

OIL ANALYSIS REPORT

Sample Rating Trend





Area {UNASSIGNED} Machine Id 711049

Component
1 Diesel Engine

PETRO CANADA DURON SHP 15W40 (7 GAL)

Recommendation

Resample at the next service interval to monitor.

Fluid

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

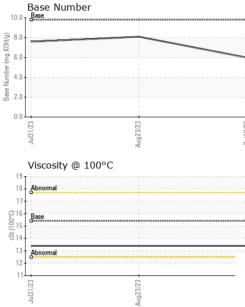
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0097703	GFL0087302	GFL0087338
Sample Date		Client Info		19 Oct 2023	23 Aug 2023	31 Jul 2023
Machine Age	hrs	Client Info		4583	4044	3945
Oil Age	hrs	Client Info		539	610	700
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>75	59	34	56
Chromium	ppm	ASTM D5185m	>5	3	2	3
Nickel	ppm	ASTM D5185m	>4	2	1	2
Titanium	ppm	ASTM D5185m	>2	<1	0	<1
Silver	ppm	ASTM D5185m	>2	<1	<1	0
Aluminum	ppm	ASTM D5185m	>15	4	3	16
Lead	ppm	ASTM D5185m	>25	<1	1	1
Copper	ppm	ASTM D5185m	>100	6	5	8
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	ourropt		biete m.O
ADDITIVES		methou				history2
Boron	ppm	ASTM D5185m	0	1	history1 4	11
	ppm ppm		0			
Boron		ASTM D5185m	0	1	4	11
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	1 5	4 0	11 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	1 5 58	4 0 58	11 0 55
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	1 5 58 <1	4 0 58 1	11 0 55 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 5 58 <1 854	4 0 58 1 972	11 0 55 1 900
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	1 5 58 <1 854 1054	4 0 58 1 972 1145	11 0 55 1 900 1132
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	1 5 58 <1 854 1054 974	4 0 58 1 972 1145 1041	11 0 55 1 900 1132 916
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 1010 1070 1150 1270	1 5 58 <1 854 1054 974 1175	4 0 58 1 972 1145 1041 1303	11 0 55 1 900 1132 916 1156
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 limit/base	1 5 58 <1 854 1054 974 1175 2422	4 0 58 1 972 1145 1041 1303 3544	11 0 55 1 900 1132 916 1156 3199
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 limit/base	1 5 58 <1 854 1054 974 1175 2422 current	4 0 58 1 972 1145 1041 1303 3544 history1	11 0 55 1 900 1132 916 1156 3199 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 0 1010 1070 1150 1270 2060 limit/base >25	1 5 58 <1 854 1054 974 1175 2422 current 7	4 0 58 1 972 1145 1041 1303 3544 history1 5	11 0 55 1 900 1132 916 1156 3199 history2 6
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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	1 5 58 <1 854 1054 974 1175 2422 current 7 11	4 0 58 1 972 1145 1041 1303 3544 history1 5 10	11 0 55 1 900 1132 916 1156 3199 history2 6 10
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 60 0 1010 1070 1150 1270 2060 limit/base >25	1 5 58 <1 854 1054 974 1175 2422 current 7 11 7	4 0 58 1 972 1145 1041 1303 3544 history1 5 10 6	11 0 55 1 900 1132 916 1156 3199 history2 6 10 6
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 >25 >20 limit/base	1 5 58 <1 854 1054 974 1175 2422 current 7 11 7 11 7	4 0 58 1 972 1145 1041 1303 3544 history1 5 10 6 history1	11 0 55 1 900 1132 916 1156 3199 history2 6 10 6 10 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 ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 20 limit/base >6 >20	1 5 58 <1 854 1054 974 1175 2422 current 7 11 7 11 7 0.7	4 0 58 1 972 1145 1041 1303 3544 history1 5 10 6 history1 0	11 0 55 1 900 1132 916 1156 3199 history2 6 10 6 10 6 history2 0.6
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 limit/base >25 20 limit/base >6 >20	1 5 58 <1 854 1054 974 1175 2422 <u>current</u> 7 11 7 11 7 0.7 10.7	4 0 58 1 972 1145 1041 1303 3544 history1 5 10 6 history1 0 10.3	11 0 55 1 900 1132 916 1156 3199 history2 6 10 6 10 6 history2 0.6 10.4
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 >20 imit/base >6 >20	1 5 58 <1 854 1054 974 1175 2422 <i>current</i> 7 11 7 11 7 <i>current</i> 0.7 10.7 22.8	4 0 58 1 972 1145 1041 1303 3544 history1 5 10 6 history1 0 10.3 23.0 history1	11 0 55 1 900 1132 916 1156 3199 history2 6 10 6 10 6 history2 0.6 10.4 21.8 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 D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >6 >20 imit/base >30	1 5 58 <1 854 1054 974 1175 2422 <u>current</u> 7 11 7 11 7 <u>current</u> 0.7 10.7 22.8	4 0 58 1 972 1145 1041 1303 3544 history1 5 10 6 history1 0 10.3 23.0	11 0 55 1 900 1132 916 1156 3199 history2 6 10 6 10 6 history2 0.6 10.4 21.8



