

OIL ANALYSIS REPORT

Area (EMN589) Machine Id AUTOCAR 10861 Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (7 GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. 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 lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.



Sample Rating Trend

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0109086	GFL0086186	GFL0086264
Sample Date		Client Info		01 Feb 2024	14 Dec 2023	06 Sep 2023
Machine Age	hrs	Client Info		14111	14111	14234
Oil Age	hrs	Client Info		13959	14111	13626
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				ATTENTION	ATTENTION	ATTENTION
CONTAMINAT	ION	method	limit/base	current	history1	history2
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	>75	10	27	16
Chromium	ppm	ASTM D5185m	>5	<1	1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	<1	0	<1
Aluminum	ppm	ASTM D5185m	>15	4	3	4
Lead	maa	ASTM D5185m	>25	<1	0	<1
Copper	mag	ASTM D5185m	>100	8	17	20
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
Vanadium	mag	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
	le le			-	-	-
ADDITIVES		method	limit/base	current	historv1	historv2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 13	history1 11	history2 10
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 0 0	current 13 0	history1 11 0	history2 10 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60	current 13 0 60	history1 11 0 58	history2 10 0 59
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0	current 13 0 60 <1	history1 11 0 58 <1	history2 10 0 59 1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010	current 13 0 60 <1 767	history1 11 0 58 <1 727	history2 10 0 59 1 807
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070	current 13 0 60 <1 767 1038	history1 11 0 58 <1 727 1050	history2 10 0 59 1 807 1123
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150	current 13 0 60 <1 767 1038 939	history1 11 0 58 <1 727 1050 773	history2 10 0 59 1 807 1123 936
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270	current 13 0 60 <1 767 1038 939 1102	history1 11 0 58 <1 727 1050 773 1069	history2 10 0 59 1 807 1123 936 1197
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060	current 13 0 60 <1 767 1038 939 1102 2804	history1 11 0 58 <1 727 1050 773 1069 2443	history2 10 0 59 1 807 1123 936 1197 3494
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060	current 13 0 60 <1 767 1038 939 1102 2804	history1 11 0 58 <1 727 1050 773 1069 2443 history1	history2 10 0 59 1 807 1123 936 1197 3494 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current 13 0 60 <1 767 1038 939 1102 2804 current 7	history1 11 0 58 <1 727 1050 773 1069 2443 history1 4	history2 10 0 59 1 807 1123 936 1197 3494 history2 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current 13 0 60 <1 767 1038 939 1102 2804 current 7 3	history1 11 0 58 <1 727 1050 773 1069 2443 history1 4 4	history2 10 0 59 1 807 1123 936 1197 3494 history2 4 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	current 13 0 60 <1 767 1038 939 1102 2804 current 7 3 6	history1 11 0 58 <1 727 1050 773 1069 2443 history1 4 4 5	history2 10 0 59 1 807 1123 936 1197 3494 history2 4 4 8
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Euel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0	current 13 0 60 <1 767 1038 939 1102 2804 current 7 3 6 <10	history1 11 0 58 <1 727 1050 773 1069 2443 history1 4 4 5 <10	history2 10 0 59 1 807 1123 936 1197 3494 history2 4 4 8 <10
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >20 >3.0	current 13 0 60 <1 767 1038 939 1102 2804 current 7 3 6 <1.0	history1 11 0 58 <1 727 1050 773 1069 2443 history1 4 4 5 <1.0	history2 10 0 59 1 807 1123 936 1197 3494 history2 4 4 4 8 <1.0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0	current 13 0 60 <1 767 1038 939 1102 2804 current 7 3 6 <1.0	history1 11 0 58 <1 727 1050 773 1069 2443 history1 4 4 5 <1.0 history1	history2 10 0 59 1 807 1123 936 1197 3494 history2 4 4 4 8 <1.0 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D3524 method *ASTM D7844	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >20 >3.0 limit/base >6	current 13 0 60 <1 767 1038 939 1102 2804 current 7 3 6 <1.0 current 0.4	history1 11 0 58 <1 727 1050 773 1069 2443 history1 4 4 5 <1.0 history1 1	history2 10 0 59 1 807 1123 936 1197 3494 history2 4 4 4 8 <1.0 history2 0.7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >20 >20 >3.0 limit/base >6 >20	current 13 0 60 <1 767 1038 939 1102 2804 current 7 3 6 <1.0 current 0.4 6.8	history1 11 0 58 <1 727 1050 773 1069 2443 history1 4 5 <1.0 history1 1 9.8	history2 10 0 59 1 807 1123 936 1197 3494 history2 4 4 8 <1.0 history2 0.7 8.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm t t t t	method ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 2060 2060 205 205 20 200 23.0 20 20 20 20 20 20 20 20 20 20	current 13 0 60 <1 767 1038 939 1102 2804 current 7 3 6 <1.0 current 0.4 6.8 18.2	history1 11 0 58 <1 727 1050 773 1069 2443 history1 4 5 <1.0 history1 1 9.8 21.6	history2 10 0 59 1 807 1123 936 1197 3494 history2 4 4 8 <1.0 history2 0.7 8.2 18.9
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415 method	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >20 >3.0 limit/base >6 >20 >30 limit/base	current 13 0 60 <1 767 1038 939 1102 2804 current 7 3 6 <1.0 current 0.4 6.8 18.2 current	history1 11 0 58 <1 727 1050 773 1069 2443 history1 4 5 <1.0 history1 1 9.8 21.6 history1	history2 10 0 59 1 807 1123 936 1197 3494 history2 4 4 8 <1.0 history2 0.7 8.2 18.9 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7415 method *ASTM D7414	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >20 >3.0 limit/base >6 >20 >30 limit/base >6 >20 >30	current 13 0 60 <1 767 1038 939 1102 2804 current 7 3 6 <1.0 current 0.4 6.8 18.2 current 12.9	history1 11 0 58 <1 727 1050 773 1069 2443 history1 4 5 <1.0 history1 1 9.8 21.6 history1 15.7	history2 10 0 59 1 807 1123 936 1197 3494 history2 4 4 8 <1.0 history2 0.7 8.2 18.9 history2 13.5

VISCOSITY



OIL ANALYSIS REPORT







VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
	DTIEC	mothod	limit/baco	ourropt	history1	history?
	NHES	methou	iiiiii/base	Current	TIIStory I	TIIStoryz
Visc @ 100°C	cSt	ASTM D445	15.4	12.3	1 1.7	1 1.8
GRAPHS						

Ferrous Alloys



 Lab Humber
 :00001001
 Tested
 :071602

 Unique Number
 :10869306
 Diagnosed
 :08 Feb 202

 Certificate L2367
 Test Package
 : FLEET (Additional Tests: FuelDilution)

 To discuss this sample report, contact Customer Service at 1-800-237-1369.
 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)