

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

Area (P583062) 10677 Component Diesel Engine Fluid DETEO CANADA DUBON SHB 15)

PETRO CANADA DURON SHP 15W40 (11 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.

	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0109577	GFL0110387	GFL0096980
Sample Date		Client Info		23 May 2024	01 May 2024	15 Nov 2023
Machine Age	hrs	Client Info		16968	16108	16108
Oil Age	hrs	Client Info		16194	16883	15452
Oil Changed		Client Info		Changed	N/A	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
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	39	32	2
Chromium	ppm	ASTM D5185m	>5	1	1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	5	3	2
Lead	ppm	ASTM D5185m	>25	1	3	<1
Copper	ppm	ASTM D5185m	>100	<1	<1	<1
Tin	ppm	ASTM D5185m	>4	0	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 8	history1 6	history2 27
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	8	6	27
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	8 0	6 0	27 10
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	8 0 71	6 0 70	27 10 64
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	8 0 71 <1	6 0 70 <1	27 10 64 <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	8 0 71 <1 1013	6 0 70 <1 996	27 10 64 <1 800
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	8 0 71 <1 1013 1168	6 0 70 <1 996 1189	27 10 64 <1 800 1074
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 ASTM D5185m	0 0 60 0 1010 1070 1150	8 0 71 <1 1013 1168 1112	6 0 70 <1 996 1189 1087	27 10 64 <1 800 1074 965
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	8 0 71 <1 1013 1168 1112 1328	6 0 70 <1 996 1189 1087 1294	27 10 64 <1 800 1074 965 1097
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	8 0 71 <1 1013 1168 1112 1328 3384	6 0 70 <1 996 1189 1087 1294 3430	27 10 64 <1 800 1074 965 1097 3389
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	8 0 71 <1 1013 1168 1112 1328 3384 current	6 0 70 <1 996 1189 1087 1294 3430 history1	27 10 64 <1 800 1074 965 1097 3389 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	8 0 71 <1 1013 1168 1112 1328 3384 <u>current</u> 10	6 0 70 <1 996 1189 1087 1294 3430 history1 10	27 10 64 <1 800 1074 965 1097 3389 history2 5
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 0 1010 1070 1150 1270 2060 Limit/base >25	8 0 71 <1 1013 1168 1112 1328 3384 Current 10 10	6 0 70 <1 996 1189 1087 1294 3430 history1 10 8	27 10 64 <1 800 1074 965 1097 3389 history2 5 <
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 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	8 0 71 <1 1013 1168 1112 1328 3384 current 10 10 10 1	6 0 70 <1 996 1189 1087 1294 3430 history1 10 8 1	27 10 64 <1 800 1074 965 1097 3389 history2 5 <1 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	8 0 71 <1 1013 1168 1112 1328 3384 current 10 10 10 1 1 Current	6 0 70 <1 996 1189 1087 1294 3430 history1 10 8 1 1 10 8 1 1	27 10 64 <1 800 1074 965 1097 3389 history2 5 <1 2 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	8 0 71 <1 1013 1168 1112 1328 3384 <u>current</u> 10 10 10 1 1 1 2 1.4	6 0 70 <1 996 1189 1087 1294 3430 history1 10 8 1 1 10 8 1 1 10	27 10 64 <1 800 1074 965 1097 3389 history2 5 <1 2 history2 0.1
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 2060 225 >25 >20 imit/base >20	8 0 71 <1 1013 1168 1112 1328 3384 <i>current</i> 10 10 10 10 1 1 <i>current</i> 1.4 1.2.0	6 0 70 <1 996 1189 1087 1294 3430 history1 10 8 1 10 8 1 1 history1 1.1 1.1	27 10 64 <1 800 1074 965 1097 3389 history2 5 <1 2 history2 0.1 4.7
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 2060 225 20 225 20 imit/base >6 >20 20	8 0 71 <1 1013 1168 1112 1328 3384 <u>current</u> 10 10 10 1 1 <u>current</u> 1.4 1.4 12.0 24.4	6 0 70 <1 996 1189 1087 1294 3430 history1 10 8 1 1 10 8 1 1 10 8 1 1 1.1 1.1 1.1 23.0	27 10 64 <1 800 1074 965 1097 3389 history2 5 <1 2 history2 0.1 4.7 17.0



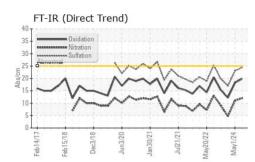
12

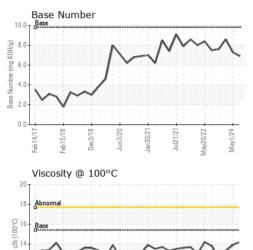
Feb14/17

Feb15/18

lec3/18

OIL ANALYSIS REPORT





n3/20

ul21/21

an30/21

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	14.2	13.9	13.3
GRAPHS						

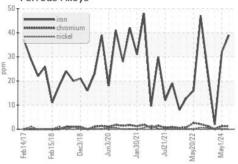
Ferrous Alloys

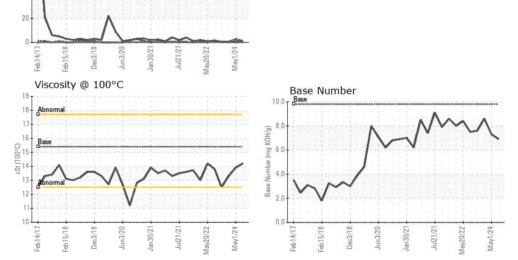
Non-ferrous Metals

May1/24

av/20/22

100





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 031 - Greenville/Spartanburg Sample No. : GFL0109577 Received : 24 May 2024 1635 Antioch Church Rd Lab Number : 06191649 Tested : 29 May 2024 Piedmont, SC US 29673 Unique Number : 11048401 Diagnosed : 29 May 2024 - Wes Davis Test Package : FLEET Contact: TECHNICIAN ACCOUNT Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. catherine.anastasio@wearcheck.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: F:

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