

OIL ANALYSIS REPORT

Sample Rating Trend



Area (TDG4478) Machine Id 834004

Component Natural Gas Engine

PETRO CANADA DURON SHP 15W40 (32 QTS)

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

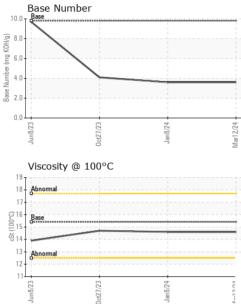
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

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SAMPLE INFORI	MATION	method	limit/base	current	history1	history2				
Sample Number		Client Info		GFL0106814	GFL0092144	GFL0084618				
Sample Date		Client Info		12 Mar 2024	08 Jan 2024	27 Oct 2023				
Machine Age	hrs	Client Info		2347	17288	11754				
Oil Age	hrs	Client Info		17288	600	0				
Oil Changed		Client Info		Changed	Changed	Changed				
Sample Status				NORMAL	NORMAL	NORMAL				
CONTAMINAT	ION	method	limit/base	current	history1	history2				
Water		WC Method	>0.1	NEG	NEG	NEG				
WEAR METAL	S	method	limit/base	current	history1	history2				
Iron	ppm	ASTM D5185m	>50	8	8	14				
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1				
Nickel	ppm	ASTM D5185m	>2	<1	2	<1				
Titanium	ppm	ASTM D5185m		0	0	0				
Silver	ppm	ASTM D5185m	>3	0	0	<1				
Aluminum	ppm	ASTM D5185m	>9	10	10	4				
Lead	ppm	ASTM D5185m	>30	2	<1	1				
Copper	ppm	ASTM D5185m	>35	2	1	4				
Tin	ppm	ASTM D5185m	>4	1	1	<1				
Vanadium	ppm	ASTM D5185m		0	<1	0				
Cadmium	ppm	ASTM D5185m		0	0	<1				
			11 11 11			la la tana 0				
ADDITIVES		method	limit/base	current	history1	history2				
Boron	ppm	ASTM D5185m	limit/base	current 5	history1 2	6				
	ppm ppm		0							
Boron		ASTM D5185m	0	5	2	6				
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	5 0	2	6 4				
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	5 0 53	2 0 49	6 4 57				
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	5 0 53 <1	2 0 49 1	6 4 57 2				
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	5 0 53 <1 493	2 0 49 1 529	6 4 57 2 584				
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	5 0 53 <1 493 1507	2 0 49 1 529 1440	6 4 57 2 584 1477				
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	5 0 53 <1 493 1507 604	2 0 49 1 529 1440 628	6 4 57 2 584 1477 714				
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	5 0 53 <1 493 1507 604 910	2 0 49 1 529 1440 628 928	6 4 57 2 584 1477 714 941				
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 1010 1070 1150 1270 2060	5 0 53 <1 493 1507 604 910 2313	2 0 49 1 529 1440 628 928 2328 2328 history1 5	6 4 57 2 584 1477 714 941 2559				
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	0 0 60 1010 1070 1150 1270 2060 ≻+100	5 0 53 <1 493 1507 604 910 2313 current	2 0 49 1 529 1440 628 928 2328 2328 history1 5	6 4 57 2 584 1477 714 941 2559 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 <i>limit/base</i>	5 0 53 <1 493 1507 604 910 2313 current 5	2 0 49 1 529 1440 628 928 2328 history1	6 4 57 2 584 1477 714 941 2559 history2 10				
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	0 0 60 1010 1070 1150 1270 2060 <i>limit/base</i>	5 0 53 <1 493 1507 604 910 2313 current 5 6	2 0 49 1 529 1440 628 928 2328 2328 history1 5 4	6 4 57 2 584 1477 714 941 2559 history2 10 4				
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 0 1010 1070 1150 1270 2060 limit/base >+100	5 0 53 <1 493 1507 604 910 2313 current 5 6 38	2 0 49 1 529 1440 628 928 2328 history1 5 4 37	6 4 57 2 584 1477 714 941 2559 history2 10 4 26				
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 0 1010 1070 1150 1270 2060 limit/base >+100	5 0 53 <1 493 1507 604 910 2313 current 5 6 38 28 current	2 0 49 1 529 1440 628 928 2328 history1 5 4 37 history1	6 4 57 2 584 1477 714 941 2559 history2 10 4 26 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >+100	5 0 53 <1 493 1507 604 910 2313 <u>current</u> 5 6 38 <u>current</u> 0	2 0 49 1 529 1440 628 928 2328 history1 5 4 37 history1 0	6 4 57 2 584 1477 714 941 2559 history2 10 4 26 history2 0				
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> >+100 <i>limit/base</i>	5 0 53 <1 493 1507 604 910 2313 <i>current</i> 5 6 38 <i>current</i> 0 11.1	2 0 49 1 529 1440 628 928 2328 history1 5 4 37 kistory1 0 11.1	6 4 57 2 584 1477 714 941 2559 history2 10 4 26 history2 0 10.9				
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 TS ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >+100 <i>limit/base</i> >20 30 <i>limit/base</i>	5 0 53 <1 493 1507 604 910 2313 <i>current</i> 5 6 38 <i>current</i> 0 11.1 22.0	2 0 49 1 529 1440 628 928 2328 history1 5 4 37 history1 0 11.1 22.0 history1	6 4 57 2 584 1477 714 941 2559 history2 10 4 26 history2 0 10.9 22.1 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 /////////////////////////////////	5 0 53 <1 493 1507 604 910 2313 <u>current</u> 5 6 38 <u>current</u> 0 11.1 22.0	2 0 49 1 529 1440 628 928 2328 history1 5 4 37 history1 0 11.1 22.0	6 4 57 2 584 1477 714 941 2559 history2 10 4 26 history2 0 10.9 22.1				



