

OIL ANALYSIS REPORT

Sample Rating Trend





Component Diesel Engine Fluid

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.

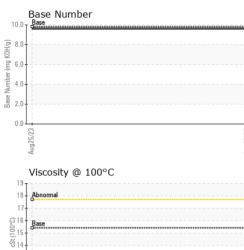
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0085634		
Sample Date		Client Info		25 Aug 2023		
Machine Age	hrs	Client Info		1497		
Oil Age	hrs	Client Info		200		
Oil Changed		Client Info		Changed		
Sample Status				NORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0		
Glycol		WC Method	20.0	NEG		
,				NEG		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	5		
Chromium	ppm	ASTM D5185m	>20	0		
Nickel	ppm	ASTM D5185m	>5	0		
Titanium	ppm	ASTM D5185m	>2	<1		
Silver	ppm	ASTM D5185m	>2	0		
Aluminum	ppm	ASTM D5185m	>20	2		
Lead	ppm	ASTM D5185m	>40	1		
Copper	ppm	ASTM D5185m	>330	11		
Tin	ppm	ASTM D5185m	>15	0		
Vanadium	ppm	ASTM D5185m		<1		
Cadmium	ppm	ASTM D5185m		0		
		in a dia a di	limit/base		In the term of	la la tra ma O
ADDITIVES		method	iimit/base			history2
					motory	
Boron	ppm	ASTM D5185m	0	48		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	48 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	48 0 49		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	48 0 49 <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	48 0 49 <1 733		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	48 0 49 <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	48 0 49 <1 733		
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	48 0 49 <1 733 1397	 	
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	48 0 49 <1 733 1397 945	 	
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	48 0 49 <1 733 1397 945 1157	 	
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	48 0 49 <1 733 1397 945 1157 3685		
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	48 0 49 <1 733 1397 945 1157 3685 current		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 0 60 1010 1070 1150 1270 2060 limit/base	48 0 49 <1 733 1397 945 1157 3685 <u>current</u> 5		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm 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 limit/base >25	48 0 49 <1 733 1397 945 1157 3685 <u>current</u> 5 3		 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	48 0 49 <1 733 1397 945 1157 3685 current 5 3 2 2 current	 history1 history1	 history2 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4	48 0 49 <1 733 1397 945 1157 3685 current 5 3 2 2 current 0.2	 history1 history1 	 history2 history2 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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 .20 limit/base >4 >20	48 0 49 <1 733 1397 945 1157 3685 <i>current</i> 5 3 2 <i>current</i> 0.2 5.4	 history1 history1 	 history2 history2 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 imit/base >25 	48 0 49 <1 733 1397 945 1157 3685 <u>current</u> 5 3 2 <u>current</u> 0.2 5.4 18.0	 history1 history1 history1	 history2 history2 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 	48 0 49 <1 733 1397 945 1157 3685 <i>current</i> 5 3 2 <i>current</i> 0.2 5.4 18.0	 history1 history1 	 history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 imit/base >25 	48 0 49 <1 733 1397 945 1157 3685 current 5 3 2 current 0.2 5.4 18.0 current 13.7	 history1 history1 history1	 history2 history2 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 	48 0 49 <1 733 1397 945 1157 3685 <i>current</i> 5 3 2 <i>current</i> 0.2 5.4 18.0	 history1 history1 history1 history1	history2 history2 history2 history2 history2 history2 history2 history2 history2



Base

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OIL ANALYSIS REPORT



	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE		
	Yellow Metal	scalar	*Visual	NONE	NONE		
	Precipitate		*Visual	NONE	NONE		
	Silt	scalar	*Visual	NONE	NONE		
	Debris		*Visual	NONE	NONE		
	Sand/Dirt		*Visual	NONE	NONE		
5/23			*Visual	NORML	NORML		
Aug25/23	Odor		*Visual	NORML	NORML		
	Emulsified Water		*Visual	>0.2	NEG		
	Free Water		*Visual	20.L	NEG		
					NEG		
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	12.9		
	GRAPHS						
	Ferrous Alloys						
	10iron 1						
	8 - sessesses chromium						
	Indidi						
	6						
	ä 4						
	2 -						
	0						
	2/23			5/23			
	Aug25/23			Aug25/23			
	Non-ferrous Meta	ls					
	¹²						
	10 - copper			1			
	management tin						
	8-						
	Ed. 6-						
	4						
	4						
	4 - 2 -						
	0						
	0			B25/23			
	Aug25/23			Aug25/23			
	Uiscosity @ 100°C	2		Aug25/23	Base Number		
	0 EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE	2		Und 25/23			
	Viscosity @ 100°C	2		10.0	Base		
	0 Viscosity @ 100°C	2		10.0	Base		
	0 Viscosity @ 100°C	2		10.0	Base		
	0 Viscosity @ 100°C	2		10.0	Base 		
	Uiscosity @ 100°C			10.0	Base 		
	0 Uiscosity @ 100°C 19 18 Abnomal 17 16 Base 17 16 Base 14 13 Abnomal	2		0.0 0.8 0.0 0.0 0.0 0.0 0.0	Base		
	0 Viscosity @ 100°C 19 18 Abnomal 17 0.000115 14 13 12 14 12	;		10.0 (0)HOX bul) bul) aquuny seg 2.0	D Base		
	0 EXISCOSITY @ 100°C	2		10.0 (0)HOO Buu Jaquing 4.0 820 820 820 820 820 820 80 80 80 80 80 80 80 80 80 80 80 80 80	Base		
	0 EXISCOSITY @ 100°C	2		10.0 (0)HOO Buu Jaquing 4.0 820 820 820 820 820 820 80 80 80 80 80 80 80 80 80 80 80 80 80	Base		
	0 Viscosity @ 100°C 19 18 Abnomal 17 0.000115 14 13 12 14 12	2		10.0 (0)HOX bul) bul) aquuny seg 2.0	D Base		
Laboratory	0 EXISCOSITY @ 100°C		on Ave., Ca	10.0 8.0 4.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	Base 	ironmental - 411	
Sample No.	Viscosity @ 100°C		: 06 \$	10.0 (0)HOJ Bull Jagung 4.0 (0)HOJ Bull Jagung 4.0 (0,0) (0,	Base 	ironmental - 411	- Kingsford H 1001 E Blv
Sample No. Lab Number	Viscosity @ 100°C	501 Madise Received Diagnose	: 06 S d : 07 S	10.0 ())))) ())))) ())))) ())))) ())))) ())))))))	Base 	ironmental - 411	- Kingsford H 1001 E Blv Kingsford, N
Sample No. Lab Number Unique Number	Viscosity @ 100°C	501 Madise Received	: 06 S d : 07 S	10.0 (0)HOJ Bull Jagung 4.0 (0)HOJ Bull Jagung 4.0 (0,0) (0,	Base 		- Kingsford H 1001 E Blv Kingsford, N US 4980
Sample No. Lab Number	Viscosity @ 100°C	501 Madisa Received Diagnose Diagnostia	: 06 \$ d : 07 \$ cian : Wes	10.0 ()))) ()))) ()))) ()))) ()))) ()))) ()))) ()))) ()))) ()))) ()))) ()))) ()))) ()))) ()))) ()))) ()))))) ()))) ()))) ()))) ())))))))	Base 		- Kingsford H

Submitted By: TECHNICIAN ACCOUNT