

OIL ANALYSIS REPORT

Sample Rating Trend





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.

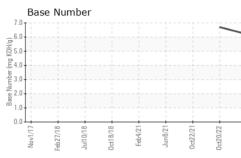
Fluid Condition

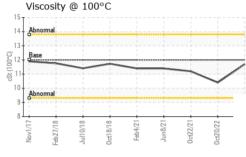
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

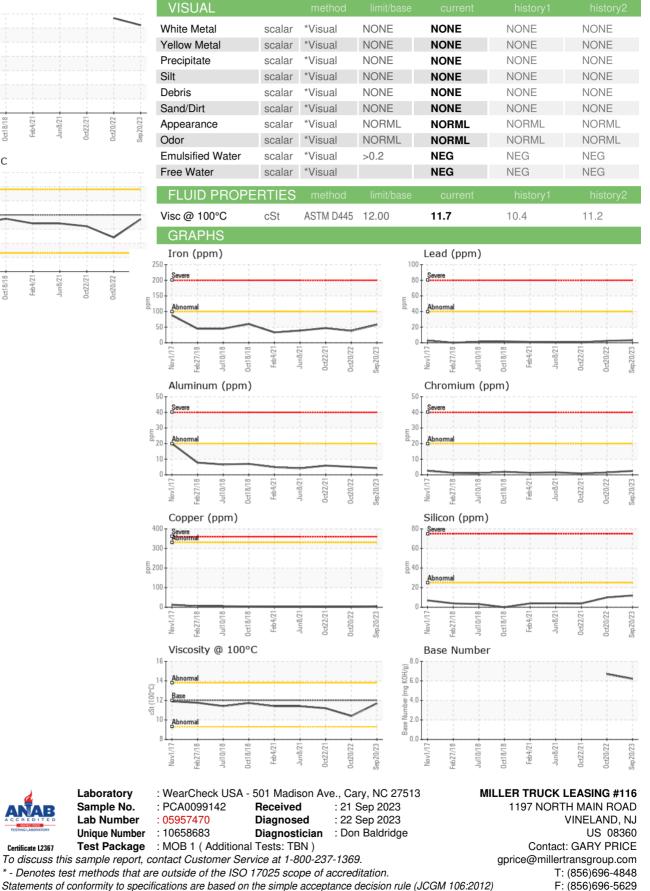
		1002017 100		Feb2021 Jun2021 Oct2021 Oct202		
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0099142	PCA0075178	PCA0050525
Sample Date		Client Info		20 Sep 2023	20 Oct 2022	22 Oct 2021
Machine Age	mls	Client Info		0	378759	348929
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Changed	N/A	N/A
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	58	38	47
Chromium	ppm	ASTM D5185m	>20	2	2	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	5	6
Lead	ppm	ASTM D5185m	>40	3	2	<1
Copper	ppm	ASTM D5185m	>330	5	2	2
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Antimony	ppm	ASTM D5185m				0
Vanadium	ppm	ASTM D5185m		0	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	history1 5	history2 1
	ppm ppm					
Boron Barium	ppm	ASTM D5185m	2	8	5	1
Boron		ASTM D5185m ASTM D5185m	2 0 50	8 0	5 0	1 0
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	8 0 70	5 0 56	1 0 69
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	8 0 70 1	5 0 56 <1	1 0 69 0
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	8 0 70 1 1018	5 0 56 <1 820	1 0 69 0 958
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	8 0 70 1 1018 1240	5 0 56 <1 820 1027	1 0 69 0 958 1110
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	8 0 70 1 1018 1240 1018	5 0 56 <1 820 1027 848	1 0 69 0 958 1110 984
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	8 0 70 1 1018 1240 1018 1327	5 0 56 <1 820 1027 848 1119	1 0 69 0 958 1110 984 1249
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	8 0 70 1 1018 1240 1018 1327 3452	5 0 56 <1 820 1027 848 1119 2995	1 0 69 0 958 1110 984 1249 2344
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	8 0 70 1 1018 1240 1018 1327 3452 current	5 0 56 <1 820 1027 848 1119 2995 history1	1 0 69 0 958 1110 984 1249 2344 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	8 0 70 1 1018 1240 1018 1327 3452 current 12	5 0 56 <1 820 1027 848 1119 2995 history1 10	1 0 69 0 958 1110 984 1249 2344 kistory2 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 ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25	8 0 70 1 1018 1240 1018 1327 3452 current 12 6	5 0 56 <1 820 1027 848 1119 2995 history1 10 2	1 0 69 0 958 1110 984 1249 2344 kistory2 4 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	8 0 70 1 1018 1240 1018 1327 3452 current 12 6 7	5 0 56 <1 820 1027 848 1119 2995 history1 10 2 4	1 0 69 0 958 1110 984 1249 2344 history2 4 0 <1
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 Imit/base >25 -20 Imit/base	8 0 70 1 1018 1240 1018 1327 3452 current 12 6 7 7 current 0.4	5 0 56 <1 820 1027 848 1119 2995 history1 10 2 4 4 history1	1 0 69 0 958 1110 984 1249 2344 history2 4 0 <1 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 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base	8 0 70 1 1018 1240 1018 1327 3452 current 12 6 7 7 current	5 0 56 <1 820 1027 848 1119 2995 history1 10 2 4 history1 0.9	1 0 69 0 958 1110 984 1249 2344 history2 4 0 <1 history2 0.9
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>imit/base</i> >25 >20 <i>imit/base</i> >3 >20	8 0 70 1 1018 1240 1018 1327 3452 <i>current</i> 12 6 7 <i>current</i> 0.4 15.8	5 0 56 <1 820 1027 848 1119 2995 history1 10 2 4 4 history1 0.9 15.3	1 0 69 0 958 1110 984 1249 2344 history2 4 0 <1 history2 0.9 14.7
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 ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	2 0 50 0 950 1050 995 1180 2600 imit/base >25 >20 imit/base >3 >20 >30	8 0 70 1 1 1018 1240 1018 1327 3452 <i>current</i> 12 6 7 <i>current</i> 0.4 15.8 29.5 <i>current</i>	5 0 56 <1 820 1027 848 1119 2995 history1 10 2 4 4 history1 0.9 15.3 26.7 history1	1 0 69 0 958 1110 984 1249 2344 history2 4 0 <1 history2 0.9 14.7 26.6 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 >20 imit/base >3 >20 >30	8 0 70 1 1018 1240 1018 1327 3452 <u>current</u> 12 6 7 <u>current</u> 0.4 15.8 29.5	5 0 56 <1 820 1027 848 1119 2995 history1 10 2 4 4 history1 0.9 15.3 26.7	1 0 69 0 958 1110 984 1249 2344 history2 4 0 <1 history2 0.9 14.7 26.6



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Certificate L2367

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