

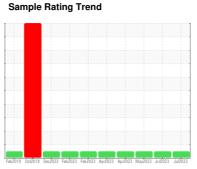
OIL ANALYSIS REPORT



428061-402360

Component **Diesel Engine**

PETRO CANADA DURON SHP 15W40 (--- GAL)





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

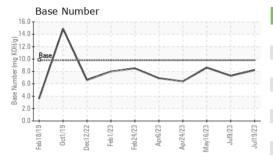
Fluid Condition

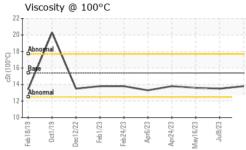
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

(Feb2019 Oct2	019 Dec2022 Peo2023 Peo20	023 Apr2023 Apr2023 May2023 Jul2		
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0067710	GFL0067704	GFL0067814
Sample Date		Client Info		19 Jul 2023	09 Jul 2023	16 May 2023
Machine Age	mls	Client Info		310860	0	299871
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	N/A	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
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	3	6	2
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	1	2	2
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	0	<1	0
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 0
	ppm		0			
Boron	• • •	ASTM D5185m	0	<1	0	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	<1 0	0	0
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 59	0 0 54	0 0 55
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 59 <1	0 0 54 <1	0 0 55 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<1 0 59 <1 890	0 0 54 <1 884	0 0 55 0 913
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	<1 0 59 <1 890 1066	0 0 54 <1 884 972	0 0 55 0 913 1055
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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 59 <1 890 1066 992	0 0 54 <1 884 972 883	0 0 55 0 913 1055 957
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	<1 0 59 <1 890 1066 992 1181	0 0 54 <1 884 972 883 1130	0 0 55 0 913 1055 957 1185
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	<1 0 59 <1 890 1066 992 1181 2920	0 0 54 <1 884 972 883 1130 2953	0 0 55 0 913 1055 957 1185 3495
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	<1 0 59 <1 890 1066 992 1181 2920 current	0 0 54 <1 884 972 883 1130 2953	0 0 55 0 913 1055 957 1185 3495 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	<1 0 59 <1 890 1066 992 1181 2920 current	0 0 54 <1 884 972 883 1130 2953 history1	0 0 55 0 913 1055 957 1185 3495 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	<1 0 59 <1 890 1066 992 1181 2920 current 4	0 0 54 <1 884 972 883 1130 2953 history1 4	0 0 55 0 913 1055 957 1185 3495 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	<1 0 59 <1 890 1066 992 1181 2920 current 4 1	0 0 54 <1 884 972 883 1130 2953 history1 4 4	0 0 55 0 913 1055 957 1185 3495 history2 3 3
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	<1 0 59 <1 890 1066 992 1181 2920 current 4 1 2 current	0 0 54 <1 884 972 883 1130 2953 history1 4 <1 history1	0 0 55 0 913 1055 957 1185 3495 history2 3 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m Method *ASTM D5185m ASTM D5185m Method *ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	<1 0 59 <1 890 1066 992 1181 2920 current 4 1 2 current 0.2	0 0 54 <1 884 972 883 1130 2953 history1 4 <1 history1 0.4	0 0 55 0 913 1055 957 1185 3495 history2 3 <1 history2 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D76145	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	<1 0 59 <1 890 1066 992 1181 2920 current 4 1 2 current 0.2 5.6	0 0 54 <1 884 972 883 1130 2953 history1 4 <1 history1 0.4 7.7	0 0 55 0 913 1055 957 1185 3495 history2 3 3 <1 history2 0.2 5.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D76145	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30	<1 0 59 <1 890 1066 992 1181 2920 current 4 1 2 current 0.2 5.6 17.5	0 0 54 <1 884 972 883 1130 2953 history1 4 <1 history1 0.4 7.7 20.0	0 0 55 0 913 1055 957 1185 3495 history2 3 3 <1 history2 0.2 5.8 18.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D7415 method	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30	<1 0 59 <1 890 1066 992 1181 2920 current 4 1 2 current 0.2 5.6 17.5 current	0 0 54 <1 884 972 883 1130 2953 history1 4 4 <1 history1 0.4 7.7 20.0 history1	0 0 55 0 913 1055 957 1185 3495 history2 3 3 <1 history2 0.2 5.8 18.6 history2



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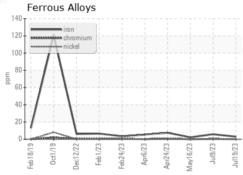


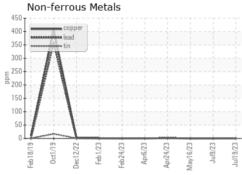


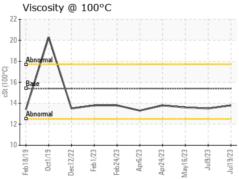
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

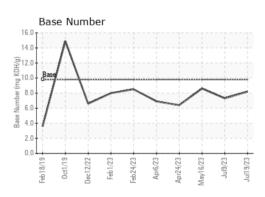
FLUID PROPE	RTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.5	13.6

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number

Unique Number : 10591998 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0067710 : 05920084

Received : 09 Aug 2023 Diagnosed : 10 Aug 2023 Diagnostician : Wes Davis

GFL Environmental - 820 - Joplin Hauling

3700 West 7th Street Joplin, MO US 64801 Contact: James Jarrett

jjarrett@gflenv.com T: (417)310-2802

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)

Report Id: GFL820 [WUSCAR] 05920084 (Generated: 08/10/2023 10:30:35) Rev: 1

Contact/Location: James Jarrett - GFL820