

OIL ANALYSIS REPORT

NORMAL

....

Machine Id 10571

Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (42 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.

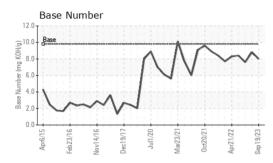
Fluid Condition

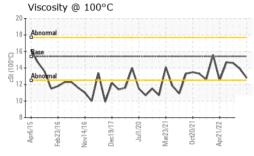
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0087756	GFL0073826	GFL0062769
Sample Date		Client Info		19 Sep 2023	26 Apr 2023	16 Mar 2023
Machine Age	hrs	Client Info		16711	15064	15785
Oil Age	hrs	Client Info		450	625	631
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>90	38	21	49
Chromium	ppm	ASTM D5185m	>20	2	2	4
Nickel	ppm	ASTM D5185m	>2	<1	1	1
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	2	6
Lead	ppm	ASTM D5185m	>40	2	0	1
Copper	ppm	ASTM D5185m	>330	<1	<1	2
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base	current	history1 0	history2 19
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	<1	0	19
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	<1 0	0	19 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 58	0 0 59	19 0 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 58 <1	0 0 59 <1	19 0 61 <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	<1 0 58 <1 924	0 0 59 <1 871	19 0 61 <1 553
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	<1 0 58 <1 924 1092	0 0 59 <1 871 1194	19 0 61 <1 553 1374
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	<1 0 58 <1 924 1092 987	0 0 59 <1 871 1194 1064	19 0 61 <1 553 1374 885
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	<1 0 58 <1 924 1092 987 1222	0 0 59 <1 871 1194 1064 1287	19 0 61 <1 553 1374 885 1050
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 1010 1070 1150 1270 2060	<1 0 58 <1 924 1092 987 1222 3311	0 0 59 <1 871 1194 1064 1287 4101	19 0 61 <1 553 1374 885 1050 3386
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	<1 0 58 <1 924 1092 987 1222 3311 current	0 0 59 <1 871 1194 1064 1287 4101 history1	19 0 61 <1 553 1374 885 1050 3386 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	<1 0 58 <1 924 1092 987 1222 3311 current 6	0 0 59 <1 871 1194 1064 1287 4101 history1 0	19 0 61 <1 553 1374 885 1050 3386 history2 6
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 method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 Limit/base	<1 0 58 <1 924 1092 987 1222 3311 current 6 4	0 0 59 <1 871 1194 1064 1287 4101 history1 0 5	19 0 61 <1 553 1374 885 1050 3386 history2 6 7
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	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25	<1 0 58 <1 924 1092 987 1222 3311 current 6 4 4	0 0 59 <1 871 1194 1064 1287 4101 history1 0 5 2	19 0 61 <1 553 1374 885 1050 3386 history2 6 7 4
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 >20	<1 0 58 <1 924 1092 987 1222 3311 current 6 4 4 4	0 0 59 <1 871 1194 1064 1287 4101 history1 0 5 2 2 history1	19 0 61 <1 553 1374 885 1050 3386 history2 6 7 4 kistory2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	<1 0 58 <1 924 1092 987 1222 3311 <i>current</i> 6 4 4 4 <i>current</i>	0 0 59 <1 871 1194 1064 1287 4101 history1 0 5 2 2 history1 0.9	19 0 61 <1 553 1374 885 1050 3386 history2 6 7 4 history2 1.6
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	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	<1 0 58 <1 924 1092 987 1222 3311 current 6 4 4 <u>current</u> 1.3 12.5	0 0 59 <1 871 1194 1064 1287 4101 history1 0 5 2 history1 0.9 10.3	19 0 61 <1 553 1374 885 1050 3386 history2 6 7 4 4 history2 1.6 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >6 >20	<1 0 58 <1 924 1092 987 1222 3311 current 6 4 4 4 current 1.3 12.5 22.7	0 0 59 <1 871 1194 1064 1287 4101 history1 0 5 2 history1 0.9 10.3 21.9	19 0 61 <1 553 1374 885 1050 3386 history2 6 7 4 history2 1.6 14.7 26.4
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	0 0 0 1010 1070 1150 1270 2060 /////////////////////////////////	<1 0 58 <1 924 1092 987 1222 3311 Current 6 4 4 Current 1.3 12.5 22.7 Current	0 0 59 <1 871 1194 1064 1287 4101 history1 0 5 2 history1 0.9 10.3 21.9 history1	19 0 61 <1 553 1374 885 1050 3386 history2 6 7 4 4 history2 1.6 14.7 26.4 history2



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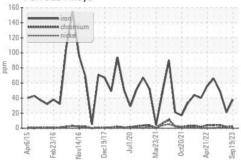


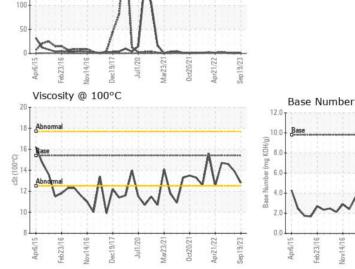


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	12.8	13.9	14.6
GRAPHS						

Ferrous Alloys

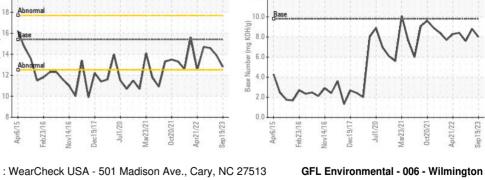
Non-ferrous Metals





: 21 Sep 2023

: 22 Sep 2023



3618 US Highway 421 N Wilmington, NC US 28401 Contact: Eric Wood eric.wood@gflenv.com T: (717)723-1956 F: (910)762-6880



Test Package : FLEET Certificate L2367 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)

Received

Diagnosed

Diagnostician : Wes Davis

: GFL0087756

: 05957432

Laboratory

Sample No.

Lab Number

Unique Number : 10658645

Submitted By: Eric Wood

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