

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

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

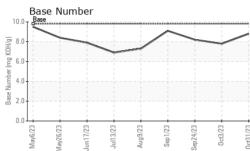
Fluid Condition

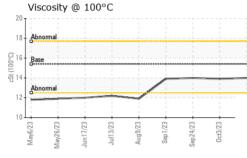
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

iAL)		May2023 Ma	y2023 Jun2023 Jul2023	Aug2023 Sep2023 Sep2023 Oct202	23 Oct2023	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0090250	GFL0090207	GFL0090166
Sample Date		Client Info		31 Oct 2023	03 Oct 2023	24 Sep 2023
Machine Age	hrs	Client Info		1229	1101	1037
Oil Age	hrs	Client Info		150	600	150
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
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	7	30	23
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	1	8	2
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	<1	3	2
Tin	ppm	ASTM D5185m	>15	0	<1	<1
		AOTH DELOF				0
Vanadium	ppm	ASTM D5185m		0	0	0
Vanadium Cadmium	ppm ppm	ASTM D5185m ASTM D5185m		0 <1	0	0
			limit/base			
Cadmium ADDITIVES		ASTM D5185m	limit/base 0	<1	0	0
Cadmium ADDITIVES Boron	ppm	ASTM D5185m method		<1 current	0 history1	0 history2
Cadmium ADDITIVES Boron Barium	ppm ppm	ASTM D5185m method ASTM D5185m	0	<1 current <1	0 history1 <1	0 history2 2
Cadmium ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	0 0 60	<1 current <1 4	0 history1 <1 0	0 history2 2 0
Cadmium ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 current <1 4 58	0 history1 <1 0 59	0 history2 2 0 55
Cadmium ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 current <1 4 58 0	0 history1 <1 0 59 <1	0 history2 2 0 55 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<1 current <1 4 58 0 849	0 history1 <1 0 59 <1 1004	0 history2 2 0 55 <1 937
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	<1 current <1 4 58 0 849 999	0 history1 <1 0 59 <1 1004 1080	0 history2 2 0 55 <1 937 1040
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	<1 current <1 4 58 0 849 999 945	0 history1 <1 0 59 <1 1004 1080 1022	0 history2 2 0 55 <1 937 1040 1032
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	<1 current <1 4 58 0 849 999 945 11146	0 history1 <1 0 59 <1 1004 1080 1022 1322	0 history2 2 0 55 <1 937 1040 1032 1234
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method 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 current <1 4 58 0 849 999 945 1146 3150	0 history1 <1 0 59 <1 1004 1080 1022 1322 3182	0 history2 2 0 55 <1 937 1040 1032 1234 2979
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method 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 current <1 4 58 0 849 999 945 1146 3150 current	0 history1 <1 0 59 <1 1004 1080 1022 1322 3182 history1	0 history2 2 0 55 <1 937 1040 1032 1234 2979 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method 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 >25	<1 current <1 4 58 0 849 999 945 1146 3150 current 2	0 history1 <1 0 59 <1 1004 1080 1022 1322 3182 history1 4	0 history2 2 0 55 <1 937 1040 1032 1234 2979 history2 4
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method 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 limit/base >25	<1 current <1 4 58 0 849 999 945 1146 3150 current 2 8	0 history1 <1 0 59 <1 1004 1080 1022 1322 3182 history1 4 6	0 history2 2 0 55 <1 937 1040 1032 1234 2979 history2 4 5
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m 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 limit/base >25	<1 current <1 4 58 0 849 999 945 1146 3150 current 2 8 4	0 history1 <1 0 59 <1 1004 1080 1022 1322 3182 history1 4 6 5	0 history2 2 0 55 <1 937 1040 1032 1234 2979 history2 4 5 3
Cadmium ADDITIVES 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 method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 20 imit/base >20	<1 current <1 4 58 0 849 999 945 1146 3150 current 2 8 4 current	0 history1 <1 0 59 <1 1004 1080 1022 1322 3182 history1 4 6 5 5	0 history2 2 0 55 <1 937 1040 1032 1234 2979 history2 4 5 3 3
Cadmium ADDITIVES 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 method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 20 imit/base >20	<1 current 4 58 0 849 999 945 1146 3150 current 2 8 4 current 0.3	0 history1 <1 0 59 <1 1004 1080 1022 1322 3182 history1 4 6 5 5 history1 0.8	0 history2 2 0 55 <1 937 1040 1032 1234 2979 history2 4 5 3 3 history2 0.7
Cadmium ADDITIVES 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 method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	<1 current <1 4 58 0 849 999 945 1146 3150 current 2 8 4 current 0.3 6.0	0 history1 <1 0 59 <1 1004 1080 1022 1322 3182 history1 4 6 5 5 history1 0.8 10.0	0 history2 2 0 55 <1 937 1040 1032 1234 2979 history2 4 5 3 history2 0.7 9.6
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc 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 method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20	<1 current 4 58 0 849 999 945 1146 3150 current 2 8 4 current 0.3 6.0 18.5	0 history1 <1 0 59 <1 1004 1080 1022 1322 3182 history1 4 6 5 5 history1 0.8 10.0 20.8	0 history2 2 0 55 <1 937 1040 1032 1234 2979 history2 4 5 3 3 history2 0.7 9.6 20.3



