

OIL ANALYSIS REPORT

Sample Rating Trend





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.

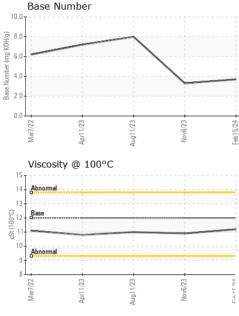
Fluid Condition

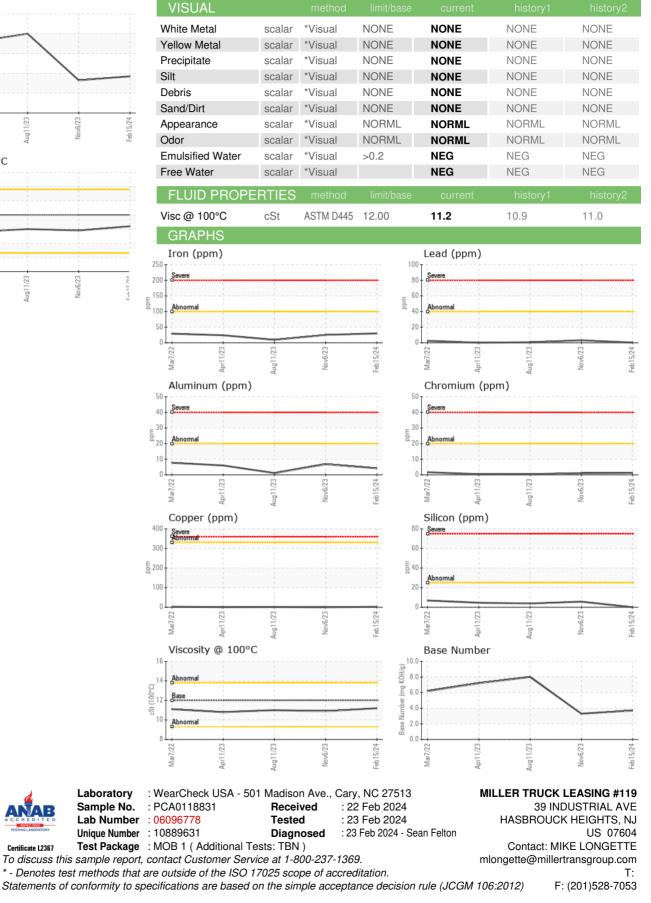
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0118831	PCA0110504	PCA0103078
Sample Date		Client Info		15 Feb 2024	06 Nov 2023	11 Aug 2023
Machine Age	mls	Client Info		0	173490	141861
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		N/A	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
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	30	25	9
Chromium	ppm	ASTM D5185m	>20	1	1	<1
Nickel	ppm	ASTM D5185m	>4	<1	<1	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	7	1
Lead	ppm	ASTM D5185m	>40	<1	3	<1
Copper	ppm	ASTM D5185m	>330	2	0	1
Tin	ppm	ASTM D5185m	>15	1	1	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 3	history1 11	history2 9
	ppm ppm					
Boron		ASTM D5185m	2	3	11	9
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0	3 0	11 0	9 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	3 0 60 <1 864	11 0 60 <1 870	9 0 60
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	3 0 60 <1	11 0 60 <1	9 0 60 <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 1050 995	3 0 60 <1 864	11 0 60 <1 870 1164 1002	9 0 60 <1 910 1124 983
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	3 0 60 <1 864 1039	11 0 60 <1 870 1164	9 0 60 <1 910 1124
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	3 0 60 <1 864 1039 929	11 0 60 <1 870 1164 1002	9 0 60 <1 910 1124 983
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	3 0 60 <1 864 1039 929 1112	11 0 60 <1 870 1164 1002 1255	9 0 60 <1 910 1124 983 1276
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 50 950 1050 995 1180 2600	3 0 60 <1 864 1039 929 1112 2415	11 0 60 <1 870 1164 1002 1255 2839	9 0 60 <1 910 1124 983 1276 3561
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	3 0 60 <1 864 1039 929 1112 2415 current	11 0 60 <1 870 1164 1002 1255 2839 history1	9 0 60 <1 910 1124 983 1276 3561 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 50 950 1050 995 1180 2600	3 0 60 <1 864 1039 929 1112 2415 current 0	11 0 60 <1 870 1164 1002 1255 2839 history1 6	9 0 60 <1 910 1124 983 1276 3561 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	2 0 50 950 1050 995 1180 2600 Limit/base	3 0 60 <1 864 1039 929 1112 2415 <u>current</u> 0 2	11 0 60 <1 870 1164 1002 1255 2839 history1 6 0	9 0 60 <1 910 1124 983 1276 3561 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	3 0 60 <1 864 1039 929 1112 2415 current 0 2 8	11 0 60 <1 870 1164 1002 1255 2839 history1 6 0 17	9 0 60 <1 910 1124 983 1276 3561 history2 4 2 5
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 ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25	3 0 60 <1 864 1039 929 1112 2415 current 0 2 8 8	11 0 60 <1 870 1164 1002 1255 2839 history1 6 0 17 history1	9 0 60 <1 910 1124 983 1276 3561 history2 4 2 5 5 history2
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 >3	3 0 60 <1 864 1039 929 1112 2415 <i>current</i> 0 2 8 <i>current</i> 0.5	11 0 60 <1 870 1164 1002 1255 2839 history1 6 0 17 history1 0.4	9 0 60 <1 910 1124 983 1276 3561 history2 4 2 5 5 history2 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 i mit/base >25 >20 i mit/base >3 >20	3 0 60 <1 864 1039 929 1112 2415 <i>current</i> 0 2 8 <i>current</i> 0.5 12.2	11 0 60 <1 870 1164 1002 1255 2839 history1 6 0 17 history1 0.4 11.5	9 0 60 <1 910 1124 983 1276 3561 history2 4 2 5 history2 0.2 7.5
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	3 0 60 <1 864 1039 929 1112 2415 current 0 2 8 current 0.5 12.2 25.9	111 0 60 <1 870 1164 1002 1255 2839 history1 6 0 17 history1 0.4 11.5 26.9	9 0 60 <1 910 1124 983 1276 3561 history2 4 2 5 history2 0.2 7.5 18.3
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 TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	2 0 0 50 0 950 1050 995 1180 2600 imit/base >25 20 20 imit/base >3 20 30	3 0 60 <1 864 1039 929 1112 2415 Current 0 2 8 Current 0.5 12.2 25.9 Current	11 0 60 <1 870 1164 1002 1255 2839 history1 6 0 17 history1 0.4 11.5 26.9 history1	9 0 60 <1 910 1124 983 1276 3561 history2 4 2 5 history2 0.2 7.5 18.3 history2



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