

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 10587

Component

Diesel 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.

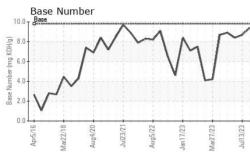
Fluid Condition

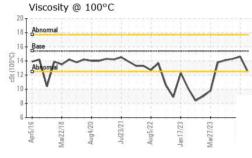
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0097239	GFL0069181	GFL0068737
Sample Date		Client Info		16 Nov 2023	13 Jul 2023	20 Jun 2023
Machine Age	hrs	Client Info		2028	1639	1503
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	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	>75	21	20	22
Chromium	ppm	ASTM D5185m		<1	<1	<1
Nickel		ASTM D5185m	>4	<1	<1	<1
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm		>2	0	<1	<1
	ppm	ASTM D5185m		3	2	2
Aluminum	ppm	ASTM D5185m				
Lead	ppm	ASTM D5185m	>25	<1	0	<1
Copper	ppm	ASTM D5185m		1	1	1
Tin	ppm	ASTM D5185m	>4	<1	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
	1-1-			-		
ADDITIVES	1-1-	method	limit/base	current	history1	history2
	ppm	method ASTM D5185m	0	current <1	history1 7	history2 6
ADDITIVES Boron Barium		method	0	current	history1	
ADDITIVES Boron	ppm	method ASTM D5185m	0	current <1	history1 7	6
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current <1 0	history1 7 0	6 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current <1 0 64	history1 7 0 61	6 0 65
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current <1 0 64 <1	history1 7 0 61 <1	6 0 65 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current <1 0 64 <1 925	history1 7 0 61 <1 868	6 0 65 <1 893
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current <1 0 64 <1 925 1116	history1 7 0 61 <1 868 1053	6 0 65 <1 893 1091
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	<1 0 64 <1 925 1116 1056	history1 7 0 61 <1 868 1053 969	6 0 65 <1 893 1091 998
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	<1 0 64 <1 925 1116 1056 1248	history1 7 0 61 <1 868 1053 969 1159	6 0 65 <1 893 1091 998 1196
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	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 0 64 <1 925 1116 1056 1248 2593	history1 7 0 61 <1 868 1053 969 1159 2866	6 0 65 <1 893 1091 998 1196 2957
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	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	current <1 0 64 <1 925 1116 1056 1248 2593 current	history1 7 0 61 <1 868 1053 969 1159 2866 history1	6 0 65 <1 893 1091 998 1196 2957 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	current <1 0 64 <1 925 1116 1056 1248 2593 current 10	history1 7 0 61 <1 868 1053 969 1159 2866 history1 7	6 0 65 <1 893 1091 998 1196 2957 history2 9
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	current <1 0 64 <1 925 1116 1056 1248 2593 current 10 33	history1 7 0 61 <1 868 1053 969 1159 2866 history1 7 7 7	6 0 65 <1 893 1091 998 1196 2957 history2 9 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	<1 0 64 <1 925 1116 1056 1248 2593 current 10 33 2	history1 7 0 61 <1 868 1053 969 1159 2866 history1 7 3	6 0 65 <1 893 1091 998 1196 2957 history2 9 4 3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	<1 0 64 <1 925 1116 1056 1248 2593 current 10 33 2 current	history1 7 0 61 <1 868 1053 969 1159 2866 history1 7 3 history1	6 0 65 <1 893 1091 998 1196 2957 history2 9 4 3 3 history2
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 TS	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >20	current <1 0 64 <1 925 1116 1056 1248 2593 current 10 33 2 current 1	history1 7 0 61 <1 868 1053 969 1159 2866 history1 7 7 3 history1 1	6 0 65 <1 893 1091 998 1196 2957 history2 9 4 3 3 history2 0.9
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >20	current <1 0 64 <1 925 1116 1056 1248 2593 current 10 33 2 current 1 8.6	history1 7 0 61 <1 868 1053 969 1159 2866 history1 7 7 3 history1 1 9.7	6 0 65 <1 893 1091 998 1196 2957 history2 9 4 3 3 history2 0.9 10.9
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415 method	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 20 20 20 20 20 20 20 20 20 20 20	current <1 0 64 <1 925 1116 1056 1248 2593 current 10 33 2 current 1 8.6 20.2 current	history1 7 0 61 <1 868 1053 969 1159 2866 history1 7 7 3 history1 1 9.7 21.4 history1	6 0 65 <1 893 1091 998 1196 2957 history2 9 4 3 3 history2 0.9 10.9 21.9 history2
ADDITIVES 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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >20 imit/base >20	<1 0 64 <1 925 1116 1056 1248 2593 current 10 33 2 current 1 8.6 20.2	history1 7 0 61 <1 868 1053 969 1159 2866 history1 7 7 3 history1 1 9.7 21.4	6 0 65 <1 893 1091 998 1196 2957 history2 9 4 3 3 history2 0.9 10.9 21.9

