

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



(YA113965) [E Service]

Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (12 GAL)

2017 Ju2018 Jun2019 Ju2020 Ju2021 Dec2021 Med022 Apr2023



SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0124461	GFL0098507	GFL0087752
Sample Date		Client Info		05 Jun 2024	22 Nov 2023	19 Sep 2023
Machine Age	hrs	Client Info		26942	25747	25300
Oil Age	hrs	Client Info		900	600	400
Oil Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	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	>120	7	3	<1
Chromium	ppm	ASTM D5185m	>20	<1	0	0
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	<1	<1
Lead	ppm	ASTM D5185m	>40	<1	1	<1
Copper	ppm	ASTM D5185m	>330	2	1	0
Tin	ppm	ASTM D5185m	>15	- <1	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
Cadmium ADDITIVES	ppm	ASTM D5185m method	limit/base	0 current	0 history1	0 history2
	ppm ppm		limit/base	-	-	-
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current	history1 <1	history2 0
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 1 1	history1 <1 0	history2 0 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 1 1 65	history1 <1 0 58	history2 0 0 60
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 1 1 65 0	history1 <1 0 58 <1	history2 0 0 60 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 1 1 65 0 915	history1 <1 0 58 <1 918	history2 0 0 60 <1 1020
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current 1 1 65 0 915 1149	history1 <1 0 58 <1 918 1073	history2 0 0 60 <1 1020 1152
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	0 0 60 0 1010 1070 1150	current 1 65 0 915 1149 988	history1 <1 0 58 <1 918 1073 1035	history2 0 0 60 <1 1020 1152 1062
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	0 0 60 1010 1070 1150 1270 2060	current 1 1 65 0 915 1149 988 1264	history1 <1 0 58 <1 918 1073 1035 1232 2896 history1	history2 0 0 60 <1 1020 1152 1062 1296 3791 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	0 0 60 1010 1070 1150 1270 2060	current 1 1 65 0 915 1149 988 1264 3333 current 6	history1 <1 0 58 <1 918 1073 1035 1232 2896 history1 3	history2 0 0 60 <1 1020 1152 1062 1296 3791 history2 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base >25	current 1 1 65 0 915 1149 988 1264 3333 current 6 20	history1 <1 0 58 <1 918 1073 1035 1232 2896 history1 3 24	history2 0 0 60 <1 1020 1152 1062 1296 3791 history2 2 4
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	0 0 60 1010 1070 1150 1270 2060 limit/base >25	current 1 1 65 0 915 1149 988 1264 3333 current 6	history1 <1 0 58 <1 918 1073 1035 1232 2896 history1 3	history2 0 0 60 <1 1020 1152 1062 1296 3791 history2 2
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	0 0 60 1010 1070 1150 1270 2060 limit/base >25	current 1 1 65 0 915 1149 988 1264 3333 current 6 20	history1 <1 0 58 <1 918 1073 1035 1232 2896 history1 3 24	history2 0 0 60 <1 1020 1152 1062 1296 3791 history2 2 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	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	current 1 65 0 915 1149 988 1264 3333 current 6 20 8	history1 <1 0 58 <1 918 1073 1035 1232 2896 history1 3 24 9	history2 0 0 60 <1 1020 1152 1062 1296 3791 history2 2 4 3
ADDITIVES 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	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >25	current 1 65 0 915 1149 988 1264 3333 current 6 20 8 current	history1 <1 0 58 <1 918 1073 1035 1232 2896 history1 3 24 9 history1	history2 0 0 60 <1 1020 1152 1062 1296 3791 history2 2 4 3 history2
ADDITIVES 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	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current 1 65 0 915 1149 988 1264 3333 current 6 20 8 current 0.2	history1 <1 0 58 <1 918 1073 1035 1232 2896 history1 3 24 9 history1 0.3	history2 0 0 60 <1 1020 1152 1062 1296 3791 history2 2 4 3 history2 0.2
ADDITIVES 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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 225 220 1imit/base >22 20	current 1 1 65 0 915 1149 988 1264 3333 current 6 20 8 current 0.2 8.6	history1 <1 0 58 <1 918 1073 1035 1232 2896 history1 3 24 9 history1 0.3 8.9	history2 0 0 60 <1 1020 1152 1062 1296 3791 history2 2 4 3 history2 0.2 5.5
ADDITIVES 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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >20 imit/base >20	current 1 65 0 915 1149 988 1264 3333 current 6 20 8 current 0.2 8.6 18.5	history1 <1 0 58 <1 918 1073 1035 1232 2896 history1 3 24 9 history1 0.3 8.9 19.5	history2 0 0 60 <1 1020 1152 1062 1296 3791 history2 2 4 3 history2 0.2 5.5 17.4

Recommendation

DIAGNOSIS

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

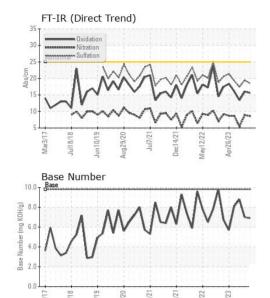
There is no indication of any contamination in the oil.

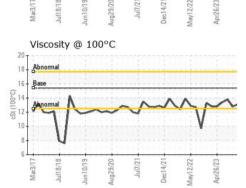
Fluid Condition

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



OIL ANALYSIS REPORT

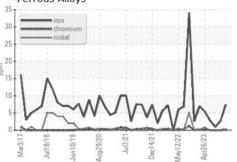


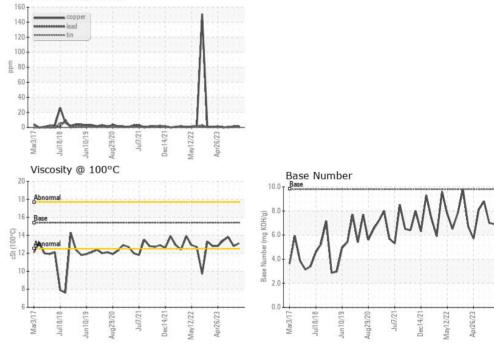


VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	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
FLUID PROPE	DTIES	method	limit/base	current	history1	history2
		methou	iiiiii/base	Current	TIISTOLA	TIIStOLYZ
Visc @ 100°C	cSt	ASTM D445	15.4	13.1	12.8	13.8
CRADHS						

Ferrous Alloys

Non-ferrous Metals





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 006 - Wilmington Sample No. : GFL0124461 Received : 06 Jun 2024 3618 US Highway 421 N Lab Number : 06201338 Tested : 07 Jun 2024 Wilmington, NC US 28401 Unique Number : 11063461 Diagnosed : 07 Jun 2024 - Wes Davis Test Package : FLEET Contact: Eric Wood Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. eric.wood@gflenv.com T: (717)723-1956 * - 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)

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