

OIL ANALYSIS REPORT

Sample Rating Trend





Component

Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

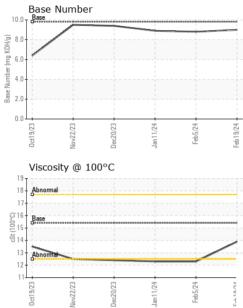
Fluid Condition

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

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0109328	GFL0109259	GFL0048375
Sample Date		Client Info		19 Feb 2024	05 Feb 2024	11 Jan 2024
Machine Age	hrs	Client Info		734	601	465
Oil Age	hrs	Client Info		133	601	465
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	c	method	limit/base	current	history1	history2
	3					
Iron	ppm	ASTM D5185m	>100	6	30	21
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	1	<1
Titanium	ppm	ASTM D5185m		7	1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	26	21
Lead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m	>330	<1	3	2
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 9	history1 6	history2 0
	ppm ppm	ASTM D5185m				
Boron Barium	ppm	ASTM D5185m	0	9	6	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	0	9 3	6 0	0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	9 3 53	6 0 58	0 0 57
Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	9 3 53 0	6 0 58 1	0 0 57 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	9 3 53 0 846 1052	6 0 58 1 867 1067	0 0 57 <1 927 1113
Boron Barium Molybdenum Manganese Magnesium	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	9 3 53 0 846	6 0 58 1 867 1067 1000	0 0 57 <1 927 1113 1026
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	9 3 53 0 846 1052 988	6 0 58 1 867 1067	0 0 57 <1 927 1113
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	9 3 53 0 846 1052 988 1138	6 0 58 1 867 1067 1000 1187	0 0 57 <1 927 1113 1026 1269
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	9 3 53 0 846 1052 988 1138 3276 current	6 0 58 1 867 1067 1000 1187 2995 history1	0 0 57 <1 927 1113 1026 1269 3196 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 method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	9 3 53 0 846 1052 988 1138 3276 current 3	6 0 58 1 867 1067 1000 1187 2995 history1 8	0 0 57 <1 927 1113 1026 1269 3196 history2 6
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 0 1010 1070 1150 1270 2060 kimit/base	9 3 53 0 846 1052 988 1138 3276 current	6 0 58 1 867 1067 1000 1187 2995 history1	0 0 57 <1 927 1113 1026 1269 3196 history2
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 ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 kimit/base	9 3 53 0 846 1052 988 1138 3276 current 3 0	6 0 58 1 867 1067 1000 1187 2995 history1 8 2 2 72	0 0 57 <1 927 1113 1026 1269 3196 history2 6 0 57
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	9 3 53 0 846 1052 988 1138 3276 current 3 0 15 current	6 0 58 1 867 1067 1000 1187 2995 history1 8 2 72 history1	0 0 57 <1 927 1113 1026 1269 3196 history2 6 0 57 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 TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	9 3 53 0 846 1052 988 1138 3276 current 3 0 15 current 0.2	6 0 58 1 867 1067 1000 1187 2995 history1 8 2 72 history1 0.5	0 0 57 <1 927 1113 1026 1269 3196 history2 6 0 57 history2 0.4
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 TS 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	9 3 53 0 846 1052 988 1138 3276 current 3 0 15 current 0.2 5.6	6 0 58 1 867 1067 1000 1187 2995 history1 8 2 72 history1 0.5 8.6	0 0 57 <1 927 1113 1026 1269 3196 history2 6 0 57 history2 0.4 7.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	9 3 53 0 846 1052 988 1138 3276 current 3 0 15 current 0.2	6 0 58 1 867 1067 1000 1187 2995 history1 8 2 72 history1 0.5	0 0 57 <1 927 1113 1026 1269 3196 history2 6 0 57 history2 0.4
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	9 3 53 0 846 1052 988 1138 3276 current 3 0 15 current 0.2 5.6	6 0 58 1 867 1067 1000 1187 2995 history1 8 2 72 history1 0.5 8.6	0 0 57 <1 927 1113 1026 1269 3196 history2 6 0 57 history2 0.4 7.6
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 imit/base >25 imit/base >3 >20	9 3 53 0 846 1052 988 1138 3276 current 3 0 15 current 0.2 5.6 18.1	6 0 58 1 867 1067 1000 1187 2995 history1 8 2 72 history1 0.5 8.6 20.0	0 0 57 <1 927 1113 1026 1269 3196 history2 6 0 57 history2 0.4 7.6 19.6
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 D7615	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 33 220 330 20 330	9 3 53 0 846 1052 988 1138 3276 current 3 0 15 current 0.2 5.6 18.1 current	6 0 58 1 867 1067 1000 1187 2995 history1 8 2 72 history1 0.5 8.6 20.0 history1	0 0 57 <1 927 1113 1026 1269 3196 history2 6 0 57 history2 0.4 7.6 19.6 history2



