

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

Machine Id 227009-1044

Component Diesel Engine Fluid

PETRO CANADA DURON SHP 15W40 (--- 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.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0090527	GFL0078758	GFL0078759
Sample Date		Client Info		10 Oct 2023	11 Sep 2023	26 Apr 2023
Machine Age	hrs	Client Info		9955	9889	9500
Oil Age	hrs	Client Info		580	389	600
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>2.0	<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	21	18	7
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	6	5	0
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		<1	<1	0
ADDITIVES		and the second	11			la la tana 0
ADDITIVES		method				history2
Boron	ppm	ASTM D5185m	limit/base	current 2	history1 3	nistory2 6
	ppm ppm					
Boron		ASTM D5185m	0	2	3	6
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	2 3	3 0	6 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 3 60	3 0 63	6 0 60
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 3 60 <1	3 0 63 <1	6 0 60 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 3 60 <1 866	3 0 63 <1 976	6 0 60 <1 888
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	2 3 60 <1 866 1016	3 0 63 <1 976 1150	6 0 60 <1 888 1057
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	0 0 60 0 1010 1070 1150	2 3 60 <1 866 1016 921	3 0 63 <1 976 1150 1039	6 0 60 <1 888 1057 997
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	0 0 60 0 1010 1070 1150 1270	2 3 60 <1 866 1016 921 1116	3 0 63 <1 976 1150 1039 1257	6 0 60 <1 888 1057 997 1213
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	0 0 60 0 1010 1070 1150 1270 2060	2 3 60 <1 866 1016 921 1116 2664	3 0 63 <1 976 1150 1039 1257 3588	6 0 60 <1 888 1057 997 1213 2897
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	0 0 60 1010 1070 1150 1270 2060	2 3 60 <1 866 1016 921 1116 2664 current	3 0 63 <1 976 1150 1039 1257 3588 history1	6 0 60 <1 888 1057 997 1213 2897 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	2 3 60 <1 866 1016 921 1116 2664 <i>current</i> 4	3 0 63 <1 976 1150 1039 1257 3588 history1 4	6 0 60 <1 888 1057 997 1213 2897 history2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >25	2 3 60 <1 866 1016 921 1116 2664 Current 4 2 5	3 0 63 <1 976 1150 1039 1257 3588 history1 4 2	6 0 60 <1 888 1057 997 1213 2897 history2 2 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	2 3 60 <1 866 1016 921 1116 2664 Current 4 2 5	3 0 63 <1 976 1150 1039 1257 3588 history1 4 2 6	6 0 60 <1 888 1057 997 1213 2897 history2 2 0 2
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	0 0 0 1010 1070 1150 1270 2060 limit/base >25	2 3 60 <1 866 1016 921 1116 2664 current 4 2 5 current	3 0 63 <1 976 1150 1039 1257 3588 history1 4 2 6 6	6 0 60 <1 888 1057 997 1213 2897 history2 2 0 2 2 0 2 2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 1imit/base >20	2 3 60 <1 866 1016 921 1116 2664 Current 4 2 5 Current 0.6	3 0 63 <1 976 1150 1039 1257 3588 history1 4 2 6 history1 0.5	6 0 60 <1 888 1057 997 1213 2897 history2 2 0 2 2 0 2 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	2 3 60 <1 866 1016 921 1116 2664 <i>current</i> 4 2 5 <i>current</i> 0.6 8.7	3 0 63 <1 976 1150 1039 1257 3588 history1 4 2 6 history1 0.5 8.3	6 0 60 <1 888 1057 997 1213 2897 history2 2 0 2 0 2 history2 0.2 5.5
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 ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 imit/base >3 >20 >3	2 3 60 <1 866 1016 921 1116 2664 Current 4 2 5 Current 0.6 8.7 18.6 Current	3 0 63 <1 976 1150 1039 1257 3588 history1 4 2 6 <u>history1</u> 0.5 8.3 18.0	6 0 60 <1 888 1057 997 1213 2897 history2 2 0 2 0 2 0 2 0 2 0 2 0 2 5.5 16.2
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	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 20 3 3 20 20 20 20 20 20 20 20 20 20 20 20 20	2 3 60 <1 866 1016 921 1116 2664 <i>current</i> 4 2 5 <i>current</i> 0.6 8.7 18.6	3 0 63 <1 976 1150 1039 1257 3588 history1 4 2 6 history1 0.5 8.3 18.0 history1	6 0 60 <1 888 1057 997 1213 2897 history2 2 0 2 0 2 history2 0.2 5.5 16.2 history2



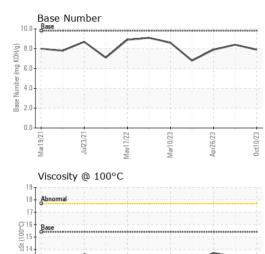
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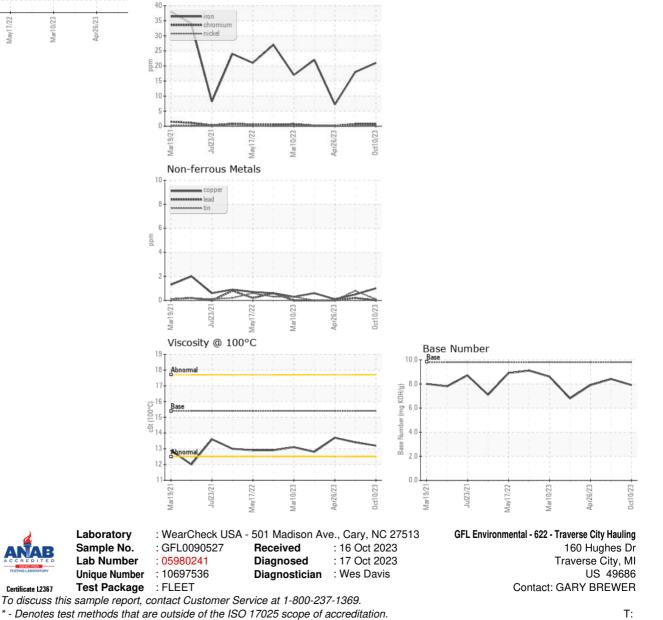
OIL ANALYSIS REPORT

Ferrous Alloys



Mav17/22

VISUAL		method	limit/base	current	history1	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
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.2	13.4	13.7
GRAPHS						



Certificate L2367 * - 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)

Submitted By: TECHNICIAN ACCOUNT

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