

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

Machine Id 10629

Component

Diesel Engine Fluic

PETRO CANADA DURON SHP 15W40 (7 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.

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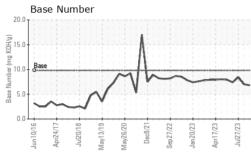


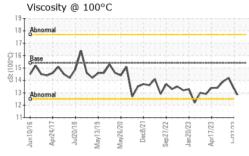
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0088758	GFL0091409	GFL0086101
Sample Date		Client Info		12 Sep 2023	01 Sep 2023	27 Jul 2023
Machine Age	hrs	Client Info		1420	1400	30823
Oil Age	hrs	Client Info		262	242	137
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Sample Status				NORMAL	MARGINAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	2 .4	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
			>75	56	42	24
Iron Chromium	ppm	ASTM D5185m ASTM D5185m		50 1	42	<1
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m		ں <1	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm ppm	ASTM D5185m ASTM D5185m		5	2	1
Lead	ppm		>15	ວ <1	2	0
Copper	ppm	ASTM D5185m		<1	<1	0
Tin		ASTM D5185m		<1	0	0
Vanadium	ppm ppm	ASTM D5185m	>4	<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
	ррпп				-	-
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	11	12	17
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	11 0	12 0	17 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	11 0 57	12 0 54	17 0 60
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	11 0 57 <1	12 0 54 <1	17 0 60 <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	11 0 57 <1 780	12 0 54 <1 731	17 0 60 <1 877
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	11 0 57 <1 780 1052	12 0 54 <1 731 1010	17 0 60 <1 877 1099
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 ASTM D5185m	0 0 60 0 1010 1070 1150	11 0 57 <1 780 1052 901	12 0 54 <1 731 1010 852	17 0 60 <1 877 1099 988
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	11 0 57 <1 780 1052 901 1128	12 0 54 <1 731 1010 852 1055	17 0 60 <1 877 1099 988 1174
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	11 0 57 <1 780 1052 901 1128 3220	12 0 54 <1 731 1010 852 1055 3057	17 0 60 <1 877 1099 988 1174 3479
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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 limit/base	11 0 57 <1 780 1052 901 1128 3220 current	12 0 54 <1 731 1010 852 1055 3057 history1	17 0 60 <1 877 1099 988 1174 3479 history2
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 ASTM D5185m method	0 0 60 1010 1070 1150 1270 2060 limit/base	11 0 57 <1 780 1052 901 1128 3220 current 10	12 0 54 <1 731 1010 852 1055 3057	17 0 60 <1 877 1099 988 1174 3479 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	11 0 57 <1 780 1052 901 1128 3220 current	12 0 54 <1 731 1010 852 1055 3057 history1	17 0 60 <1 877 1099 988 1174 3479 history2 4 3
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 ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 0 60 1010 1070 1150 1270 2060 limit/base	11 0 57 <1 780 1052 901 1128 3220 current 10	12 0 54 <1 731 1010 852 1055 3057 history1 7	17 0 60 <1 877 1099 988 1174 3479 history2 4
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 method ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	11 0 57 <1 780 1052 901 1128 3220 current 10 5	12 0 54 <1 731 1010 852 1055 3057 history1 7 4	17 0 60 <1 877 1099 988 1174 3479 history2 4 3
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 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25	11 0 57 <1 780 1052 901 1128 3220 current 10 5 2	12 0 54 <1 731 1010 852 1055 3057 history1 7 4 1	17 0 60 <1 877 1099 988 1174 3479 history2 4 3 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6	11 0 57 <1 780 1052 901 1128 3220 current 10 5 2 2	12 0 54 <1 731 1010 852 1055 3057 history1 7 4 1 1	17 0 60 <1 877 1099 988 1174 3479 history2 4 3 0 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 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6	11 0 57 <1 780 1052 901 1128 3220 current 10 5 2 2 current 1.1	12 0 54 <1 731 1010 852 1055 3057 history1 7 4 1 1 history1 1	17 0 60 <1 877 1099 988 1174 3479 history2 4 3 0 history2 1.3
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> >6 >20	111 0 57 <1 780 1052 901 1128 3220 current 10 5 2 current 1.1 7.1	12 0 54 <1 731 1010 852 1055 3057 history1 7 4 1 1 history1 1 6.6	17 0 60 <1 877 1099 988 1174 3479 history2 4 3 0 history2 1.3 6.7
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 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20 >20 >30	11 0 57 <1 780 1052 901 1128 3220 current 10 5 2 2 current 1.1 7.1 18.4	12 0 54 <1 731 1010 852 1055 3057 history1 7 4 1 1 history1 1 6.6 17.7	17 0 60 <1 877 1099 988 1174 3479 history2 4 3 0 history2 1.3 6.7 18.7
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 TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >6 >20 >30 imit/base	11 0 57 <1 780 1052 901 1128 3220 current 10 5 2 current 1.1 7.1 18.4 current	12 0 54 <1 731 1010 852 1055 3057 history1 7 4 1 1 history1 1 6.6 17.7 history1	17 0 60 <1 877 1099 988 1174 3479 history2 4 3 0 history2 1.3 6.7 18.7 history2



