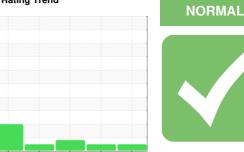


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 721531

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.

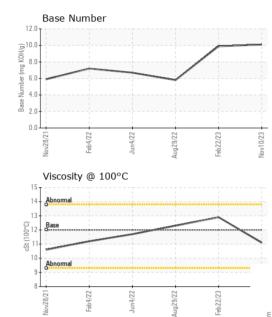
Fluid Condition

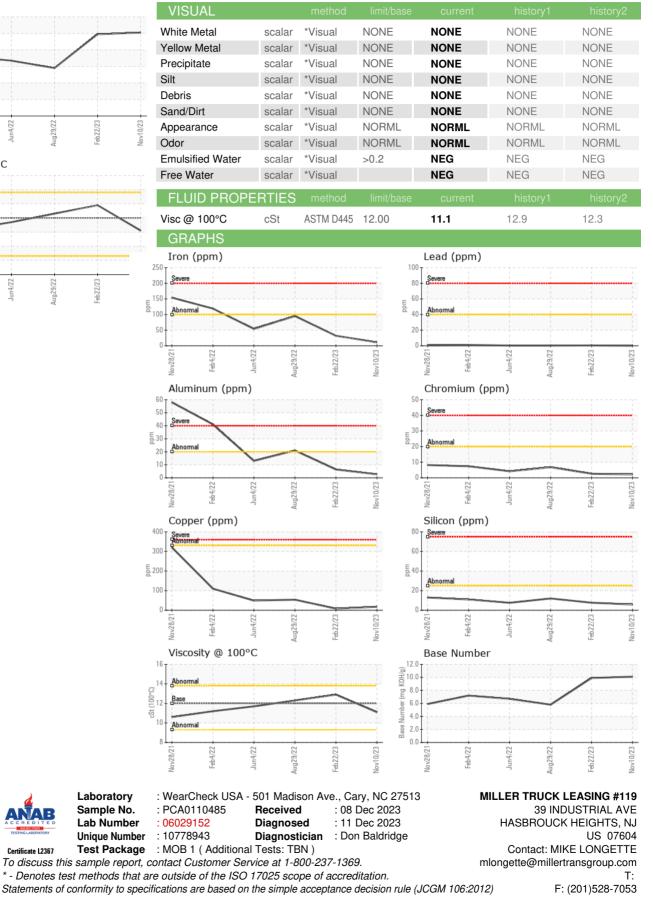
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0110485	PCA0092373	PCA0079022
Sample Date		Client Info		10 Nov 2023	22 Feb 2023	29 Aug 2022
Machine Age	mls	Client Info		241654	204061	134531
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Changed	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	11	32	95
Chromium	ppm	ASTM D5185m	>20	2	3	7
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m		3	6	▲ 21
Lead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m		18	8	54
Tin	ppm	ASTM D5185m	>15	<1	<1	2
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
	nom					
Boron	ppm pom	ASTM D5185m	2	55	166	11
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	55 0	166 0	11 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	55 0 41	166	11 <1 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	55 0 41 2	166 0 67 1	11 <1 61 2
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	55 0 41 2 513	166 0 67 1 357	11 <1 61
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	55 0 41 2	166 0 67 1	11 <1 61 2 782
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	55 0 41 2 513 1648 755	166 0 67 1 357 3573	11 <1 61 2 782 1735
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995	55 0 41 2 513 1648	166 0 67 1 357 3573 1010	11 <1 61 2 782 1735 1106
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	55 0 41 2 513 1648 755 911	166 0 67 1 357 3573 1010 1236	11 <1 61 2 782 1735 1106 1430
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	55 0 41 2 513 1648 755 911 2508	166 0 67 1 357 3573 1010 1236 3801	11 <1 61 2 782 1735 1106 1430 2371
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	2 0 50 950 1050 995 1180 2600	55 0 41 2 513 1648 755 911 2508 current	166 0 67 1 357 3573 1010 1236 3801 history1	11 <1 61 2 782 1735 1106 1430 2371 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 ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25	55 0 41 2 513 1648 755 911 2508 current 6	166 0 67 1 357 3573 1010 1236 3801 history1 8	11 <1 61 2 782 1735 1106 1430 2371 history2 12
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 50 950 1050 995 1180 2600 limit/base >25	55 0 41 2 513 1648 755 911 2508 current 6 5	166 0 67 1 357 3573 1010 1236 3801 history1 8 2	11 <1 61 2 782 1735 1106 1430 2371 history2 12 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	55 0 41 2 513 1648 755 911 2508 <u>current</u> 6 5 21	166 0 67 1 357 3573 1010 1236 3801 history1 8 2 7	11 <1 61 2 782 1735 1106 1430 2371 history2 12 6 39
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 Imit/base >25 >20 Imit/base >3	55 0 41 2 513 1648 755 911 2508 current 6 5 21 current	166 0 67 1 357 3573 1010 1236 3801 history1 8 2 7 7 history1	11 <1 61 2 782 1735 1106 1430 2371 history2 12 6 39 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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <i>limit/base</i> >25 20 <i>limit/base</i> >3 >20	55 0 41 2 513 1648 755 911 2508 current 6 5 21 current 0.1	166 0 67 1 357 3573 1010 1236 3801 history1 8 2 7 7 history1 0.8	11 <1 61 2 782 1735 1106 1430 2371 history2 12 6 39 history2 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 50 950 1050 995 1180 2600 <i>limit/base</i> >25 20 <i>limit/base</i> >3 >20	55 0 41 2 513 1648 755 911 2508 <u>current</u> 6 5 21 <u>current</u> 0.1 6.0	166 0 67 1 357 3573 1010 1236 3801 history1 8 2 7 <i>history1</i> 0.8 10.7	11 <1 61 2 782 1735 1106 1430 2371 history2 12 6 39 history2 2 17.1
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 0 950 1050 995 1180 2600 imit/base >25 imit/base >3 >20	55 0 41 2 513 1648 755 911 2508 current 6 5 21 current 0.1 6.0 22.0	166 0 67 1 357 3573 1010 1236 3801 history1 8 2 7 7 history1 0.8 10.7 23.1	11 <1 61 2 782 1735 1106 1430 2371 history2 12 6 39 history2 2 17.1 31.9
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	2 0 0 50 0 950 1050 995 1180 2600 2600 255 20 220 20 3 20 20 3 3 20 3 3 3 20 3 3 3 20 3 3 3 20 3 3 3 20 3 3 3 3	55 0 41 2 513 1648 755 911 2508 current 6 5 21 current 0.1 6.0 22.0 current	166 0 67 1 357 3573 1010 1236 3801 history1 8 2 7 history1 0.8 10.7 23.1 history1	11 <1 61 2 782 1735 1106 1430 2371 history2 12 6 39 history2 2 17.1 31.9 history2



OIL ANALYSIS REPORT





Certificate L2367

Laboratory

Sample No.

Lab Number

Unique Number

Contact/Location: MIKE LONGETTE - MILRUT