

## **OIL ANALYSIS REPORT**

Sample Rating Trend





## Component

#### **Diesel Engine** Fluid

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.

				Jan2023 Apr2023 Jul2023		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0084492	GFL0084510	GFL0084529
Sample Date		Client Info		09 Oct 2023	25 Aug 2023	03 Jul 2023
Machine Age	hrs	Client Info		8065	7379	6794
Oil Age	hrs	Client Info		686	585	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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	>100	14	14	13
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		10	10	14
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	5	4
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	1	0	<1
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
			11 11 11		11. A. A.	histow.0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		78	history1 85	67
	ppm ppm		0			
Boron		ASTM D5185m	0	78	85	67
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	78 0	85 0	67 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	78 0 53	85 0 54	67 0 44
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	78 0 53 0	85 0 54 <1	67 0 44 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	78 0 53 0 664	85 0 54 <1 660	67 0 44 <1 780
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	78 0 53 0 664 1468	85 0 54 <1 660 1489	67 0 44 <1 780 1595
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	78 0 53 0 664 1468 716	85 0 54 <1 660 1489 744	67 0 44 <1 780 1595 732
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	0 0 60 0 1010 1070 1150 1270	78 0 53 0 664 1468 716 875	85 0 54 <1 660 1489 744 909	67 0 44 <1 780 1595 732 879
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	78 0 53 0 664 1468 716 875 2851	85 0 54 <1 660 1489 744 909 3538	67 0 44 <1 780 1595 732 879 3756
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	78 0 53 0 664 1468 716 875 2851 current	85 0 54 <1 660 1489 744 909 3538 history1	67 0 44 <1 780 1595 732 879 3756 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm 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 1010 1070 1150 1270 2060	78 0 53 0 664 1468 716 875 2851 2851 current 6	85 0 54 <1 660 1489 744 909 3538 history1 5	67 0 44 <1 780 1595 732 879 3756 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm 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> ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	78 0 53 0 664 1468 716 875 2851 2851 current 6 5	85 0 54 <1 660 1489 744 909 3538 history1 5 4	67 0 44 <1 780 1595 732 879 3756 history2 5 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	78 0 53 0 664 1468 716 875 2851 2851 current 6 5 9	85 0 54 <1 660 1489 744 909 3538 history1 5 4 9	67 0 44 <1 780 1595 732 879 3756 history2 5 5 5 8
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 1imit/base >20	78 0 53 0 664 1468 716 875 2851 current 6 5 9 9	85 0 54 <1 660 1489 744 909 3538 history1 5 4 9 9	67 0 44 <1 780 1595 732 879 3756 history2 5 5 8 8
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 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	78 0 53 0 664 1468 716 875 2851 current 6 5 9 current 0.6	85 0 54 <1 660 1489 744 909 3538 history1 5 4 9 9 history1 0.6	67 0 44 <1 780 1595 732 879 3756 history2 5 5 5 8 8 history2 0.5
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> >3 >20	78 0 53 0 664 1468 716 875 2851 <i>current</i> 6 5 9 <i>current</i> 0.6 9.9	85 0 54 <1 660 1489 744 909 3538 history1 5 4 9 9 history1 0.6 10.0	67 0 44 <1 780 1595 732 879 3756 history2 5 5 5 8 history2 0.5 10.7
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 D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	78 0 53 0 664 1468 716 875 2851 current 6 5 9 current 0.6 9.9 23.4	85 0 54 <1 660 1489 744 909 3538 history1 5 4 9 9 history1 0.6 10.0 21.6	67 0 44 <1 780 1595 732 879 3756 history2 5 5 5 8 8 history2 0.5 10.7 22.9
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 D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 20 3 3 20 20 20 20 20 20 20 20 20 20 20 20 20	78 0 53 0 664 1468 716 875 2851 current 6 5 9 current 0.6 9.9 23.4 current	85 0 54 <1 660 1489 744 909 3538 history1 5 4 9 history1 0.6 10.0 21.6 history1	67 0 44 <1 780 1595 732 879 3756 history2 5 5 5 8 history2 0.5 10.7 22.9 history2

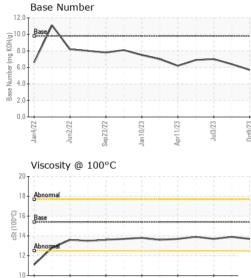


Jan4/22

# **OIL ANALYSIS REPORT**

VISUAL

method



Sep23/22

Sa La	Laboratory Sample No. Lab Number Unique Number	: WearCheck USA - : GFL0084492 : 05976753 : 10688703	501 Madis Received Diagnose Diagnost	l : 12 ( ed : 13 (	ot 2023 ot 2023 Felton		ronmental - 629 - Northern A1 3947 US 131 N Kalkaska, MI US 49646-8428 act: MITCH HERSHBERGER	
		Base Abnormal   17 Base   16 Base   15 Abnormal   13 ZZIZZU   10 ZZIZZU	Jan 10/23	Apri 1/23	10.0 (b)(HOX 8.0 Bull Jaquum 4.0 See 8 2.0 CCC 600 CCC 600 CCCC 600 CCC 600 CCC CCC 600 CCC 600 CCC CCC 600 CCC CCC CCC CCC CCC CCC CCC CCC CCC	Jani / 122 Jun 2.22.2 Sep 2.3/22	Jan10/23	Jula/23
		40 35 30 40 35 30 40 50 50 50 50 50 50 50 50 50 5	C Jan 10/23	Apri 1/23	EZ GPD 0	Base Number		
ц. «	ž	Anon-ferrous Meta	als	Apri1/23 Jui3/23	0ct9/23			
Jan i 0/23	Jul3/23	FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	cSt	method ASTM D445	limit/base 15.4	current 13.7	history1 13.9	history2 13.7
Jan 10/23	Jul3/23	Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water	scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual	NONE NONE NONE NORML NORML >0.2	NONE NONE NONE NORML NORML NEG NEG	NONE NONE NONE NORML NORML NEG NEG	NONE NONE NONE NORML NORML NEG NEG

Submitted By: Mitch Hershberger

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