

OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id **4628M** Component **Diesel Engine**

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

DIAGNOSIS Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

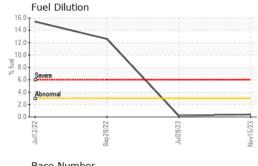
Fluid Condition

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

N SHP 15W40 (G/12)	Jul2022	Sep2022 Jul2023	Aug2023 Oct2023	Nov2023	
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0059259	GFL0084924	GFL0085061
Sample Date		Client Info		15 Nov 2023	31 Oct 2023	17 Aug 2023
Machine Age	mls	Client Info		124107	123979	123979
Oil Age	mls	Client Info		124107	123979	123980
Oil Changed		Client Info		Changed	N/A	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
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	>90	11	24	13
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	<1
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	2	3	0
Lead	ppm	ASTM D5185m	>40	<1	3	0
Copper	ppm	ASTM D5185m	>330	38	2	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	10	<1	11
				_	0	0
Barium	ppm	ASTM D5185m	0	0	U	0
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	60	0 51	58	71
Molybdenum Manganese Magnesium	ppm	ASTM D5185m	60 0 1010	51 <1 771	58 <1 977	71
Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	60	51 <1 771 922	58 <1	71 <1
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010	51 <1 771 922 845	58 <1 977 1102 955	71 <1 963 1110 1030
Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070	51 <1 771 922	58 <1 977 1102	71 <1 963 1110
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150	51 <1 771 922 845	58 <1 977 1102 955	71 <1 963 1110 1030
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270	51 <1 771 922 845 1041	58 <1 977 1102 955 1289	71 <1 963 1110 1030 1226
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060	51 <1 771 922 845 1041 2491	58 <1 977 1102 955 1289 2240	71 <1 963 1110 1030 1226 3649
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060	51 <1 771 922 845 1041 2491	58 <1 977 1102 955 1289 2240 history1	71 <1 963 1110 1030 1226 3649 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m MSTM D5185m	60 0 1010 1070 1150 1270 2060	51 <1 771 922 845 1041 2491 current	58 <1 977 1102 955 1289 2240 history1 17	71 <1 963 1110 1030 1226 3649 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25	51 <1 771 922 845 1041 2491 current 9 4	58 <1 977 1102 955 1289 2240 history1 17	71 <1 963 1110 1030 1226 3649 history2 3 16
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25	51 <1 771 922 845 1041 2491 current 9 4 <1	58 <1 977 1102 955 1289 2240 history1 17 17	71 <1 963 1110 1030 1226 3649 history2 3 16 6
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0	51 <1 771 922 845 1041 2491 current 9 4 <1 0.4	58 <1 977 1102 955 1289 2240 history1 17 17 2 <1.0	71
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D3524	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0	51 <1 771 922 845 1041 2491 current 9 4 <1 0.4 current	58 <1 977 1102 955 1289 2240 history1 17 17 2 <1.0 history1	71 <1 963 1110 1030 1226 3649 history2 3 16 6 <1.0 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185m ASTM D3524 method *ASTM D7844	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >6	51 <1 771 922 845 1041 2491 current 9 4 <1 0.4 current 0.2	58 <1 977 1102 955 1289 2240 history1 17 17 2 <1.0 history1 1.4	71 <1 963 1110 1030 1226 3649 history2 3 16 6 <1.0 history2 0.7
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm	ASTM D5185m ASTM D3524 method *ASTM D7844 *ASTM D7624 *ASTM D76145	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >6 >20	51 <1 771 922 845 1041 2491 current 9 4 <1 0.4 current 0.2 6.0	58 <1 977 1102 955 1289 2240 history1 17 17 2 <1.0 history1 1.4 9.1	71 <1 963 1110 1030 1226 3649 history2 3 16 6 <1.0 history2 0.7 7.5
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m ASTM D7824 *ASTM D7844 *ASTM D7624 *ASTM D76185m ASTM D76185m ASTM D7844	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >6 >20 >30 limit/base	51 <1 771 922 845 1041 2491 current 9 4 <1 0.4 current 0.2 6.0 20.2 current	58 <1 977 1102 955 1289 2240 history1 17 2 <1.0 history1 1.4 9.1 22.7 history1	71 <1 963 1110 1030 1226 3649 history2 3 16 6 <1.0 history2 0.7 7.5 19.4 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m ASTM D3524 method *ASTM D7844 *ASTM D7624 *ASTM D76145	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >6 >20 >30	51 <1 771 922 845 1041 2491 current 9 4 <1 0.4 current 0.2 6.0 20.2	58 <1 977 1102 955 1289 2240 history1 17 17 2 <1.0 history1 1.4 9.1 22.7	71 <1 963 1110 1030 1226 3649 history2 3 16 6 <1.0 history2 0.7 7.5 19.4



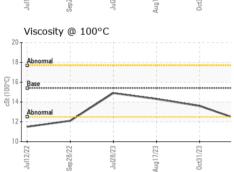
OIL ANALYSIS REPORT



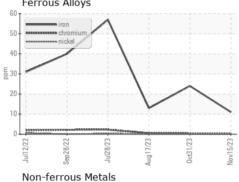
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	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

10.0 T Base	Number				
0.9 per (mg KOH/g)				_	
0.0	22	23	23	23	
Jul12/22	Sep28/22	Jul28/23	Aug17/23	0ct31/23	



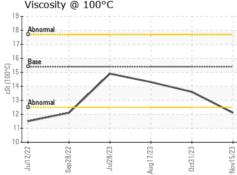


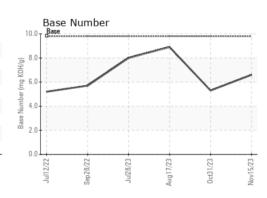
GRAPHS Ferrous Alloys





25 틆 20 Viscosity @ 100°C









Laboratory Sample No. Lab Number **Unique Number**

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 06014784

: GFL0059259 : 10753928

Received : 22 Nov 2023 Diagnosed

: 27 Nov 2023 Diagnostician : Wes Davis

Test Package: FLEET (Additional Tests: FuelDilution, PercentFuel) 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)

GFL Environmental - 410 - Michigan West

39000 Van Born Rd Wayne, MI US 48184

Contact: Belal Dgheish bdgheish@gflenv.com T: (734)714-2340