



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Certificate L2367