

OIL ANALYSIS REPORT





Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (20 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.

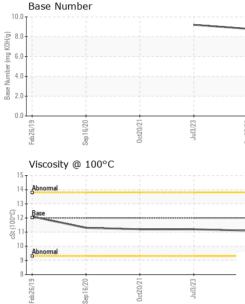
Fluid Condition

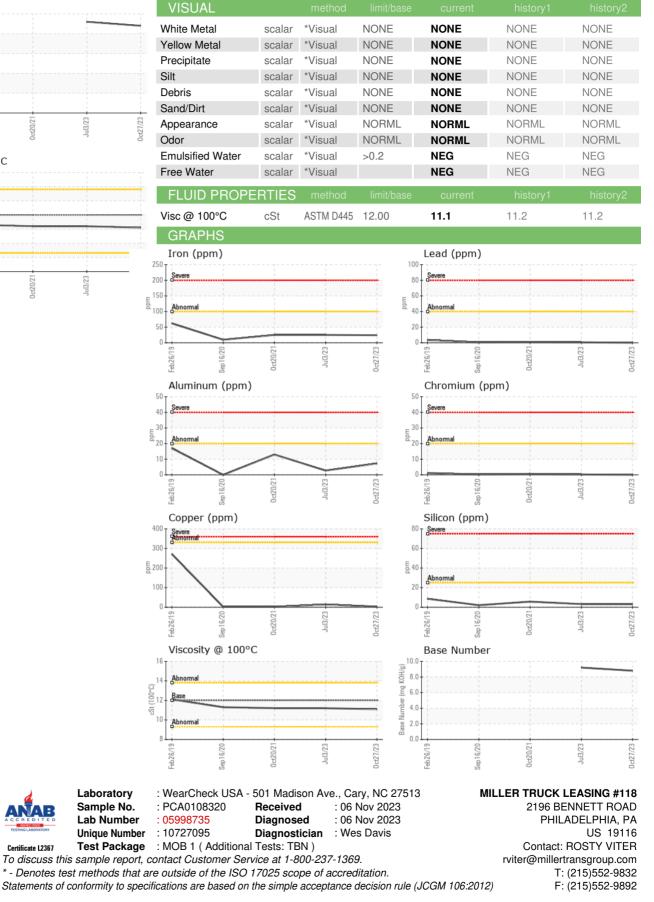
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0108320	PCA0100743	PCA0057163
Sample Date		Client Info		27 Oct 2023	03 Jul 2023	20 Oct 2021
Machine Age	mls	Client Info		170877	197595	161664
Oil Age	mls	Client Info		170877	197595	12000
Oil Changed		Client Info		Changed	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
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	24	25	25
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		2	14	7
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	7	3	13
Lead	ppm	ASTM D5185m	>40	0	<1	1
Copper	ppm	ASTM D5185m	>330	3	14	2
Tin	ppm	ASTM D5185m	>15	0	<1	0
Antimony	ppm	ASTM D5185m				0
Vanadium	ppm	ASTM D5185m		0	<1	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 21	history2 12
	ppm ppm					
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	4	21	12
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	2 0 50	4 0	21 0	12 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	4 0 58 <1 886	21 0 54	12 0 56 <1 949
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	4 0 58 <1 886 1154	21 0 54 <1	12 0 56 <1 949 1375
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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 58 <1 886 1154 992	21 0 54 <1 892 1326 1048	12 0 56 <1 949 1375 1036
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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 58 <1 886 1154 992 1204	21 0 54 <1 892 1326 1048 1257	12 0 56 <1 949 1375 1036 1234
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 58 <1 886 1154 992	21 0 54 <1 892 1326 1048	12 0 56 <1 949 1375 1036
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 58 <1 886 1154 992 1204	21 0 54 <1 892 1326 1048 1257	12 0 56 <1 949 1375 1036 1234
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	4 0 58 <1 886 1154 992 1204 2895	21 0 54 <1 892 1326 1048 1257 3924	12 0 56 <1 949 1375 1036 1234 4501 history2 6
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	4 0 58 <1 886 1154 992 1204 2895 current	21 0 54 <1 892 1326 1048 1257 3924 history1	12 0 56 <1 949 1375 1036 1234 4501 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 58 <1 886 1154 992 1204 2895 current 3	21 0 54 <1 892 1326 1048 1257 3924 history1 3	12 0 56 <1 949 1375 1036 1234 4501 history2 6
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 0 950 1050 995 1180 2600 limit/base	4 0 58 <1 886 1154 992 1204 2895 current 3 6	21 0 54 <1 892 1326 1048 1257 3924 history1 3 4	12 0 56 <1 949 1375 1036 1234 4501 history2 6 6 6
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 >20	4 0 58 <1 886 1154 992 1204 2895 current 3 6 10	21 0 54 <1 892 1326 1048 1257 3924 history1 3 4 5	12 0 56 <1 949 1375 1036 1234 4501 history2 6 6 6 14
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	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	4 0 58 <1 886 1154 992 1204 2895 current 3 6 10 current	21 0 54 <1 892 1326 1048 1257 3924 history1 3 4 5 5 history1	12 0 56 <1 949 1375 1036 1234 4501 history2 6 6 6 14 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	4 0 58 <1 886 1154 992 1204 2895 current 3 6 10 20 0.9	21 0 54 <1 892 1326 1048 1257 3924 history1 3 4 5 history1 0.5	12 0 56 <1 949 1375 1036 1234 4501 history2 6 6 6 14 history2 1.1
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 50 950 1050 995 1180 2600 <i>imit/base</i> >25 >20 <i>imit/base</i> >3 >20	4 0 58 <1 886 1154 992 1204 2895 <u>current</u> 3 6 10 <u>current</u> 0.9 10.0	21 0 54 <1 892 1326 1048 1257 3924 history1 3 4 5 history1 0.5 9.3	12 0 56 <1 949 1375 1036 1234 4501 history2 6 6 6 14 history2 1.1 1.1
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	4 0 58 <1 886 1154 992 1204 2895 <u>current</u> 3 6 10 <u>current</u> 0.9 10.0 20.2	21 0 54 <1 892 1326 1048 1257 3924 history1 3 4 5 <u>history1</u> 0.5 9.3 19.1	12 0 56 <1 949 1375 1036 1234 4501 history2 6 6 6 14 history2 1.1 1.1 11.1 21.5
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 TS 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 >30 >30 imit/base	4 0 58 <1 886 1154 992 1204 2895 current 3 6 10 current 0.9 10.0 20.2 current	21 0 54 <1 892 1326 1048 1257 3924 history1 3 4 5 <u>history1</u> 0.5 9.3 19.1 history1	12 0 56 <1 949 1375 1036 1234 4501 history2 6 6 6 6 14 history2 1.1 11.1 21.5 history2



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Certificate L2367

Contact/Location: ROSTY VITER - MILPHINE