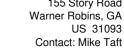


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\sim	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
41	Yellow Metal		*Visual	NONE	NONE	NONE	NONE
11	Precipitate		*Visual	NONE	NONE	NONE	NONE
U	Silt		*Visual	NONE	NONE	NONE	NONE
	Debris		*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt		*Visual	NONE	NONE	NONE	NONE
3/23	Appearance		*Visual	NORML	NORML	NORML	NORML
Jul13/23	Odor		*Visual	NORML	NORML	NORML	NORML
	Emulsified Water		*Visual	>0.2	NEG	NEG	NEG
	Free Water		*Visual		NEG	NEG	NEG
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
2	Visc @ 100°C	cSt	ASTM D445	15.4	12.5	14.6	14.3
	GRAPHS						
	Ferrous Alloys						
	120 iron						
Mar27/23	100 - nickel						
ž	80-						
8	60-						
	40						
		~[Λ				
	20	TV	VV	~			
	Apr5/16	22	53	23			
	Apr5/16 Aar22/18 Aug4/20 Jul23/21	22					
	Ar Au Ju	Aug	an 1 Iar2	/Ellul			
	2		Jan 17/23 Mar27/23	Jul13/23			
	Non-ferrous Metals		Jan1				
	≥ Non-ferrous Metals		Jan 1 Mar2	Jul13.			
	Non-ferrous Metals		Jan1 Mar2	Julia			
	Non-ferrous Metals		Jan1	61luL			
	Non-ferrous Metals		Jan1	(2)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)(1)			
	Non-ferrous Metals		inel.	61luL			
	Non-ferrous Metals		insl.	61lul			
	Non-ferrous Metals	5		Jul 3			
	Non-ferrous Metals	5					
	Non-ferrous Metals	5	Jan 17/23	Jul13/23 Jul13/			
	Non-ferrous Metals	5		Jul13/23	Base Number		
	Non-ferrous Metals	5		Jul13/23	Base Number	A	
	Non-ferrous Metals	5		E2/EUInr 10.0-	Base Number	\mathcal{M}	
	Non-ferrous Metals	5		E2/EUInr 10.0-	Base Number	\sim	MM
	Non-ferrous Metals	5		E2/EUInr 10.0-	Base Number	\sim	M
	Non-ferrous Metals	5		E2/EUInr 10.0-	Base Number	\sim	M
	Non-ferrous Metals	5		10.0 (b)HOX But) == (c)HOX BUT) == (Base Number	\sim	M
	Non-ferrous Metals	5		10.0 (B)(MOX) (B)(MOX) (Base Number	\mathcal{M}	M
	Non-ferrous Metals	Aug5/22	Jan 17/23	10.0 (B/HOX) Long 10.0 (B/HOX)	Asse	2	M
	Non-ferrous Metals	Aug5/22	Jan 17/23	10.0 (B/HOX) Long 10.0 (B/HOX)	Asse	ut23/21	m1/23
	Non-ferrous Metals	AugSi2		10.0 (b)HOX Bul Jaquing HOX Bu	Base Number	Jul23/21	Jan 17/23 Mar 27/23 Jul 13/23
	Non-ferrous Metals	S Hadigas	EZIZINER EZIZERM EZIZERM EZIZERM EZIZERM EZIZERM EZIZERM	10.0 (0/HOX Buy and Control of Co	Ap5/16 Mar22/18 Aug4/20		EZIZING er Robins - Transwaste
	Non-ferrous Metals	Aug5/22 Aug5/22	EZZLIVER EZZLIVER EZZLIVER EZZLIVER EZZLIVER EZZLIVER EZZLIVER EZZLIVER EZZLIVER EZZLIVER EZZLIVER	10.0 (0/HOX Buy and Control of Co	Ap5/16 Mar22/18 Aug4/20	nmental - 073 - Warne	



Centificate 12367 Test Package : FLEET To discuss this sample report, contact Customer Service at 1-800-237-1369.

Unique Number : 10755364

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

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

Diagnostician : Wes Davis

Submitted By: JOSH MALONEY

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