

OIL ANALYSIS REPORT

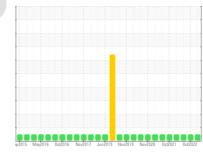
Sample Rating Trend





Diesel Engine

PETRO CANADA DURON SHP 15W40 (40 LTR)





DIAGNOSIS Recommendation

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time.

Wear

All component wear rates are normal.

Contamination

Light fuel dilution occurring. No other contaminants were detected in the oil.

Fluid Condition

The condition of the oil is acceptable for the time in service.

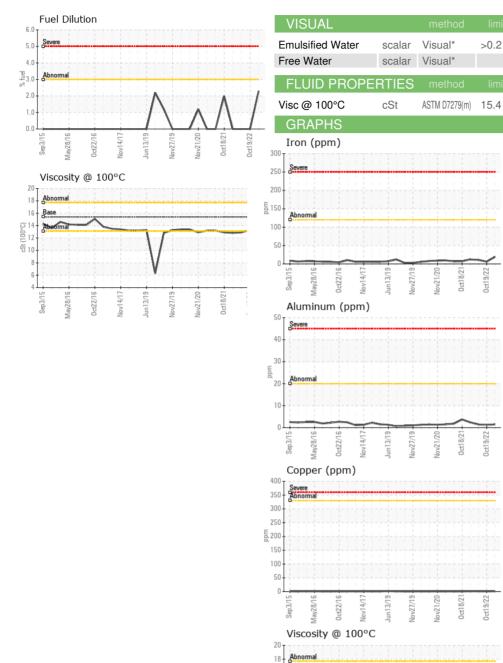
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0087419	GFL0062821	GFL0056875
Sample Date		Client Info		07 Jul 2023	19 Oct 2022	26 Jul 2022
Machine Age	kms	Client Info		581907	555969	0
Oil Age	kms	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>120	19	6	11
Chromium	ppm	ASTM D5185(m)	>20	<1	0	0
Nickel	ppm	ASTM D5185(m)	>5	<1	<1	<1
Titanium	ppm	ASTM D5185(m)	>2	0	<1	<1
Silver	ppm	ASTM D5185(m)	>2	0	0	0
Aluminum	ppm	ASTM D5185(m)	>20	2	1	1
Lead	ppm	ASTM D5185(m)	>40	2	2	2
Copper	ppm	ASTM D5185(m)	>330	1	<1	1
Tin	ppm	ASTM D5185(m)	>15	<1	<1	<1
Antimony	ppm	ASTM D5185(m)		0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185(m)	limit/base	current 4	history1 3	history2 4
	ppm ppm		0			
Boron		ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60	4	3	4
Boron Barium	ppm	ASTM D5185(m) ASTM D5185(m)	0 0 60	4 0	3 0	4 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010	4 0 58	3 0 58	4 0 57
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010	4 0 58 <1	3 0 58 <1	4 0 57 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070 1150	4 0 58 <1 940	3 0 58 <1 939 1053 1058	4 0 57 <1 925 1056 955
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070	4 0 58 <1 940 1030	3 0 58 <1 939 1053	4 0 57 <1 925 1056
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070 1150	4 0 58 <1 940 1030 1057	3 0 58 <1 939 1053 1058	4 0 57 <1 925 1056 955
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270	4 0 58 <1 940 1030 1057 1186	3 0 58 <1 939 1053 1058 1159	4 0 57 <1 925 1056 955 1165
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060	4 0 58 <1 940 1030 1057 1186 2286	3 0 58 <1 939 1053 1058 1159 2548 <1 ***********************************	4 0 57 <1 925 1056 955 1165 2476 <1 kistory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) method ASTM D5185(m)	0 0 60 1010 1070 1150 1270 2060	4 0 58 <1 940 1030 1057 1186 2286 <1 2286 <1 2286 3	3 0 58 <1 939 1053 1058 1159 2548 <1 history1 3	4 0 57 <1 925 1056 955 1165 2476 <1 kistory2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	4 0 58 <1 940 1030 1057 1186 2286 <1 2286 <1 2286 <1 2286 <1	3 0 58 <1 939 1053 1058 1159 2548 <1 history1 3 4	4 0 57 <1 925 1056 955 1165 2476 <1 history2 4 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185(m) ASTM D5185(m)	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	4 0 58 <1 940 1030 1057 1186 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 2286 <1 230 <1 2286 <1 230 <1 2286 <1 230 <1 230 <1 230 <1 230 <1 230 <1 230 <1 230 <1 230 <1 230 <1 230 <1 230 <1 230 <1 230 <1 230 <1 230 <1 230 <1 230 <1 2 2 2 2 3 2 2 2 3 3 2 2 2 3 2 3 3 2 3	3 0 58 <1 939 1053 1058 1159 2548 <1 bistory1 3 4 0	4 0 57 <1 925 1056 955 1165 2476 <1 history2 4 4 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185(m) ASTM D5185(m)	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	4 0 58 <1 940 1030 1057 1186 2286 <1 2286 <1 2286 <1 2286 <1	3 0 58 <1 939 1053 1058 1159 2548 <1 history1 3 4	4 0 57 <1 925 1056 955 1165 2476 <1 history2 4 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185(m) ASTM D5185(m)	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	4 0 58 <1 940 1030 1057 1186 2286 <1 current 3 4 <1 2.3 Current	3 0 58 <1 939 1053 1058 1159 2548 <1 bistory1 3 4 0	4 0 57 <1 925 1056 955 1165 2476 <1 history2 4 4 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185(m) ASTM D5185(m)	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 >20	4 0 58 <1 940 1030 1057 1186 2286 <1 <i>current</i> 3 4 <1 2.3 <i>current</i> 0.3	3 0 58 <1 939 1053 1058 1159 2548 <1 history1 3 4 0 <1.0	4 0 57 <1 925 1056 955 1165 2476 <1 history2 4 4 4 <1 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 >20 >3.0 imit/base	4 0 58 <1 940 1030 1057 1186 2286 <1 current 3 4 <1 2.3 Current	3 0 58 <1 939 1053 1058 1159 2548 <1 history1 3 4 0 <1.0 history1	4 0 57 <1 925 1056 955 1165 2476 <1 history2 4 4 4 <1 <1.0 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm %	ASTM D5185(m) ASTM D5185(m)	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 >20 >3.0 imit/base	4 0 58 <1 940 1030 1057 1186 2286 <1 <i>current</i> 3 4 <1 2.3 <i>current</i> 0.3	3 0 58 <1 939 1053 1058 1159 2548 <1 history1 3 4 0 <1.0 history1 0	4 0 57 <1 925 1056 955 1165 2476 <1 history2 4 4 4 <1 <1.0 history2 0.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7593* Cmethod ASTM D7593*	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 >3.0 imit/base >4 >20	4 0 58 <1 940 1030 1057 1186 2286 <1 <i>current</i> 3 4 <1 2.3 <i>current</i> 0.3 10.7	3 0 58 <1 939 1053 1058 1159 2548 <1 history1 3 4 0 <1.0 history1 0 8.8	4 0 57 <1 925 1056 955 1165 2476 <1 history2 4 4 4 <1 <1.0 history2 0.1 9.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7593* Cmethod ASTM D7593*	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 >20 >3.0 imit/base >4 >20 >3.0	4 0 58 <1 940 1030 1057 1186 2286 <1 <i>current</i> 3 4 <1 2.3 <i>current</i> 0.3 10.7 22.7	3 0 58 <1 939 1053 1058 1159 2548 <1 history1 3 4 0 <1.0 history1 0 8.8 20.0	4 0 57 <1 925 1056 955 1165 2476 <1 history2 4 4 4 <1 <1.0 history2 0.1 9.6 20.9