OIL ANALYSIS REPORT

VISUAL





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	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		*Visual	NONE	NONE	NONE	NONE
7/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Jan20/23 Apr17/23 Jul27/23	Odor		*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
				11 1. 0			
	FLUID PROPE		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	12.6	12.4	13.3
$1 \sim 1$	GRAPHS						
V	Ferrous Alloys						
	iron		10100				
Jan 20/23 Apr17/23	150 - nickel		111111				
			A				
udd	100 -						
	50 A A A	. 1	. IV	11			
	1V-W	NL	~J	V			
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	Jun 10/16 Apr24/17 Jul20/18 May13/19	May26/20 Dec8/21 Sen27/22	Jan20/23 Apr17/23	Jul27/23			
			Ja Ai	-			
	Non-ferrous Meta	IS					
	140 copper						
	120 - tin			+			
	100						
Ead	80						
-	60 -						
	40						
	20						
				m			
	Jun 10/16 Apr24/17 Jul20/18 May13/19	May26/20 Dec8/21 Sen27/22	Jan20/23 Apr17/23	Jul27/23			
			Ap	Ξ,			
	Viscosity @ 100°C				Base Number		
	18 - Abnormal	10100		18.0	manna	TER POST	No (table)
	17-			CICCUT CONTRACTOR		A	
	and the second second			(b)14.0 (b)14.0 (b)10.0 (b)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.0 (c)10.			
		A		Ē10.0-	Base		******
	Base 15 15	1		0.8 mg		mm	~
	1222 HILLING THE FEET HILLING	VV	m	2 6.0-	~		
	13 Abnormal		V	2.0-	m		
	11			0.0			
	Jun10/16 Apr24/17 Jul20/18 May13/19	May26/2U - Dec8/21 - Sen27/22 -	Jan 20/23 - Apr17/23 -		Jun10/16 - Apr24/17 - Jul20/18 - May13/19 -	/lay26/20 . Dec8/21 - Sep27/22 -	Jan 20/23 - Apri 7/23 - Jul 27/23 -
	Jun1 Apr2 Jul2 May1	Der Sen2	Jan2 Apr1	źlu (	Jun1 Jul2 May1	May26/20 Dec8/21 Sep27/22	Janz Aprl Jul2
ah a vata ma	WeerChesty UCA					commontal 010	Ctool/huid
aboratory. Sample No.	: WearCheck USA - 5 : GFL0088758	Received		ry, NC 27513 Sep 2023	GFL ENVI	r <b>onmental - 010 -</b> 1280 Rum Cr	
ab Number		Diagnose		Sep 2023			ckbridge, GA
Jnique Number		Diagnosti		s Davis		0.0	US 30281
Fest Package	: FLEET	Ū				Contact: JOSH	
	contact Customer Serv					joshuatinker	
nothodo that a	ra autoida af tha ISO 1	7025 000	no of accrod	litation			т.

To discuss this sample report, contact Customer Service at 1-800-237-1369.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Certificate L2367

Submitted By: JOSHUA TINKER

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^{* -} Denotes test methods that are outside of the ISO 17025 scope of accreditation.