OIL ANALYSIS REPORT

VISUAL



	White Metal	acalar *\/ii	sual NONE	NONE	NONE	NONE
	Yellow Metal		sual NONE		NONE	NONE
	Precipitate		sual NONE		NONE	NONE
	Silt	scalar Vis			NONE	NONE
	Debris		sual NONE		NONE	NONE
	_ Sand/Dirt	scalar Vis			NONE	NONE
23			sual NORM		NORML	NORML
Aug23/23 0.419.23	Odor	scalar Vis			NORML	NORML
4	Emulsified Water		sual >0.2	NEG	NEG	NEG
	Free Water	scalar *Vis		NEG	NEG	NEG
			ethod limit/k		history1	history2
	Visc @ 100°C GRAPHS	cSt AST	M D445 15.4	13.4	13.4	13.4
1	Ferrous Alloys					
	60 T					
23	iron					
Aug23/23	50 - chromium					
Au	40-					
	툴.30	\sim				
	20					
	10					
	Jul31/23	3/23	0ct19/23			
	Jul3	Aug23/23	0ct1			
	Non-ferrous Meta	als				
	¹⁰ T					
	copper					
	8- exercises tin					
	6					
	m dq					
	4					
	2					
	0					
	Jul31/23	Aug23/23	0ct19/23			
	-		00			
	Viscosity @ 100°	С		Base Number		
	19			10.0 Base		
	18 - Abnormal			8.0		
	17			(B/H)		
	()16 Base 15 15 14			(6)HOX bu) aquin 4.0		
	2) 15 - ਲ			nber		
				4.0-		
	13 Abnormal			2.0		
	12					
	11		3	0.0	33	
	Jul31/23	Aug23/23	0ct19/23	Jul31/23	Aug23/23	
	7	Au	0	ĥ	Au	
	: WearCheck USA -	501 Madison /	Ave Cary NC		vironmental - 40	05 - Arbor Hil
Laboratory	. weal offect USA -	Received	: 07 Nov 202			7400 Napier F
Laboratory Sample No.	: GEL 0097703			~		
Laboratory Sample No. Lab Number	: GFL0097703 : 06000290		: 07 Nov 202	23	NC	ORTHVILLE. N
Sample No.	: 06000290	Diagnosed Diagnosticiar	: 07 Nov 202	23	NC	ORTHVILLE, N US 4816
Sample No. Lab Number Unique Numbe Test Package	:06000290 r :10728650 e :FLEET	Diagnosed Diagnosticiar	: 07 Nov 202 : Wes Davis	23	Contact: Ar	US 4816 nthony Hopkir
Sample No. Lab Number Unique Numbe	: 06000290 r : 10728650 e : FLEET , contact Customer Serv	Diagnosed Diagnosticiar	: 07 Nov 202 : Wes Davis : 37-1369.	23	Contact: Ar	

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