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Submitted By: Amanda Cipollone



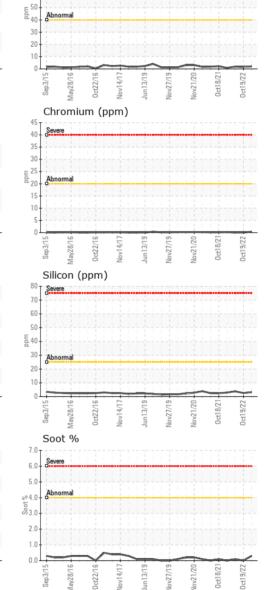
OIL ANALYSIS REPORT



16

Sep3/15.

Mav28/1



NEG

NEG

13.3

NEG

NEG

12.9

NEG

NEG

12.9

80

70

60

Lead (ppm)

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 252 - GTA Hauling Laboratory CALA Sample No. : GFL0087419 Received : 03 Aug 2023 3668 Weston Road Lab Number : 02573995 Diagnosed : 04 Aug 2023 North York, ON ISO 17025:2017 Accredited Laboratory : 5619046 Diagnostician : Wes Davis CA M9L 1W2 Unique Number Test Package : MOB 1 (Additional Tests: FuelDilution, PercentFuel) Contact: Tom Hatzioannidis To discuss this sample report, contact Customer Service at 1-800-268-2131. thatzioannidis@gflenv.com Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T: (416)406-2040 Validity of results and interpretation are based on the sample and information as supplied. F:

Oct19/22

Vov21/20 Oct18/21

Jun 13/19 Nov27/19

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