

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 414061

Fluid

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

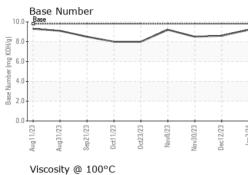
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

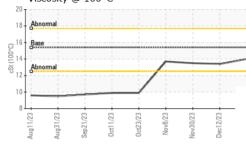
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0100198	GFL0100247	GFL0100179
Sample Date		Client Info		02 Jan 2024	12 Dec 2023	30 Nov 2023
Machine Age	hrs	Client Info		18416	953	865
Oil Age	hrs	Client Info		600	953	200
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m		4	10	8
Chromium	ppm	ASTM D5185m		0	<1	<1
Nickel	ppm	ASTM D5185m		0	1	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum	ppm	ASTM D5185m	>20	۰ <1	2	2
Lead	ppm	ASTM D5185m	>20	0	0	0
Copper	ppm	ASTM D5185m		2	23	22
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m	210	0	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
eadman	pp			•		0
ADDITIVES		method	limit/base	current	historv1	historv2
ADDITIVES	0000	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	1	11	11
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	1 0	11 0	11 2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	1 0 59	11 0 61	11 2 62
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	1 0 59 0	11 0 61 <1	11 2 62 <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	1 0 59 0 1024	11 0 61 <1 909	11 2 62 <1 895
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 59 0 1024 1107	11 0 61 <1 909 1040	11 2 62 <1 895 1102
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 1150	1 0 59 0 1024 1107 1053	11 0 61 <1 909 1040 900	11 2 62 <1 895 1102 963
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 59 0 1024 1107	11 0 61 <1 909 1040	11 2 62 <1 895 1102
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	1 0 59 0 1024 1107 1053 1307	11 0 61 <1 909 1040 900 1145	11 2 62 <1 895 1102 963 1159
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 0 1010 1070 1150 1270 2060	1 0 59 0 1024 1107 1053 1307 3294	11 0 61 <1 909 1040 900 1145 3363 history1	11 2 62 <1 895 1102 963 1159 3944
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	0 0 60 0 1010 1070 1150 1270 2060	1 0 59 0 1024 1107 1053 1307 3294 current 4	11 0 61 <1 909 1040 900 1145 3363 history1 9	11 2 62 <1 895 1102 963 1159 3944 history2 7
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 Limit/base	1 0 59 0 1024 1107 1053 1307 3294 current	11 0 61 <1 909 1040 900 1145 3363 history1	11 2 62 <1 895 1102 963 1159 3944 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 Limit/base	1 0 59 0 1024 1107 1053 1307 3294 current 4 1	11 0 61 <1 909 1040 900 1145 3363 history1 9 <1	11 2 62 <1 895 1102 963 1159 3944 history2 7 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	1 0 59 0 1024 1107 1053 1307 3294 current 4 1 1 1 current	11 0 61 <1 909 1040 900 1145 3363 history1 9 <1 7 history1	11 2 62 <1 895 1102 963 1159 3944 history2 7 0 6 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	1 0 59 0 1024 1107 1053 1307 3294 <i>current</i> 4 1 1 1 <i>current</i> 0.1	11 0 61 <1 909 1040 900 1145 3363 history1 9 <1 7 history1 0.2	11 2 62 <1 895 1102 963 1159 3944 history2 7 0 6 history2 0.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	1 0 59 0 1024 1107 1053 1307 3294 current 4 1 1 1 current	11 0 61 <1 909 1040 900 1145 3363 history1 9 <1 7 history1	11 2 62 <1 895 1102 963 1159 3944 history2 7 0 6 4 history2
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> >4 >20	1 0 59 0 1024 1107 1053 1307 3294 <i>current</i> 4 1 1 1 <i>current</i> 0.1 5.1	11 0 61 <1 909 1040 900 1145 3363 history1 9 <1 7 history1 0.2 6.3	11 2 62 <1 895 1102 963 1159 3944 history2 7 0 6 history2 0.1 5.9
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	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	1 0 59 0 1024 1107 1053 1307 3294 <i>current</i> 4 1 1 1 <i>current</i> 0.1 5.1 18.0	11 0 61 <1 909 1040 900 1145 3363 history1 9 <1 7 history1 0.2 6.3 19.1 history1	11 2 62 <1 895 1102 963 1159 3944 history2 7 0 6 history2 0.1 5.9 19.0 history2
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 25 20 20 limit/base >20 limit/base >20	1 0 59 0 1024 1107 1053 1307 3294 <i>current</i> 4 1 1 1 <i>current</i> 0.1 5.1 18.0	11 0 61 <1 909 1040 900 1145 3363 history1 9 <1 7 history1 0.2 6.3 19.1	11 2 62 <1 895 1102 963 1159 3944 history2 7 0 6 history2 0.1 5.9 19.0



OIL ANALYSIS REPORT

VISUAL





	VISUAL		methou	iiiiii/base	Current	Thistory I	mstoryz
\sim	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
0ct23/23 Nov8/23 Nov30/23 Dec12/23 Jan2/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Oct2 Nov3 Dec1	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	14.0	13.4	13.5
	GRAPHS						
	Ferrous Alloys						
23 - 23 - 23 - 23 - 23 - 23 - 23 - 23 -	35 30 iron 30	-1					
0ct23/23 Nov8/23 Nov30/23 Dec12/23	25	<u> </u>					
	20- 15-						
	10						
	5						
		2 53	53 53 53				
	Aug11/23 Aug31/23 Sep21/23 Oct11/23	0ct23/23	Nov0/23 Nov30/23 Dec12/23	Jan 2/24			
			20				
	Non-ferrous Metal	5					
	140- copper	7					
	120- tin						
	100-						
	80-						
	60						
	40 -						
	20 -						
		33	53 53				
	Aug11/23 Aug31/23 Sep21/23 Oct11/23	0ct23/23	Nov30/23 Nov30/23 Dec12/23	Jan 2/24			
		_	ž				
	Viscosity @ 100°C	, 			Base Number		
				10	0.0 Base		
	18 - Abnormal			(p ⁸	3.0		
;	16 Base			Base Number (mg KOH/g)			
	Abnormal			r (mg	5.0 -		
č	Abnormal			aquini 4	ŧ.0		
	12 -	/		ase N			
	10	_		2	2.0 -		
	8				0.0		
	Aug11/23 Aug31/23 Sep21/23 Oct11/23	0ct23/23	Nov30/23 Nov30/23 Dec12/23	Jan 2/24	Aug11/23 Aug31/23 Sep21/23	0ct11/23 0ct23/23 Nov8/23	Nov30/23 Dec12/23
	Aug. Sepi	Oct	Nov: Dec1	Jai	Aug: Sepi	Oct. Nov	Nov.
l abarrataria	· MaarChask UCA	01 141				Konmontel 4	CG Dhamin C
Laboratory Sample No.	: WearCheck USA - 5 : GFL0100198	01 Madis Recieved			IS GFL ENV	ironmental - 10	66 - Phenix C Id Brickyard
Lab Number		Diagnose			Phenix Ci		
Unique Number			s Davis			US 368	
cate L2367 Test Package	: FLEET	-					RRIN WRIGI
discuss this sample report, o Denotes test methods that a						darrin.wrig	ht@gflenv.
ments of conformity to spec					(ICGM 106.2012)		

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

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