OIL ANALYSIS REPORT



	VISUAL		method		current	history1	history
	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
/24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Feb19/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual	20.L	NEG	NEG	NEG
	FLUID PROPE	RTIES	method	limit/base	current	history1	history
	Visc @ 100°C	cSt	ASTM D445	15.4	13.9	12.3	12.3
/	GRAPHS						
	Ferrous Alloys		_				
V C	iron		\wedge				
C-1 0 /0 /	25 - nickel						
	20						
	<u>ل</u> و 15-						
	10			\sim			
				1			
	0			1/24			
	0ct19/23 Vov22/23	Jan 11/24	Feb5/24	Feb19/24			
	Non-ferrous Meta						
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	8 + copper lead						
	of annual tin						
	6						
			_				
	2						
			Contraction of the local division of the loc				
		Approximate the second	4	4			
		/24	2	12			
		Uec/U/23 Jan11/24	Feb 5/24	Feb19/24			
	0ct19/23 Nov22/23		Feb5/2	Feb19/2	Deer Northeast		
	Viscosity @ 100°		Feb 5/2	Feb19/2	Base Number		
	0000 000000000000000000000000000000000		Feb5/2	10.0	Base		
	Viscosity @ 100°		Feb 5/2	10.0	Base		
	Viscosity @ 100°		Feb5/2	10.0	Base		
	Viscosity @ 100°		Feb5/2	10.0	Base		
	Viscosity @ 100°		Feb5/2	10.0	Base		
	Viscosity @ 100°		Feb5/2	0.0 8.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Base		
	ECC		Feb5/2	10.0	Base		
	ECC	C		10.0 (0)HOX (0)HOX (0)HOX (0) HOX (0)HOX (0)HOX (0)HOX (0) HOX (0)HOX (0	Base		
	ECC	C		10.0 (0)HOX (0)HOX (0)HOX (0) HOX (0)HOX (0)HOX (0)HOX (0) HOX (0)HOX (0	Base		eb5/24
	ECC			10.0 (0)HOX bul) 36.0 bul) 39001N 888 2.0	Base	Dec20/23	Feb5/24
atory	ECC	C Jan 11/24	Feb5/24	10.0 0.8 0.0 0.0 0.0 0.0 0.0 0.0	Pase Joint Joint J		
e No.	Viscosity @ 100° Viscosity @ 100° Abnormal	PTINTOTAL PTINTOTAL PTINTOTAL PTINTOTAL PTINTOTAL	bn Ave., Cary ived : 20	10.0 (0HO) Bull 3400 6.0 (0HO) Bull 3400 88 2.0 (0HO) 3400 88 2.0 (0.0 (0HO) 3400 100 88 2.0 (0HO) 3400 100 88 2.0 (0HO) 3400 100 88 2.0 (0HO) 3400 100 80 340 100 100 100 100 100 100 100 100 100 1	Pase Joint Joint J	Participants Peccology Formental - 891 - Okt 1001	lahoma City Hau South Rocky
e No. umber	Viscosity @ 100° Viscosity @ 100° Abnormal	D1 Madisc Recei Teste	on Ave., Cary ived : 20	10.0 (0)HOX Bull Jaguny See 2.0 (0)HOX Bull Jaguny See 2.0 (0) (0) HOX See 2.0 (0) (0) HOX See 2.0 (0) (0) HOX See 2.0 (0) HOX	Base EZG12700N GFL Envir	Participants Peccology Formental - 891 - Okt 1001	lahoma City Ha u South Rocky ahoma City,
e No. umber Number	Viscosity @ 100° Viscosity @ 100°	D1 Madisc Recei Teste	on Ave., Cary ived : 20	10.0 (0HO) Bull 3400 6.0 (0HO) Bull 3400 88 2.0 (0HO) 3400 88 2.0 (0.0 (0HO) 3400 100 88 2.0 (0HO) 3400 100 88 2.0 (0HO) 3400 100 88 2.0 (0HO) 3400 100 80 340 100 100 100 100 100 100 100 100 100 1	Base EZG12700N GFL Envir	ronmental - 891 - 0kl 1001 Okla	lahoma City Ha u South Rockv ahoma City, US 73 ⁻
e No. umber Number ackage	Viscosity @ 100° Viscosity @ 100° Abnormal	D1 Madisc Recei Teste Diagr	on Ave., Cary ived : 20 ed : 21	10.0 (6)(HO) bu) aquun ver eg 2.0 (0.0 (0.0) (0.0) aquun ver eg 2.0 (0.0 (0.0) (0.0) aquun ver eg 2.0 (0.0) (0.0) (0.0) aquun ver eg 2.0 (0.0) (0.0) aquun ver eg 2.0 (0.0) (0.0) aquun ver eg 2.0 (0.0) (0.0) aquun ver eg 2.0 (0.0) (0.0) aquun ver eg 2.0 (0.0) (0.0) (0.0) aquun ver eg 2.0 (0.0)	Base EZG12700N GFL Envir	ronmental - 891 - 0kl 1001 Okla	lahoma City Hau South Rockv ahoma City,

