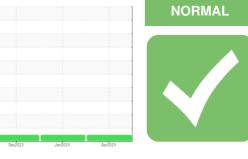


## **OIL ANALYSIS REPORT**

Sample Rating Trend



Component Diesel Engine Fluid

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

SAMPLE INFORMATION method

### DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Machine Id

#### 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.

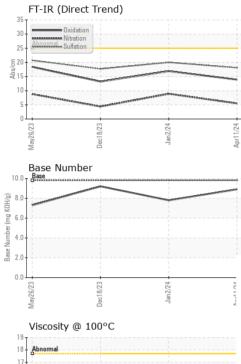
		0				
Sample Number		Client Info		GFL0117584	GFL0108818	GFL0105705
Sample Date		Client Info		11 Apr 2024	02 Jan 2024	18 Dec 2023
Machine Age	hrs	Client Info		12757	12183	12126
Oil Age	hrs	Client Info		12183	0	0
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ON	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 METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	4	18	3
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	3	2
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	<1	<1	16
Tin	ppm	ASTM D5185m	>15	<1	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
	pp					-
ADDITVES		method	limit/base		historv1	history2
ADDITIVES Boron	maa	method ASTM D5185m	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	<1	<1	19
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	<1 0	<1 0	19 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 61	<1 0 58	19 0 68
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 61 <1	<1 0 58 0	19 0 68 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<1 0 61 <1 987	<1 0 58 0 987	19 0 68 0 1007
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 61 <1 987 1156	<1 0 58 0 987 1089	19 0 68 0 1007 1073
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	<1 0 61 <1 987 1156 1121	<1 0 58 0 987 1089 1005	19 0 68 0 1007 1073 976
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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 1270	<1 0 61 <1 987 1156 1121 1270	<1 0 58 0 987 1089 1005 1289	19 0 68 0 1007 1073 976 1266
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	<1 0 61 <1 987 1156 1121 1270 3471	<1 0 58 0 987 1089 1005 1289 2939	19 0 68 0 1007 1073 976 1266 3273
Boron Barium 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	<1 0 61 <1 987 1156 1121 1270 3471 current	<1 0 58 0 987 1089 1005 1289 2939 history1	19 0 68 0 1007 1073 976 1266 3273 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	0 0 60 0 1010 1070 1150 1270 2060	<1 0 61 <1 987 1156 1121 1270 3471	<1 0 58 0 987 1089 1005 1289 2939	19 0 68 0 1007 1073 976 1266 3273 history2 11
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	<1 0 61 <1 987 1156 1121 1270 3471 current	<1 0 58 0 987 1089 1005 1289 2939 history1	19 0 68 0 1007 1073 976 1266 3273 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	0 0 60 1010 1070 1150 1270 2060	<1 0 61 <1 987 1156 1121 1270 3471 current 3	<1 0 58 0 987 1089 1005 1289 2939 history1 7	19 0 68 0 1007 1073 976 1266 3273 history2 11
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >25	<1 0 61 <1 987 1156 1121 1270 3471 current 3 1	<1 0 58 0 987 1089 1005 1289 2939 history1 7 <1	19 0 68 0 1007 1073 976 1266 3273 history2 11 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	<1 0 61 <1 987 1156 1121 1270 3471 current 3 1 1	<1 0 58 0 987 1089 1005 1289 2939 history1 7 <1 1	19 0 68 0 1007 1073 976 1266 3273 history2 11 0 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 ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	<1 0 61 <1 987 1156 1121 1270 3471 <i>current</i> 3 1 1 1 <i>current</i>	<1 0 58 0 987 1089 1005 1289 2939 history1 7 <1 1 1 history1	19 0 68 0 1007 1073 976 1266 3273 history2 11 0 1 1 history2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	<1 0 61 <1 987 1156 1121 1270 3471 <i>current</i> 3 1 1 <i>current</i> 0.1	<1 0 58 0 987 1089 1005 1289 2939 history1 7 <1 1 1 history1 0.5	19 0 68 0 1007 1073 976 1266 3273 history2 11 0 1 history2 0.1
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >20	<1 0 61 <1 987 1156 1121 1270 3471 <i>current</i> 3 1 1 1 <i>current</i> 0.1 5.5	<1 0 58 0 987 1089 1005 1289 2939 history1 7 <1 1 1 history1 0.5 8.9	19 0 68 0 1007 1073 976 1266 3273 history2 11 0 1 history2 0.1 4.4
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	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <b>imit/base</b> >20 20 20 20 20 20 20 20 20 20 20 20 20 2	<1 0 61 <1 987 1156 1121 1270 3471 <i>current</i> 3 1 1 1 <i>current</i> 0.1 5.5 18.1	<1 0 58 0 987 1089 1005 1289 2939 history1 7 <1 1 1 history1 0.5 8.9 20.0	19 0 68 0 1007 1073 976 1266 3273 history2 11 0 1 history2 0.1 4.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	<1 0 61 <1 987 1156 1121 1270 3471 Current 3 1 1 Current 0.1 5.5 18.1 Current	<1 0 58 0 987 1089 1005 1289 2939 history1 7 <11 1 0.5 8.9 20.0 history1	19 0 68 0 1007 1073 976 1266 3273 history2 11 0 1 history2 0.1 4.4 17.7 history2



> 13 12

> > May26/23

## **OIL ANALYSIS REPORT**



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	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.3	13.6	14.4
GRAPHS						

Apr11/24

KAPH Ferrous Alloys 20 19 E 10 Jan2/24 + Dec18/23 Mav26/23 Non-ferrous Metals 16 14 12 10 ppm ß 0

Jec18/23

Dec18/23

Viscosity @ 100°C

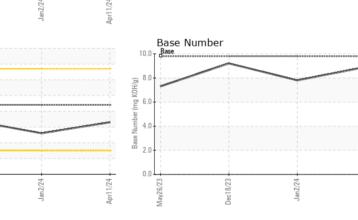
19

18

()-16 ()-00 ()-15 ()-15 ()-16 ()-16 ()-16 ()-16 ()-16 ()-16 ()-16 ()-16 ()-16 ()-16 ()-16 ()-16 ()-16 ()-16 ()-15)

12

Mav26/23



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 415 - Michigan East Sample No. : GFL0117584 6200 Elmridge Received : 15 Apr 2024 Lab Number : 06148395 Tested : 16 Apr 2024 Sterling Heights, MI US 48313 Unique Number : 10978473 Diagnosed : 16 Apr 2024 - Wes Davis Test Package : FLEET Contact: Frank Wolak Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. fwolak@gflenv.com T: (586)825-9514 \* - 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) E:

Jan2/24

Dec18/23

Submitted By: Frank Wolak

Apr11/24

Page 2 of 2