OIL ANALYSIS REPORT





			method						
	White Metal	scalar	*Visual	NONE	NONE	NC	DNE	NC	NE
	Yellow Metal	scalar	*Visual	NONE	NONE	NC	DNE	NC	NE
	Precipitate	scalar	*Visual	NONE	NONE		DNE		DNE
	Silt	scalar	*Visual	NONE	NONE	NC	DNE	NC	NE
	Debris	scalar	*Visual	NONE	NONE	NC	DNE	NC	NE
_	Sand/Dirt	scalar	*Visual	NONE	NONE	NC	DNE	NC	NE
0ct31/23	Appearance	scalar	*Visual	NORML	NORML	NC	DRML	NC	RML
0ct3	Odor	scalar	*Visual	NORML	NORML	NC	DRML	NC	RML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NE	EG	NE	G
	Free Water	scalar	*Visual		NEG	NE	ĒG	NE	G
-	FLUID PROPE	RTIES	method	limit/base	current	ł	nistory1	h	istory2
	Visc @ 100°C	cSt	ASTM D445	15.4	14.0	13	.9	14.	.0
	GRAPHS								
	Ferrous Alloys								
	50 - iron chromium								
	nickel								
	40								
-		N E							
maa	.30	· .	1						
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	20								
	10								
	10								
	0			- \ -					
	0	9/23	4/23	1/23					
	0	Aug9/23	Sep 24/23	0ct31/23					
	May6/23		Sep 24/23	0ct31/23					
	May623		Sep24/23	0431/23					
	0 U U U U U U U U U U U U U U U U U U U		Sep 1/23 Sep 24/23	0et31/23					
	Non-ferrous Metal		Sep 1/23 Sep 24/23 0ct3/23	0431/23					
	0 E2292keW Non-ferrous Metal		8601/24 Sep24/23 0cd3/23	0431/23					
	0 E2 22 22 22 22 22 22 22 22 22 22 22 22		Sep 24/23	0431/23					
Had	0 E2 22 32 22 32 22 22 32 22 22 32 22 22 32 22 32 22 32 22 32 22 32 22 32 22 32 22 32 22 32 3		36p.24/23 Sep.24/23	0431/23					
ШQ	Non-ferrous Metal		36p.24/23 Sep.24/23	0431/23					
Шa	Non-ferrous Metal		36p.24/23 Sep.24/23	0431/23					
Ha a	0 E2392/eW Non-ferrous Metal		3ep.24/23	0ct31/23					
Mag	0 E2 29 29 29 20 20 20 20 20 20 20 20 20 20 20 20 20		Sep24/23	0ct31/23					
Шо	CEUISINE ECUIDENT ECUIDENT Non-ferrous Metal	s							
ша	CEUISINE ECUIDENT ECUIDENT Non-ferrous Metal	s							
шаа	CEUISINE ECUIDENT ECUIDENT Non-ferrous Metal	S	Sep24/23 601/23 601/23 8000000000000000000000000000000000000	0d31/23					
шаа	May2623 Marchard State Mul1223 Mul12	S							
шu	CEUISINE ECUIDENT ECUIDENT Non-ferrous Metal	S		0ct31/23	Base Numi	Der			
ша	Non-ferrous Metal	S				Der			
ша	Non-ferrous Metal Big big big big big big big big big big b	S		10.0	Base Numl	Der			
ша	Non-ferrous Metal Ezgylew Non-ferrous Metal Ezgylew E	S		10.0	Base Numl	per			
	CZUSTINL CZUSTI	S		10.0	Base Num	ber			
	CZUSTINL CZUSTI	S		10.0	Base Num	ber			
55 (100-C) Dom	CZUSTINL CZUSTI	S		10.0	Base Numl	Der			
	Non-ferrous Metal Constrained for the second for t	S		10.0	Base Numl	per			
	Non-ferrous Metal	S		00431/23 00431/23 00431/23 00431/23 00431/23	Base Numl	per			
	0 E27	S		10.0	Base Numl	per			
	Non-ferrous Metal Constrained for the second for t	S	Sep24/23 0cd3/23 0cd3/23	10.0 (0)HOY Bul Jaquiny 8.0 (0)HOY BUL Jaquin	Base	Der			
	0 EZZIGNEW Non-ferrous Metall 10 10 10 10 10 10 10 10 10 10	S B B B B B B B B B B B B B B B B B B B		00431/23 00431/23 00431/23 00431/23 00431/23	Base	Der Vill 3/23	Aug3/23	Sep 24/23	Det3/23