OIL ANALYSIS REPORT

VISUAL



	-	VISUAL		method	limit/base	current	history1	history2
		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
Jan 8/24	Mar12/24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Jan	Marl	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
		Free Water	scalar	*Visual		NEG	NEG	NEG
		FLUID PROPI	ERTIES	method	limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	15.4	14.6	14.6	14.7
		GRAPHS						
		Ferrous Alloys						
	VC	iron						
Jan 8/24	1. C 1	25 - nickel						
,	N.A.	20						
		<u>ة</u> 15						
		10						
		10						
		5						
		Jun8/23 0ct27/23		Jan 8/24	Mar12/24			
		5		5	Ma			
		Non-ferrous Meta	als					
		copper						
		sessesses tin						
		10						
		6						
		4						
		2		And a	ATT CONTRACTOR OF THE OWNER			
					4			
		Jun8/23 0ct27/23		Jan 8/24	Mar12/24			
		_	-	7	W			
		Viscosity @ 100°	С			Base Number		
		18 - Abnormal			10.0	Base		
				1	- 8.0			
		17						
		17			/HO)			
					KOH Bullet			
		17- ()-16- Base 00) 15- ³ 3 14-			HOX KOHY Bu 5.0 Bu 90 Bu 4.0			
		Co-000 15- 33 14-			0.0 Bull KOH/			
		00016 15- 3314			(b)H03 (0)H03 (0			
		Base Base 15 3 14 13 Abnormal			0.0			
		Base 3 14 Abnomal 12		8/24	0.0	9/23	9/1/3	
		G-16 Base 15 37 14 13 4 Abnomal		Jan8/24	2.0	Jun8/23	0ct2//23 Jan8/24	
NE LABORATORY	Laboratory Sample No. Lab Number Unique Number Test Package	: WearCheck USA - 50 : GFL0106814 : 06116988 : 10925821	Recei Teste Diagr	n Ave., Cary ved : 13 d : 14 nosed : 14	, NC 27513 Mar 2024 Mar 2024 - Don	GFL Env	ironmental - 856 - 8515 Hig Contact: մ	Houston Sou ghway 6 Sou Houston, 1 US 7703 Jose Gonzal 2@gflenv.co