

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id MAS944

Component Diesel Engine

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

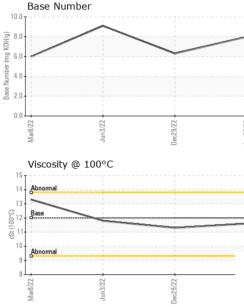
Fluid Condition

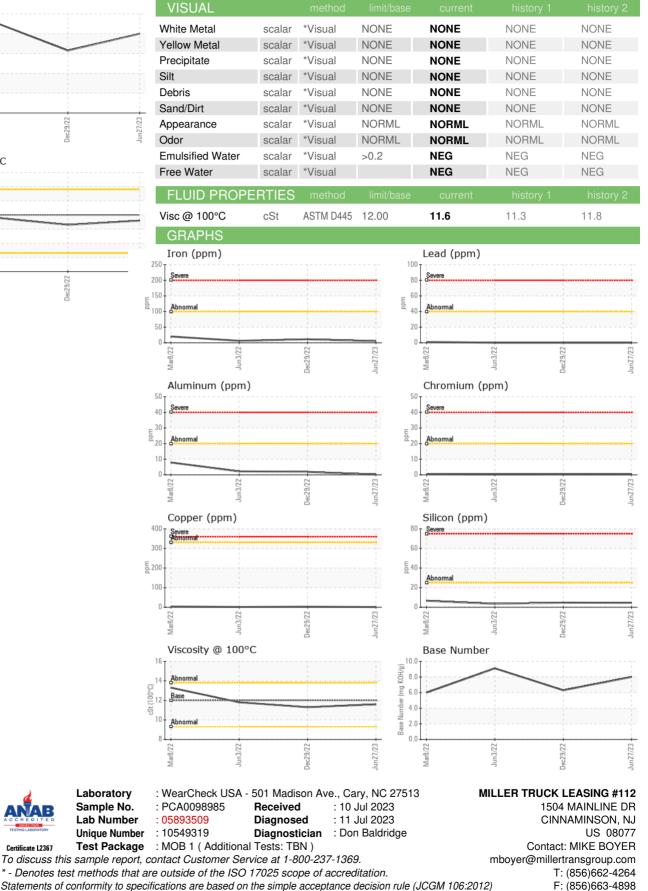
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history 1	history 2
Sample Number		Client Info		PCA0098985	PCA0082185	PCA0071257
Sample Date		Client Info		27 Jun 2023	29 Dec 2022	03 Jun 2022
Machine Age	mls	Client Info		418200	416730	413023
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history 1	history 2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history 1	history 2
Iron	ppm	ASTM D5185m	>100	5	11	6
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	<1	0	<1
Aluminum	ppm	ASTM D5185m	>20	<1	2	2
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	1	3	1
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history 1	history 2
ADDITIVES Boron	ppm		limit/base	current 159	history 1 91	history 2 13
	ppm ppm					
Boron		ASTM D5185m	2	159	91	13
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0 50	159 0	91 2	13 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	159 0 97	91 2 72	13 0 68
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	159 0 97 <1	91 2 72 <1	13 0 68 <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	159 0 97 <1 922	91 2 72 <1 781	13 0 68 <1 843
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	159 0 97 <1 922 1532	91 2 72 <1 781 1172	13 0 68 <1 843 1115
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	159 0 97 <1 922 1532 1295	91 2 72 <1 781 1172 982	13 0 68 <1 843 1115 946
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	159 0 97 <1 922 1532 1295 1503	91 2 72 <1 781 1172 982 1169	13 0 68 <1 843 1115 946 1142
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	2 0 50 950 1050 995 1180 2600	159 0 97 <1 922 1532 1295 1503 4169	91 2 72 <1 781 1172 982 1169 3587	13 0 68 <1 843 1115 946 1142 3019
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	159 0 97 <1 922 1532 1295 1503 4169 current	91 2 72 <1 781 1172 982 1169 3587 history 1	13 0 68 <1 843 1115 946 1142 3019 history 2
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 50 950 1050 995 1180 2600	159 0 97 <1 922 1532 1295 1503 4169 current 4	91 2 72 <1 781 1172 982 1169 3587 history 1 5	13 0 68 <1 843 1115 946 1142 3019 history 2 3
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	2 0 50 950 1050 995 1180 2600 limit/base >25	159 0 97 <1 922 1532 1295 1503 4169 current 4 0	91 2 72 <1 781 1172 982 1169 3587 history 1 5 <1	13 0 68 <1 843 1115 946 1142 3019 history 2 3 0
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 50 950 1050 995 1180 2600 limit/base >25	159 0 97 <1 922 1532 1295 1503 4169 current 4 0 2	91 2 72 <1 781 1172 982 1169 3587 history 1 5 <1 2	13 0 68 <1 843 1115 946 1142 3019 history 2 3 0 0
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 -25	159 0 97 <1 922 1532 1295 1503 4169 current 4 0 2 2	91 2 72 <1 781 1172 982 1169 3587 history 1 5 <1 2 history 1	13 0 68 <1 843 1115 946 1142 3019 history 2 3 0 0 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 TS ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	159 0 97 <1 922 1532 1295 1503 4169 <u>current</u> 4 0 2 2 <u>current</u> 0.2	91 2 72 <1 781 1172 982 1169 3587 history 1 5 <1 2 history 1 0.2	13 0 68 <1 843 1115 946 1142 3019 history 2 3 0 0 0 history 2 0.2
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 limit/base >25 >20 limit/base >3 >20	159 0 97 <1 922 1532 1295 1503 4169 <i>current</i> 4 0 2 <i>current</i> 0.2 8.1	91 2 72 <1 781 1172 982 1169 3587 history 1 5 <1 2 history 1 0.2 9.1	13 0 68 <1 843 1115 946 1142 3019 history 2 3 0 0 0 history 2 0.2 7.8
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 50 950 1050 995 1180 2600 imit/base >25 imit/base >3 >20	159 0 97 <1 922 1532 1295 1503 4169 <u>current</u> 4 0 2 2 <u>current</u> 0.2 8.1 18.6	91 2 72 <1 781 1172 982 1169 3587 history 1 5 <1 2 history 1 0.2 9.1 20.2	13 0 68 <1 843 1115 946 1142 3019 history 2 3 0 0 0 history 2 0.2 7.8 18.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	2 0 0 50 0 950 1050 995 1180 2600 2600 255 20 220 20 1 imit/base >3 20 >30 3 3 20	159 0 97 <1 922 1532 1295 1503 4169 <i>current</i> 4 0 2 <i>current</i> 0.2 8.1 18.6 <i>current</i>	91 2 72 <1 781 1172 982 1169 3587 history 1 5 <1 2 history 1 0.2 9.1 20.2 history 1	13 0 68 <1 843 1115 946 1142 3019 history 2 3 0 0 0 history 2 0.2 7.8 18.7 history 2



OIL ANALYSIS REPORT





Certificate L2367

Laboratory

Sample No.