

OIL ANALYSIS REPORT

Sample Rating Trend





727068-361321

Component **Diesel Engine**

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

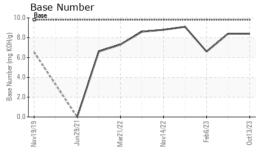
Fluid Condition

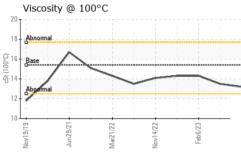
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

		Nov2019	Jun2021 Mar2022	Nov2022 Feb2023	0ct2023	
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0079307	GFL0079352	GFL0067074
Sample Date		Client Info		13 Oct 2023	05 Oct 2023	06 Feb 2023
Machine Age	hrs	Client Info		3626	3528	12304
Oil Age	hrs	Client Info		700	304	700
Oil Changed		Client Info		Changed	N/A	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	>120	34	17	51
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	4	1
Lead	ppm	ASTM D5185m	>40	2	1	1
Copper	ppm	ASTM D5185m	>330	2	4	<1
Tin	ppm	ASTM D5185m	>15	0	0	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 0	history1	history2
	ppm		0			
Boron		ASTM D5185m	0	0	2	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	0 0	2	0
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 57	2 0 58	0 0 55
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 57 0	2 0 58	0 0 55
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	0 0 57 0 876	2 0 58 0 926	0 0 55 0 876
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	0 0 57 0 876 948	2 0 58 0 926 1018	0 0 55 0 876 1003
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	0 0 60 0 1010 1070 1150	0 0 57 0 876 948 899	2 0 58 0 926 1018 961	0 0 55 0 876 1003 928
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	0 0 57 0 876 948 899 1149	2 0 58 0 926 1018 961 1205	0 0 55 0 876 1003 928 1149
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	0 0 57 0 876 948 899 1149 2918	2 0 58 0 926 1018 961 1205 2861	0 0 55 0 876 1003 928 1149 2655
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	0 0 57 0 876 948 899 1149 2918	2 0 58 0 926 1018 961 1205 2861 history1 2	0 0 55 0 876 1003 928 1149 2655
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	0 0 57 0 876 948 899 1149 2918 current	2 0 58 0 926 1018 961 1205 2861 history1	0 0 55 0 876 1003 928 1149 2655 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	0 0 57 0 876 948 899 1149 2918 current 2	2 0 58 0 926 1018 961 1205 2861 history1 2	0 0 55 0 876 1003 928 1149 2655 history2 2
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	0 0 57 0 876 948 899 1149 2918 current 2 <1	2 0 58 0 926 1018 961 1205 2861 history1 2 <1	0 0 55 0 876 1003 928 1149 2655 history2 2 <1
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	0 0 57 0 876 948 899 1149 2918 current 2 <1 2	2 0 58 0 926 1018 961 1205 2861 history1 2 <1 8	0 0 55 0 876 1003 928 1149 2655 history2 2 <1 0 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 0 57 0 876 948 899 1149 2918 current 2 <1 2	2 0 58 0 926 1018 961 1205 2861 history1 2 <1 8 history1	0 0 55 0 876 1003 928 1149 2655 history2 2 <1 0 history2 3.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m method *ASTM D5185m *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76145	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 0 57 0 876 948 899 1149 2918 current 2 <1 2 current 1.8 7.5	2 0 58 0 926 1018 961 1205 2861 history1 2 <1 8 history1 1.8 7.1	0 0 55 0 876 1003 928 1149 2655 history2 2 <1 0 history2 3.7 9.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m method *ASTM D5185m *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76145	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30	0 0 57 0 876 948 899 1149 2918 current 2 <1 2 current 1.8 7.5 20.6	2 0 58 0 926 1018 961 1205 2861 history1 2 <1 8 history1 1.8 7.1 19.7	0 0 55 0 876 1003 928 1149 2655 history2 2 <1 0 history2 3.7 9.8 24.7



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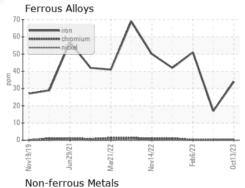


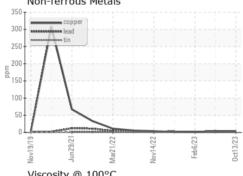


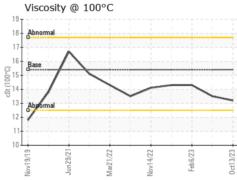
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

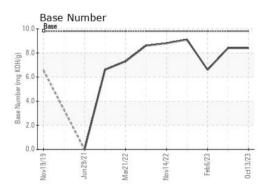
FLUID PROPE	RHES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	13.2	13.5	14.3

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** Test Package : FLEET

: GFL0079307 : 06001227

: 10729587

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 08 Nov 2023 Diagnosed : 08 Nov 2023

Diagnostician : Wes Davis

GFL Environmental - 822 - Springfield Hauling

2120 West Bennett Street Springfield, MO US 65807

Contact: Dennis Moore dennis.moore@gflenv.com T: (417)403-3641

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)