

OIL ANALYSIS REPORT

Sample Rating Trend

VISCOSITY



Component Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (--- QTS)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. 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

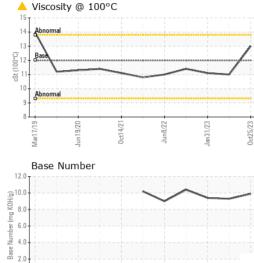
The oil viscosity is higher than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

		Mar2019	Jun2020 0ct2021	Jun2022 Jan2023	0ct2023	
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0110440	PCA0101300	PCA0089662
Sample Date		Client Info		25 Oct 2023	30 Jun 2023	31 Jan 2023
Machine Age	mls	Client Info		150145	141746	135263
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				ATTENTION	ABNORMAL	NORMAL
CONTAMINATI	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	75	1 04	38
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	<1	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	3
Lead	ppm	ASTM D5185m	>40	- <1	<1	1
Copper	ppm	ASTM D5185m	>330	2	1	1
Tin	ppm	ASTM D5185m	>15	- <1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	<1	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	2	29	15	14
Barium	ppm	ASTM D5185m		0	0	0
			v	•	0	0
wolvodenum		ASTM D5185m	50	50	72	71
-	ppm	ASTM D5185m	50 0	50 1	72 1	71
Manganese	ppm ppm	ASTM D5185m	0	1	1	<1
Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m	0 950	1 605	1 1051	<1 992
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 950 1050	1 605 1663	1 1051 1231	<1 992 1324
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 950 1050 995	1 605 1663 863	1 1051 1231 1214	<1 992 1324 1101
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 950 1050 995 1180	1 605 1663 863 1025	1 1051 1231 1214 1375	<1 992 1324 1101 1461
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	0 950 1050 995 1180 2600	1 605 1663 863 1025 2741	1 1051 1231 1214 1375 3534	<1 992 1324 1101 1461 4231
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 950 1050 995 1180 2600 limit/base	1 605 1663 863 1025 2741 current	1 1051 1231 1214 1375 3534 history1	<1 992 1324 1101 1461 4231 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 950 1050 995 1180 2600 limit/base	1 605 1663 863 1025 2741 current 7	1 1051 1231 1214 1375 3534 history1 7	<1 992 1324 1101 1461 4231 history2 4
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 950 1050 995 1180 2600 limit/base	1 605 1663 863 1025 2741 current 7 0	1 1051 1231 1214 1375 3534 history1 7 4	<1 992 1324 1101 1461 4231 history2 4 2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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	0 950 1050 995 1180 2600 limit/base >25 >20	1 605 1663 863 1025 2741 current 7 0 4	1 1051 1231 1214 1375 3534 history1 7 4 2	<1 992 1324 1101 1461 4231 history2 4 2 5
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 950 1050 995 1180 2600 limit/base >25 >20 limit/base	1 605 1663 863 1025 2741 current 7 0 4 current	1 1051 1231 1214 1375 3534 history1 7 4 2 2 history1	<1 992 1324 1101 1461 4231 history2 4 2 5 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	1 605 1663 863 1025 2741 current 7 0 4 current 0.6	1 1051 1231 1214 1375 3534 history1 7 4 2 history1 0.6	<1 992 1324 1101 1461 4231 history2 4 2 5 5 history2 0.6
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 950 1050 995 1180 2600 limit/base >25 >20 limit/base	1 605 1663 863 1025 2741 current 7 0 4 current 0.6 8.7	1 1051 1231 1214 1375 3534 history1 7 4 2 history1 0.6 8.1	<1 992 1324 1101 1461 4231 history2 4 2 5 history2 0.6 7.8
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624	0 950 1050 995 1180 2600 limit/base >25 	1 605 1663 863 1025 2741 current 7 0 4 current 0.6	1 1051 1231 1214 1375 3534 history1 7 4 2 history1 0.6	<1 992 1324 1101 1461 4231 history2 4 2 5 5 history2 0.6
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415	0 950 1050 995 1180 2600 limit/base >25 20 20 s20 >3 >20 >30 >30 limit/base	1 605 1663 863 1025 2741 current 7 0 4 current 0.6 8.7 22.3 current	1 1051 1231 1214 1375 3534 history1 7 4 2 history1 0.6 8.1 19.2 history1	<1 992 1324 1101 1461 4231 history2 4 2 5 history2 0.6 7.8 18.9 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624	0 950 1050 995 1180 2600 limit/base >25 20 20 s20 >3 >20 >30 >30 limit/base	1 605 1663 863 1025 2741 current 7 0 4 current 0.6 8.7 22.3	1 1051 1231 1214 1375 3534 history1 7 4 2 history1 0.6 8.1 19.2	<1 992 1324 1101 1461 4231 history2 4 2 5 history2 0.6 7.8 18.9



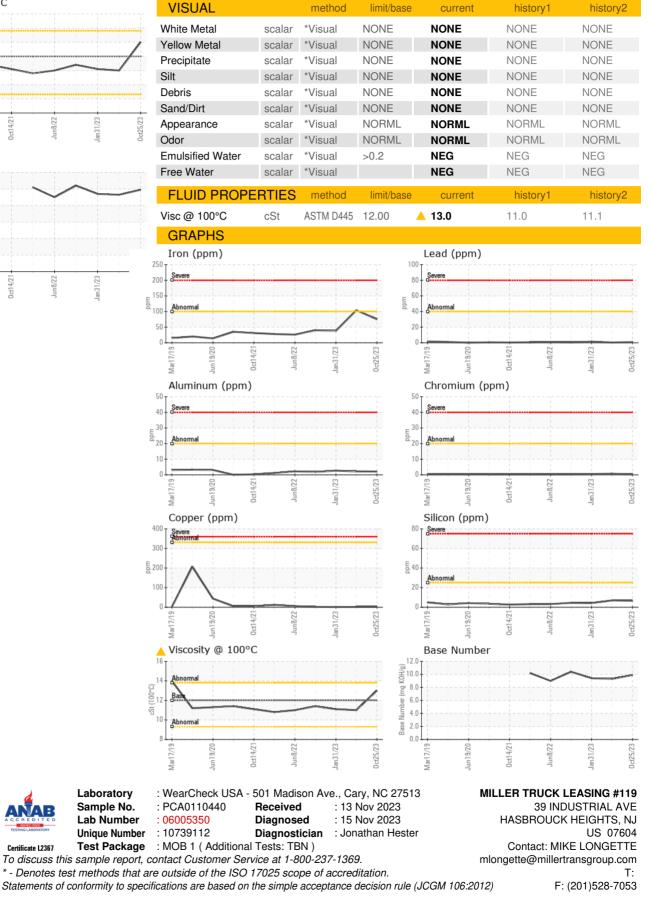
Marl.

OIL ANALYSIS REPORT



lun8/22

Jan31/23



Certificate L2367

Laboratory

Sample No.

Lab Number

Contact/Location: MIKE LONGETTE - MILRUT